

LNG Bunkering Course

AN INTRODUCTORY GUIDE TO LNG FUEL FOR SHIPS: UNDERSTAND LNG OPERATIONS, REGULATION, SAFETY AND VESSEL DESIGN



Wednesday 25 – Friday 27 February 2015
Radisson Blu Hotel, Amsterdam



Courtesy of Aqa Gas AB

Join the new introductory LNG Bunkering Course to gain a solid foundation in all aspects of LNG bunkering, design and the operation of LNG fuelled ships including:

- Cryogenic nature of LNG
- Optimum conditions for storing LNG
- Background to the LNG supply chain
- LNG transfer and bunkering operations
- Safety and regulation for design and operation
- Risk assessment
- LNG crew training
- Onboard and shoreside LNG containment systems
- Vessel design and tank location
- LNG fuelled engines and propulsion systems

PLUS Interactive Workshop Sessions

- Work in groups, develop a strategy and put knowledge into practice
- Participate in practical case study projects on creating risk assessments, selecting LNG transfer operations and calculating payback time
- Debriefing sessions with industry experts provide the perfect opportunity to clarify content and consolidate learning

Book online: www.lloydsmaritimeacademy.com/lngrtraining

Email: maritimecustserv@informa.com

Registration hotline: +44 (0)20 7017 5510

Official Publication

Lloyd's List

Free five day online trial

DAY ONE: Wednesday 25 February 2015

09.00 Registration and coffee

09.30 **Session 1.1 Course introduction and emission control context**

- Outlining course objectives and attendee aims
- Summary of overall course content
- Quick-fire exchange – meet fellow course attendees
- Detailing ECAs and emission reduction requirements in shipping
- Assessing ECA compliance solutions: Why choose LNG fuel?
- Industry overview and assessment of vessel types adopting LNG fuel

10.15 **Session 1.2 Introduction to the properties and behaviour of LNG**

This session will provide a background to the key physical characteristics of LNG. Learn how LNG behaves in different conditions to better understand how this can influence design, safety and operational decisions when using LNG as a fuel for ships.

- What is LNG? Introduction to the composition of liquid natural gas
- Optimum conditions for LNG: Understanding the impact of temperature and pressure on LNG
- Methane number and LNG energy content compared to traditional marine fuels

11.15 Coffee break

11.45 **Session 1.3 Safety and regulation**

The cryogenic and flammable nature of LNG makes ensuring safety during design and operations of the utmost importance. Understand potential safety hazards, how they can be avoided and what the regulations and guidelines state.

- Learning the safety and structural risks of using a cryogenic fuel
- Gas detection and control systems
- Safety considerations of LNG and gas containment systems
- Minimising venting
- Preparing for the risk of cryogenic spills

12.45 Lunch

13.45 **Session 1.4 Risk assessment**

Examine the best ways to determine, minimise, reduce and remove risks

at ports and during LNG bunkering operations in order to ensure safe operations.

- How to determine safety zones and minimum safety distances
- Assessing the external parties to include in risk assessments
- Understanding the different tests available to reduce risk
- Emergency response plans for gas leaks, LNG spills and other incidents
- Class society recommendations for vessel safety
- The importance of establishing a safety culture

15.45 Coffee break

15.15 **Workshop 1 Risk assessment project**



Transfer what you have learnt into practice. Work in groups to create your own risk assessment. Assess potential risks to establish safety zones, emergency procedures and necessary knowledge requirements for all stakeholders involved. A great way to consolidate your learning.

16.00 **Session 1.5 Debriefing session**



Review key take-away points from the day's sessions, share questions with the course leader and fellow course attendees to clarify areas of uncertainty.

16.20 Close of day one followed by **networking drinks reception**



Mingle with fellow attendees and expert speakers over a glass of wine

DAY TWO: Thursday 26 February 2015

09.00 Coffee

09.30 **LNG transfer and bunkering operations**

The transfer of LNG fuel from bunker source to receiving vessel can vary greatly between different operations. The following sessions examine how LNG fuel is transferred during bunkering operations including an examination of:

- LNG bunkering procedures
- Typical quantities of LNG transferred during each type of LNG bunkering operation
- Cause and effect of boil-off gas
- Custody transfer: Legal and operational implications

Assess the essential issues relating to the following LNG bunkering methods:

Session 2.1 Ship-to-ship transfer

Examine mooring equipment, ship compatibility and simultaneous operations.

Session 2.2 Truck-to-ship transfer

Learn from existing examples of truck-to-ship transfer and the impact of trucks on other quayside activities.

Session 2.3 Shore-to-ship, midstream refuelling and containership LNG transfer

Learn about regulatory and operational implications of alternative processes including using portable LNG tanks as vessel fuel tanks.

