

2021년도 제2차 해외전문교육 개요

1. 교육 개요

- 일시/방법 : 2021. 4. 12(월)~4. 16(금), 19(월) 14:30~18:00 / 원격교육
- 개 최 : 재단-가스공사
- 기관/강사 : PetroEdge(싱가포르) / Paul Veldhuizen (강사 이력 [첨부1] 참고)
- 주 제 : LNG Bunkering Training Course
 - LNG 병커링 시 선박과 터미널 간 운영, 안전관리 등 실무
- 분야/수준 : Commercial / 중급

2. 교육 내용 및 일정(상세 내용 [첨부2] 참고)

- LNG 병커링 운영, 규약 및 안전에 대한 상세한 기초 교육을 제공하고 운영 비용에 영향을 미치는 다양한 절차와 요인 등 평가 방법 공유
- LNG 병커링 작업 시 안전 보장 기술을 습득하고 병커링 이송 장비, 설계, 유지보수 등에 대한 이해도 향상

<교육 커리큘럼>

구분	4.12(월)	4.13(화)	4.14(수)
내용	<ul style="list-style-type: none"> ○ Introductions, drivers for growth, infrastructure and designs 1. LNG as Marine Fuel, Global Supply & Demand, Trade Flows 2. LNG Distribution Infrastructure 3. Design Features of LNG Bunkering Vessels 	<ul style="list-style-type: none"> ○ Containment, Cargo Handling Equipment and Propulsion 4. Cargo Containment Systems 5. Cargo Transfer Equipment 6. LNG Compatible Ship Propulsion and Auxiliary Systems 	<ul style="list-style-type: none"> ○ Cargo Operations/Interfaces, HSE and Custody Transfer 7. Ship to Ship/Shore and Truck to Ship Transfer Operations and Interfaces 8. HSE Framework 9. Custody transfer : Q&Q measurement and Documentation
구분	4.15(목)	4.16(금)	4.19(월)
내용	<ul style="list-style-type: none"> ○ Legislative Environment, Risk and Insurance, Training 10. Maritime Legislative Environment 11. Risk, Insurance and Assurance 12. Training and Competency Development 	<ul style="list-style-type: none"> ○ OPEX/CAPEX, Freight and Distribution Economics 13. Operational and Capital Expenditure(OPEX,CAPEX) - key Drivers 14. Small Scale LNG Freight, Deal Economics and Vessel Operations 15. LNG and Bunker Purchase Contracts 	<ul style="list-style-type: none"> ○ Pricing and Distribution Costs, Project Planning and Final Quiz 16. Bunker Pricing and Distribution Cost 17. LNG Bunkering : Project Planning Considerations 18. Final Knowledge Test

첨부1

강사 주요 이력

- 강사명 : Paul Veldhuizen
- 국 적 : 영국
- 학 력 : Rotterdam 대학 해양공학 학사, Plymouth 대학 해운 경제학
금융 석사
- 주요 경력
 - (2010~2017) STASCO Shipping and Maritime, Manager Fleet Operations
and Technical Support
 - (2007~2010) Qatar International Petroleum Marketing Co., VP Shipping
 - (2002~2007) Shell Western LNG Ltd, GM / Global LNG Operations, Manager
 - (1997~2002) Shell Trading network, Global Lead
 - (1995~1999) Shell International Trading Co., LPG Trading & Chartering
 - (1991~1995) Shell International Trading Co., Crude and products tanker charterer
 - (1989~1991) Shell International Marine Ltd., Business Analyst
 - (1980~1987) Shell Tankers BV., Maritime Officer

<참고> 강사 영문 이력서

<참고> 강사 영문 이력서

ABOUT YOUR EXPERT TRAINER:

About your Expert Trainer: Paul Veldhuizen

Independent Consultant, Coaching & Learning Advisor and Course Designer & Director on maritime transport and trading operations of bulk oil and gas – particularly LNG.

Seasoned IOC executive with a 40-year career history, starting as dual-certified marine officer to executive roles, both commercial and operational, including varied overseas assignments.

Core subjects: **Fundamentals of LNG Carrier Design, Propulsion and Asset Management, LNG as Fuel/Bunkering, Freight Economics and Chartering, Trading Operations Excellence, Maritime Incident Response & Stakeholder Management, Crewing and HR Policy, Coaching & Development.**

Course, Workshop and Conference Portfolio:

1. Anatomy of LNG Shipping & Operations – a comprehensive 4-day course covering Containment, Propulsion, Terminal Design and Vessel Cargo Operations, Freight and Deal Economics, Chartering, Trade Flows and LNG Sale and Purchase Agreements. Course runs in UK, Singapore, Dubai and is scheduled in a revised format in another Asia-Pacific location

2. Practical LNG Ship/Shore interface workshop: bespoke course for a Supply Operations team of an LNG import facility to foster a better understanding of Contract and Charter Party Clauses and their implications, awareness of critical issues for ship's staff, the legislative environment for ship owners.

