

"Very high quality presentations and well organised" – Attendee 2015



SMi presents its 4th annual conference on...

Floating LNG

Providing a platform of discourse to enable the transition from design to operation

Holiday Inn Kensington Forum, London, UK

17th - 18th
FEB
2016



BENEFITS OF ATTENDING:

- **Hear** from one of India's largest gas companies on FLNG prospects and trends in the region
- **Learn** about the latest developments and opportunities for FLNG and Regas in the USA, Africa and Europe
- **Examine** the impact of the oil-gas price margin on the viability of sustained growth within the FLNG market
- **Understand** the current technological landscape and best practice for safe deployment of FLNG

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2016 CHAIRS:



Leigh Bolton,
Founder and Managing Director,
Holmwood Consulting Ltd



Alex Forbes,
Director,
Forbes Communications

SPECIAL ADDRESS SPEAKER:



Sri S. Narayanan,
Managing Director, Andhra Pradesh Gas Distribution
Corporation Limited / GAIL Ltd

EXPERT PANEL INCLUDES:

- **Laszlo Varro**, Head of Gas, Coal and Power Markets Division, **International Energy Agency**
- **Boris Ertl**, Advisor LNG & Gas Monetisation, Upstream Engineering Centre, **BP**
- **Alan Buxton**, COO, **Gasol Plc**
- **Richard Whitehead**, Vice President – Global LNG Segment, **DNV GL**
- **Claudio Rodriguez**, General Manager, Gas Assets, **Enagas Transporte S.A.U.**
- **Steve Robertson**, Director, **Douglas-Westwood**
- **Barry Worthington**, Executive Director, **United States Energy Association**
- **George Shammis**, Current Chairman, **Cyprus Energy Regulatory Authority (CERA)**

PLUS TWO INTERACTIVE HALF-DAY PRE-CONFERENCE WORKSHOPS • TUESDAY 16TH FEBRUARY 2016

A: FLNG Design Safety Approach

Hosted by: **Christophe Cerf**, LNG Safety Expert,
Safety Engineering, **CONSEILPREV**
8.30am - 12.30pm

B: Next Generation LNG Development

Hosted by: **Derek Thomas**, Chairman, Corporate,
WindandSea-Research
1.30pm - 5.30pm

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8.30 Registration & Coffee

9.00 Chair's Opening Remarks
Leigh Bolton, Founder and Managing Director, **Holmwood Consulting Ltd**

9.10 OPENING KEYNOTE ADDRESS
Prospects for Floating LNG – International Outlook?
 Factors influencing Floating LNG project viability and FID
 Considerations for tomorrow's potential plants

- Project objective
- Geographical analysis
- CAPEX and OPEX
- Gas Supply – characteristics and price

Steve Robertson, Director, **Douglas-Westwood**

FLOATING LIQUEFACTION PROSPECTS

9.50 Update on US Floating LNG
 Shale gas development in the United States has been referred to by corporate executives as "a miracle", "the greatest gift", and "a bonanza". This update will:

- Evaluate the construction of LNG Export facilities and steps taken to receive permits at federal, state and local government level
- Examine the current and future competitive landscape for U.S. projects including:
 - Europe to Russia gas transmission
 - LNG exports from Qatar
 - Australia
 - Trinidad and Tabago
- Assess opportunities provided by energy exports for foreign policy
- Define the domestic economic growth benefits of energy exports
- Understand the economic and national security case for Floating LNG Exports

Barry Worthington, Executive Director, **United States Energy Association**

10.30 Eastern Mediterranean Gas Exports Challenges – Is FLNG an Option?

- EU Energy Union – LNG role
- Eastern Mediterranean HC discoveries and potentials
- Export Options – FLNG possibility
- Conclusions

George Shammass, Current Chairman, **Cyprus Energy Regulatory Authority**

FLOATING INFRASTRUCTURE MODELS AND CONCEPTS

11.10 Morning Coffee

11.40 Solitude - Unmanned FLNG Concept, Rethinking the Future of Offshore Design and Operation
 DNV GL has developed a new unmanned floating LNG concept – dubbed 'Solitude'