Coffee break will be taken at a suitable interval

12.15 Lunch

13.15 **Session 2.4 Standardisation and regional variations in LNG procedures**

Examine how LNG fuel couplings, manifolds, connectors and procedures vary in different regions. Understand what the lack of standardisation means for the future of LNG as a ship's fuel globally and what working groups are doing to address this within Europe. Exploring activity in key regions including:

- Northern Europe
- Mediterranean
- North America
- Asia
- Middle East

16.15 **Session 2.5 Training for crew and shoreside personnel**

This session provides insight into the knowledge requirements for all those involved in LNG bunker operations and the training available to provide this. Key training topics are:

- Understanding bunkering activities different crew members are involved in
- Certification and requirements for different levels of onboard crew
- Training requirements for shoreside and port authority personnel
- Safety hazards when handling gas and LNG
- Where do the different responsibilities lie?

14.45 Coffee break

15.15 **Workshop 2 LNG transfer and simultaneous operations case study**



Consider a case study example of a vessel using LNG fuel. From the LNG methods explained earlier in the programme assess the best solution for the specific operation and location. Explain your decision with proposals to maximise safety or efficiency.

16.15 **Session 2.6 Debriefing session**



Review key take-away points from the day's sessions, share questions with the course leader and fellow course attendees and clarify areas of uncertainty.

16.35 Close of day two

19.00 **Course dinner**

Continue networking long after the day's proceedings have come to a close.

DAY THREE: Friday 27 February 2015

08.30 Coffee

09.00 **Session 3.1 IGF code and LNG vessel design**

Learn the implications of the developing IGF code on all aspects ensuring safety during the design of LNG fuelled vessels. Align this knowledge with an understanding of the commercial implications of design including how much space LNG tanks take up on different vessel types and the implications this has on vessel payload for different applications.

- Fuel system arrangement
- Control system and safety mechanisms
- Firefighting systems
- Tank location and implications on vessel payload
- Retrofit considerations and examples

10.00 **Session 3.2 LNG containment: Pressurised and non-pressurised storage systems**

The properties of LNG require methods of fuel storage new to traditional shipping. The containment system chosen can greatly impact design, and the operation of the LNG fuelled ships. This session explores the ways in which LNG tanks vary and what to look for to ensure optimum compatibility for each vessel's operations.

- Overview of shape, fabrication and

pressure of tanks

- Understanding the operational implications of pressurised and non-pressurised containment systems: How does this compare to operations using traditional marine fuels?
- Understanding key differences between the available onboard storage tanks

11.00 Coffee break

11.30 **Session 3.3 LNG fuelled engines and propulsion systems**

This session offers a background into the key operational differences and assessment of engine pros and cons. Examples of different fuel consumption and operational variations from high power to mostly idle applications will help you to select the optimum engine type for different operations.

- Dual fuel engines
- Spark engines
- LNG engine fuel consumption compared with traditional bunker fuel
- Understand how variations in LNG quality can impact engine performance
- 4 stroke engines
- 2 stroke engines

12.30 Lunch

13.30 **Workshop 3 Business model and payback time workshop**



Assess the optimum design solutions for a given application. Consider the following points to determine which engine, tank and design solutions are optimised to the vessel's operating profile with the best payback time including:

- Time spent in ECA
- Speed profile
- Engine profile
- Bunkering procedures

14.30 **Debriefing session**



Review key take-away points from the day's session, share questions with the course leader and fellow course attendees and clarify areas of uncertainty.

14.50 Close of course

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Top 5 reasons this a must attend course:

1. Interactivity – in groups work through **practical exercises** and **create strategies for your business**
2. Experts on hand throughout to provide up to date **guidance and coaching**
3. Learn from your fellow workshop group participants – **what did they do differently and why?**
4. No prior knowledge assumed – **build a solid foundation on all aspects of LNG bunkering**
5. Ample opportunity to **network 'out of hours'** during the Drinks Reception and Course Dinner (*included in the course fee*)

The perfect course to attend for:

- ✓ Both **maritime** and **natural gas professionals**
- ✓ Those involved in **operational, design, regulatory** and **commercial** aspects
- ✓ People **new to industry**, with **increased responsibility** or who want to **refresh their knowledge**

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 covering all you
 need to know about
LNG bunkering

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Radisson Blu Hotel Amsterdam
 Rusland, 17 – NL-1012 CK
 Amsterdam, Netherlands

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The cost of accommodation is not included in the event fee. To book accommodation with the Radisson Blu Hotel in Amsterdam:

- 1 Go to www.radissonblu.com/hotel-amsterdam
- 2 Enter the dates of the stay
- 3 Click on "more search options"
- 4 Click on "promotional code" and fill in the box with "INFORM"
- 5 Click on "view rates"
- 6 Book the room

DOCUMENTATION AVAILABLE

I am unable to attend the seminar, but please reserve me ___ set(s) of LNG Bunkering Course seminar electronic documentation £499 per set. For more information call: +44 (0)20 7017 5522 or email: papers.informa.com



STEP 1: SELECT YOUR PACKAGE (please tick option)

	Register by 5 December 2014	Register by 23 January 2015	Register after 23 January 2015
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In certain cases Dutch VAT of 21% may be applicable

The VAT rate is subject to change and may differ from the advertised rate. The amount you are charged will be determined when your invoice is raised.

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