Consultancy Assignments:

- LNG as Fuel and Bunkering Economics: Benchmark Pricing, OPEX
- LNG Carrier OPEX: In-depth analysis of OPEX over the projected life-time of the asset, evaluating different designs
- LNG Contracting: Evaluate different strategies in terms of duration, price and operational performance risk. Negotiating tactics IOC vs Utilities.
- (Tanker) Chartering Strategy: Evaluate pro/con of long term commitments and earnings potential
- IMO 2020: implementation, economics, legislation and enforcement/controls
- OEM: Market entry in maritime segment (bunkering, small-scale projects), diversification strategies
- Ship Vetting Applications: bespoke solutions vs industry approach (e.g. Rightship)
- Seafarer Training: Evaluate different on-line providers

Clients are financial institutions and international business consultancy providers and assignments range from a telephone consultation around a very specific topic to a more generic discussion.

Corporate Career

Manager Fleet Operations and Technical Support, STASCO Shipping and Maritime

(London, 2010 – 2017)

Responsible for Operational Excellence, Crewing, Repair & Maintenance and Specialist Support (performance analysis, electrical and IT) for 45 LNGC and 15 oil tankers. 30 direct reports, budget US\$ 300+ million.

- Reorganised crewing function, transformed fleet staff engagements with focus on leadership attributes, reflective learning and heightened commercial and efficiency awareness. Introduced performance related pay across all officer ranks and skill pool led recruitment
- Sharpened business focus in repair and maintenance and various fleet and ship/shore optimisation and efficiency initiatives, leading to direct and value chain savings of US\$ 25 and 700 million respectively.

VP Shipping, Qatar International Petroleum Marketing Co. ("Tasweeq") (Doha, 2007 – 2010)

Facilitated start-up of a State owned, yet independent petroleum products marketing entity. Member of executive leadership team; devising policies and procedures aligned with industry best practice. Six direct reports, including nationals. Led training on maritime commercial practice and risk management.

- Implemented portfolio of term and spot-chartered bulk carriers of an assured quality, coupled with a freight book to manage price exposure. Reliable off-take of sulphur was business critical for LNG exports
- Set-up a ship quality assurance (vetting) service, using state of the art methodology
- Instrumental in concluding first ever CIF sales of LPG and Condensate including cargo and liability insurance

GM Shell Western LNG Ltd. and Manager Global LNG Operations and (Barbados, The Hague, 2002 – 2007)

Joined emerging LNG Supply Trading team (SILS) to operationalise LNG term contracts; start-up import and export terminals, implement deal infrastructure to conduct spot trades and contract cargo diversions.

Responsible for day to day voyage and deal operations, liaising with schedulers, chartering manager and commercial managers as well as the technical fleet management function, including phasing-in of new vessels. Lead design of support systems; created book structures to allocate freight and profit share arrangement, Devised specific voyage order format and analysis of deal options such as cargo heel and bunker optimization

Global Lead - Demurrage, Claims & Cargo Care - Shell Trading network (London, 1997 – 2002)

Responsible for cargo loss, demurrage and time charter contract performance teams in 3 locations. The role included commercial & legal liaison for Trading's Casualty Response team dealing with various high-profile incidents, claims and litigation such as Detention, Fire, Grounding, Collision, Salvage and General Average.

Responsible for full review and re-issue of Shell's Charterers Instruction Manual, Co-initiator of an industry initiative to create an electronic cargo documentation exchange platform

LPG Trading & Chartering, Shell International Trading Co. (London, 1995 – 1999)

Optimised scheduling of 5 very large and 2 mid-sized LPG carriers. Negotiated with suppliers / receivers and managed freight exposure through a combination of time charter in/out, cargo swaps and spot charters.

Crude and products tanker charterer, Shell International Trading Co. (London, 1991 – 1995)

Concluded over 700 spot fixtures and ran a freight book for 3 LR product carriers on Time Charter.

Business Analyst, Shell International Marine Ltd. (London, 1989 – 1991)

Conducted market studies for ship acquisitions and disposals and long-term time charter proposals.

Maritime Officer (Dual Certified), Shell Tankers BV (Rotterdam, 1980 – 1987)

Served on specialist product and crude oil carriers (VLCC and North Sea shuttle).

External Engagements and Board Appointments

UK Chamber of Shipping - Employment Committee member	2014 - 2017
External Examiner and Guest Lecturer at Plymouth University Institute of Marine Science	1992 - 1994 /2017
Director - Shell Western LNG Ltd., Barbados	2002 - 2007
Director - Shell Ship Management Ltd., Isle of Man (Crewing office)	2010 - 2017
Director - Shell International Shipping Services (PTE) Ltd., Singapore (Employment Co.)	2011 – 2017

Qualifications

MSc Shipping Economics & Finance , University of Plymouth (UK) (<i>Dissertation on Freight Futures published by Lloyds Maritime Press</i>)	1988
BEng Marine Engineering , Rotterdam University of Applied Science (HTS)	1980
Diploma Management Studies – Den Helder Institute for Maritime Studies	1987
Nautical Officer (Ocean going), Vlissingen (Flushing) Maritime College (NL)	1982
Incident Command ICS-300 Certification	2014
Languages: Fluent English and Dutch. Conversational German, basic French and some Spanish	