- Discusses the challenges currently faced by companies looking to unlock the potential in remote offshore fields
 - Safety, high cost and environmental footprint
- Reveals the use of advanced, but mainly available, technology to provide its power
- Explains the main features and workings of 'Solitude'
- Presents a view on how this concept could become reality

Richard Whitehead, Vice President - Global LNG Segment, **DNV GL**

12.20 Modularisation Small-Scale Nearshore Floating LNG Systems - Optimisation of Technology
 One of the biggest challenges in project deployment is cost overruns due to a lack of infrastructure standardisation. There is a need to reduce project management complications in order to mitigate risk and restore faith in the investor:

- Examining the current state of the industry in relation modularisation of nearshore liquefaction facilities
- Design once build many – measuring the viability and feasibility for future "factory built" plants
- Controlling the process moving towards predictability and reliability of delivery
- Implications of scale and market accessibility
- Cost containment and case studies of first, second and third generation ship builders

Derek Thomas, Chairman, Corporate, **WindandSea-Research**

1.00 Networking Lunch

2.00 Floating Infrastructure: Conversion vs Newbuilding

- Existing projects (FLNG & FSRU)
- Projects under development
- Conversions vs newbuildings
- Shipyard capacity and availability of assets
- Possible future markets

Dr Jonathan Gaylor, LNG Analyst, **Affinity (Shipping) LLP**

2.40 PANEL DISCUSSION
One concept Fits All – Can This Be A Reality? Modularisation and Standardisation of Floating LNG Plants



Assessing the pros and cons of modularisation and standardised infrastructure.

Derek Thomas, Chairman, Corporate, **WindandSea-Research**
David Haynes, Director and Principal Consultant, **Penguin Energy Consultants**
Christophe Cerf, LNG Safety Expert, Safety Engineering, **CONSEILPREV**

3.20 Afternoon Tea

TECHNICAL AND SAFETY CONSIDERATIONS

3.50 Safer Development of FLNG

- What are the essential characteristics of FLNG?
- What are the hazards present?
- Closer look at the process hazards
- Can we achieve inherently safer design without eroding value?

Boris Ertl, Advisor, LNG and Gas Monetisation, **BP**

4.30 Development of LNG Ship-to-Ship Offloading Systems

- Lessons learned from the development of offshore LNG offloading for FSRU's and FLNG's
- Basic principles of different LNG STS offloading and bunker configurations and their challenges
- LNG transfer systems deployed and under development: review of various concepts and technologies
- Proving the Reliability and Safety of offshore LNG transfer systems: TNO's experience from testing and qualification

Bas Van Den Beemt, Business Developer Oil & Gas, **TNO**

5.10 Chairman's Closing Remarks and Close of Day One
Leigh Bolton, Founder and Managing Director, **Holmwood Consulting Ltd**

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8.30 Registration & Coffee

9.00 Chair's Opening Remarks
Alex Forbes, Director, Forbes Communications

9.10 KEYNOTE ADDRESS: LNG - Worldwide Outlook
Holistic presentation discussing the economic, financial, commercial sustainability and status of the LNG Industry in a volatile, competitive and socially conscious energy market.

- Discussing the likely trends in LNG investment
- Examining the role of and effect of:
 - Non-conventional gas,
 - Growing economic markets such as China and India
 - As well as natural gas as a transportation fuel on the FLNG market
- Presenting case studies and research findings on the development of Asia as the central trading hub of Floating LNG
- What is the future of LNG demand likely to be?

Laszlo Varro, Head of Gas, Coal and Power Division, International Energy Agency

FSRUs AND INTERNATIONAL MARKETS

9.50 SPECIAL ADDRESS: Terminal and Infrastructure Development in India Upcoming Projects and Updates

- Update on FSRU based LNG project at Kakinada
- Pricing
- Competition from alternate fuels & sector level price challenges

Sri S. Narayanan, Managing Director, Andra Pradesh Gas Distribution Corporation Ltd.