Each day opens with a short quiz, sessions will run for approx. 1 Hour and have a 10-minute break in-between

Day 1 Session INTRODUCTION, DRIVERS FOR GROWTH, INFRASTRUCTURE AND DESIGNS

12 April **Introductions, Expectations, Housekeeping and Opening Quiz**

1 LNG as Marine Fuel, Global Supply & Demand, Trade Flows

- Origins, evolution of seaborne LNG and the re-birth of small and mid-scal
- LNG as part of the Energy Transition: market share, growth projections
- Enablers for continued growth: Emission Regulations, Economics & Technology
- Competitive landscape, relative to other fuels
- New Building/Conversion and penetration by sector

Break

2 LNG Distribution Infrastructure and

- (Floating) Load and Discharge Terminals
- Breaking Bulk and Distribution Networks, including ISO containers

Break

3 Design Features of LNG Bunkering Vessels

- Technical Criteria and Design Parameters/Challenges
- Review of Current and Planned Designs
- Yard Capabilities, Selection and Oversight Process

Day 2 CONTAINMENT, CARGO HANDLING EQUIPMENT and PROPULSION

13 April **Opening Quiz**

4 Cargo Containment Systems

- Tank Design Concepts and their Evolution, Licensors & Manufacturers
- Tank Cycles - Managing vapour and tank pressures
- Heel retention, gassing-up and cooling down

Break

5 Cargo Transfer Equipment

- Cryogenic Hoses, Couplings and Handling Gear
- Pumps, Valves and other Specific Equipment
- Manifold Designs and Vapour Handling
- Safety Monitoring and Emergency Shut-Down Systems

Break

6 LNG Compatible Ship Propulsion and Auxiliary Systems

- Origins, Various Design and their Implementation
- Challenges for Slow-Speed Diesel engines
- Fuel Gas Systems; Operational and Performance Considerations

Opening Quiz**7 SHIP to SHIP/SHORE and TRUCK to SHIP Transfer Operations and Interfaces**

- Compatibility and Terminal Acceptance
- Port Interfaces: Pilots, Tugs, VTS and Communication Protocols
- Mooring Systems (Fenders, Lines, Anchorage)
- Person in Overall Control and other Key Roles/Responsibilities

Break**8 HSE Framework**

- Safety Check List and Emergency Shut-Down Procedures
- Safety Rules/Considerations: e.g., Hose Handling, Lifting, Working at Height, etc.
- Applicable Codes, Rules and Guidelines (IGC/IGF, ISO28460-2010)
- Testing, Inspection and Training
- Practical Considerations: Implementation, Audits and Monitoring

Break**9 Custody transfer: Q&Q measurement and Documentation**

- Methodology, Sampling, Testing and role of the Independent Inspector
- Requirement for simplified bunker purchase and title transfer
- E-documents
- Letter of Protest, Time Loss and other areas of Disputes

Opening Quiz**10 Maritime Legislative Environment,**

- International Laws and National Legislation/Implementation
- The role(s) of various NGOs and Industry Organisations
- Classification Societies and other Rule Making/Verification Organisations

Break**11 Risk, Insurance and Assurance**

- Ship Quality Control (TMSA, OCIMF, Port State Control, Vetting, etc.)
- Risks in LNG bunkering operations and cover under different policies (P&I, Hull& Machinery, Cargo and Charterer's Liability)
- Introduction to Emergency Response Procedures

Break**12 Training and Competency Development**

- Critical Skills Identification (Receiving Vessel and LNGBV)
- Recognised Training and Certification Providers
- Industry Best Practice and National Rules & Regulations

DAY 5 Session OPEX/CAPEX, FREIGHT and DISTRIBUTION ECONOMICS

16 April

Opening Quiz

13 Operational and Capital Expenditure (OPEX/CAPEX) – Key Drivers

- Crewing, Repair & Maintenance, Drydock (provision) and other overheads
- Types of Ownership
- Chartering Contracts, Control and Cost Allocation
- Building Costs and Impact on Economics

Break

14 Small Scale LNG Freight, Deal Economics and Vessel Operations

- Unit Costs vs. Daily Hire and Time Charter Equivalent
- Scheduling, Voyage Orders and Optimisation
- Delays, Demurrage and causes of profit leakage and sub-optimisation

Break

15 LNG and Bunker Purchase Contracts

- Overview of main formats
- Deal Architecture (Bulk Purchase vs B2B Retail)
- Contractual disputes and pathways to their resolution

DAY 6

PRICING and DISTRIBUTION COSTS, PROJECT PLANNING and FINAL QUIZ

19 April

Opening Quiz

16 Bunker Pricing and Distribution Cost

- Impact of “the last mile” to end user costs
- Intra-fuel competitiveness
- Posted Prices, Transparency and Competition

Break

17 LNG Bunkering: Project Planning Considerations

- Key Stages and Managing Outcomes
- Identifying and Engaging Various Stakeholders in the Port/Terminal
- Business Models currently in operation

Break

18 Final Knowledge Test

Round-up, Q&A and Close