10.30 Morning Coffee

11.00 Overview of FSRU Projects in Africa

- Economics, do they make sense – regasified LNG as a substitute for liquid fuels for power generation
- Small size vs Mega Projects
- Economies of scale vs financing requirement
- Tender processes
- Government support
- Tolling vs Separate LNG supply and gas offtake and issues such as FM, Seller failure to deliver, fuel Quality etc
- Financing issues including credit enhancement of offtake and political risk

Alan Buxton, Chief Operating Officer, Gasol plc

11.40 FLNG Opportunities Around the Iberian Peninsula: A Case Study

- The Spanish LNG Hub Model
- FLNG as a new logistic link of mature LNG systems
- Iberian Peninsula 2025 Case Study

Claudio Rodriguez, General Manager, Gas Assets, Enagas Transporte S.A.U.

TERMINAL INFRASTRUCTURE OPTIMISATION

12.20 LNG Marine Fuel, Infrastructure and Growth

- Present applications of LNG as marine fuel
- Initiatives to take on LNG as prime vessel energy source
- Bunker capacity and availability
- Present infrastructure in Norway, impacts on growth
- Fiskerstrand Group experience from LNG projects
- LNG and hybrid solutions
- Market potential provided reliable availability

Einar Kjerstad, Sales Manager, Fiskerstrand BLRT AS



1.00 Networking Lunch

2.00 Next Generation Mooring Solutions to Lower the Cost of Nearshore FLNG Terminals

- Permanently moored FLNG/FSRU vessels require better solutions
- Options are available to lower CAPEX as well as OPEX
- Berth uptime can be dramatically improved with alternative mooring solutions
- Previously infeasible projects in challenging environments can now be feasible

Ronald Heffron, Vice President, Global Energy Practice, Moffatt & Nichol

DUE DILIGENCE, FINANCE AND COMMERCIALISATION

2.40 Project Finance for Floating LNG Projects

- The current industry environment and the implications for Floating LNG
- Lender risk analysis and mitigation for Floating LNG
- Floating LNG project economics and financing structures
- Sources of finance and project finance trends

Robert Clews, Head of Oil, Gas & Petrochemicals, Project Finance Lending, SMBC Europe Division

3.20 Afternoon Tea

3.50 Examining the commercialisation of Floating Regasification Units, Ensuring Compliance and Due Diligence

- Assessing the current market for Floating Regas and opportunities
- Ensuring compliance and due diligence in project deployment
- Likely trends in business models regarding regasification
- Key challenges and developments

Nick Prowse, Partner, Norton Rose Fulbright LLP

4.30 LNG – Moving Towards Commerciality
FLNG projects are happening. They are no longer design exercises but steel and cables. The industry will continue to evolve its design capabilities but also needs to look at how FLNG will really work. Can we yet answer the following?

- What should offshore performance guarantees be and do they compare within onshore LNG?
- Does onshore LNG availability translate to FLNG?
- How should technical/engineering influence commercial issues?

David Haynes, Director & Principal Consultant, Penguin Energy Consultants

5.10 Chairman's Closing Remarks and Close of Day Two
Alex Forbes, Director, Forbes Communications

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FLNG Safety Design Approach

Workshop Leader:

Christophe Cerf, LNG Safety Expert,
Safety Engineering, **CONSEILPREV**

Overview:

The concept of FLNG, Floating Unit with topside Natural Gas Liquefaction Plant, has never been implemented so far in the world. However, in the past years, several companies have developed numerous design concepts, that constitute background information that can be helpful in the development of this particular concept. Safety is one of the key features in the design development. A floating offshore installation which processes hydrocarbons and refrigerates gas to produce LNG will be termed as an LNG FPSO (LNG floating production, storage and offloading unit).

Why You Should Attend:

Since FLNG is a new concept, additional considerations have been taken in order to optimise the arrangement of the FLNG facilities in an effective way to reduce the probability and the consequences of major accidental events, and limit the potential for escalation.

This safety workshop will give you an overall insight of new approach of FLNG safety engineering order to avoid escalation of incident.

The objective of the FLNG safety design phase is to ensure that the hazard and impact control systems identified through the residual hazard and impact management process are implemented into the design so that they will achieve their intent for the lifecycle of the FLNG Project.

Programme:

8.30 Registration and Coffee

9.00 Global Overview of the FLNG/FPSO

- Safety approach
- Overview of risks and mitigation associated with Floating facility
- Engineering challenges and solutions

9.30 FLNG Facilities

– Regulatory and Classification Viewpoint

- New Rules for FLNG facilities
- Technical changes & challenges

10.30 Morning Break

11.00 Developing Strategies for Successful Safety Management

- Project managing the safety design
- Understanding the important of high quality FEED/EPC
- Critical safety elem

11.40 Floating Topside Safety Design

- LNG specific gas dispersion and explosion threats
- Spill containment options
- Cryogenic threats to structures and personnel

12.20 Discussion & Questions

– A Review Of The Session

12.30 Close of Workshop

About the Workshop host:



Mr. Cerf is a French Engineer based in Paris as head of engineering manager with over 25 years experience as Safety professional, has developed business development management of LNG/FLNG, commercial & contractual issues for small & medium LNG Terminals/FSRU/FLNG, managing feasibility, Pre-FEED/FEED/EPC studies for LNG projects, develop design concepts for LNG and gas processing facilities.

Christophe has worked for numerous oil&gas companies as Project Manager/ Engineering Manager/ Deputy Head of Safety, Lead/ Principal Safety Engineer/ Lead HSE Design, has occupied different roles within international Oil & Gas Operator who are developing major LNG/ FLNG facility; projects which are currently entering EPC stage, involving the development of the greenfield site, to include an LNG processing plant with positions leading a multi-cultural organisation across various project locations. He provides approach assessment as technical support for QRA (Quantitative Risk Assessment), FRA (Fire Risk Assessment) and ERA (Explosion Risk Assessment), help customers within design of new or existing facilities regarding the protection of people, environment and assets.

Next Generation LNG Development

Workshop Leader:
Derek Thomas, Chairman, Corporate,
WindandSea-Research

Overview:

Integrating the e3 philosophy of Elegant design, Economic execution and Effective operation through the full project lifecycle.

Focus on "Advanced Modular Infrastructure" which aims to produce drop-in-place assets which help reduce project execution risk, capital cost and time to production.

These "High Value Density " solutions are amenable to being supplied on a leased and fully serviced basis, which can enable distributed industrial development in locations where costs and the lack of support infrastructure could otherwise be prohibitive.

Being modular, scaleable and repeatable, they help leapfrog energy development while while reducing social and environmental disruption often associated with a more traditional build out.

Why you should attend:

To gain insight into practical approaches for developing and deploying cost effective Floating LNG solutions that are matched to regional economic drivers.

Programme:

- 1.30 Registration and Coffee**
- 2.00 Overview of Advanced Modularisation, Standardisation of Systems, Components and Practices**
- 2.30 Repeatable and Scaleable Architecture and COTS - Commercial Off The Shelf Design Philosophy**
- 3.30 Afternoon Tea**
- 4.00 LNG Storage Systems - Integration With Full LNG Value Chain**
- 4.30 Focus on Partners, Pieces and Finance**
- 5.15 Discussion & Questions – A Review Of The Session**
- 5.30 Close of Workshop**

About Derek Thomas:



Derek is a leading technologist with an extensive background integrating disparate disciplines and technologies to create innovative solutions for Energy.

Involvement covered the full life cycle, from designing component equipment to creating production plants and companies that manufactured, tested and supported the systems. Since 1984 WindandSea Research has been working around the world with partner companies to win and manage complex and sophisticated projects in the energy, marine, military and environmental sectors.

About WindandSea-Research



Since 1984 WindandSea Research has been working around the world with partner companies to win and manage complex and sophisticated projects in the energy, marine, military and environmental sectors.

FLOATING LNG 2016

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