LNG Strategy, Policy, Technology and Systems with particular emphasis on the role of LNG for a reduced carbon footprint

Novotel Beijing Peace Hotel
Wangfujing, Beijing, China

11-13 June, 2014
Welcome!

PETRAD together with CCOP Technical Secretariat is pleased to arrange a Seminar on ‘LNG Strategy, Policy, Technology and Systems with particular emphasis on the role of LNG for a reduced carbon footprint’ in cooperation with SINOPEC, Ministry of Land and Resources and China Geological Survey. The Seminar is partly sponsored by Norwegian Ministry of Foreign Affairs through the Royal Norwegian Embassies in Beijing and Bangkok.

Venue:

Novotel Beijing Peace Hotel
3 Jinyu Hutong,
Wangfujing,
Beijing 100006.

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Day 1: Wednesday 11 June

08:15   Registration

09:00   Session 1: Opening and Setting the Scene
        Chairperson: Mr. Liu Liqun, SINOPEC

        Opening/Welcome address
        - SINOPEC
          Speaker: Mr. Lian Mingxiang, Deputy Director-General, Foreign Affairs Bureau
        - Ministry of Land and Resources (MLR)
          Speaker: Mr Ma Yongzheng, Deputy Permanent Representative of China to CCOP,
                   Division Director, Department of International Cooperation, Science and Technology, MLR
        - CCOP Technical Secretariat
          Speaker: Dr. Adichat Surinkum, Director
        - PETRAD
          Speaker: Dr. Øystein Berg, Special Adviser

09:30   Keynote I: China’s Natural Gas Development Outlook
        Speaker: Dr. LI Xihong, SINOPEC (Delivered by: Dr. Yang Ning)

10:00   Keynote II: LNG and CCS as Strategy for a Smaller Carbon Footprint
        Speaker: Prof. Dr. Terje Halmø, Terica AS

10:30   Group photo - Coffee/Tea

11:00   Global LNG Supply and Demand: Near- and mid-term trends
        Speaker: Prof. Dr Terje Halmø, Terica AS

11:30   The LNG Value Chain – Key characteristics and current development trends
        Speaker: Prof. Dr Terje Halmø, Terica AS

12:00   Lunch

13:00   Session 2: LNG Baseload technologies and Project execution
        Chairpersons: Dr. Qian Ji, SINOPEC and Dr. Terje Halmø, UoS

13:10   Gas Pre-treatment for LNG Liquefaction and CO₂ Sequestration
        Speaker: Professor Zhixin Yu, University of Stavanger, Norway

13:45   LNG Baseload Facilities – main commercial processes
        Speaker: Professor Runar Bøe, University of Stavanger, Norway

14:30   CO₂ Utilization and Sequestration – markets and storage
        Speaker: Professor Zhixin Yu, University of Stavanger Norway

15:00   Coffee/Tea

15:15   Baseload LNG Project Execution: Key criteria and EPC management
        Speaker: Odd Mosbergvik, Project Director, Borealis Ltd.

16:30   Operational Procedures and HSE Management for LNG Facilities
        Speaker: Odd Mosbergvik, Project Director, Borealis Ltd.

17:15   End of day

18:00   Welcome Dinner
Day 2: Thursday 12 June

09:00 Session 3: Floating LNG Facilities – new upstream and downstream developments
   Chairpersons: Mr. Wang Zelin, SINOPEC and Mr. Egil Rensvik, Innovation Norway

09:10 Floating LNG – Unlocking a new world of energy
   Speaker: Mr. Lars Petter Revheim, Technical Manager, Process, Höegh FLNG Ltd.

09:45 Design Criteria for FLNG Facilities
   Speaker: Mr Toong, Ka Loon, Business Development Manager, Offshore Service, DNV GL

10:30 Coffee/Tea

11:00 Current FLNG Projects – Prelude, Bonaparte, etc.
   Speaker: Mr Toong, Ka Loon, Business Development Manager, Offshore Service, DNV GL

11:30 LNG Shipping – New vessel modifications and new sea lanes
   Speaker: Mr Gao Wei, Regional Pre-contract and Technical Support Manager, DNV GL Region Greater China

12:15 Lunch

13:15 Session 4: LNG Reception and Storage Terminals
   Chairperson: Mr. Zhou Qingfan, SINOPEC and Mr. Sim Caluyong, CCOP TS

13:25 Current and Planned Regas Terminals in East Asia and China
   Speaker: Professor Runar Bøe, University of Stavanger, Norway

14:00 FRSU – Floating Reception and Storage Terminals
   Speaker: Mr. Lars Petter Revheim, Technical Manager, Process, Höegh FLNG Ltd.

14:45 Coffee/Tea

15:15 GraviFloat Terminals – a flexible and modularized solution for small and mid-scale LNG operations
   Speaker: Mr Carl Johan Sverdrup, Vice President Asia Pacific, LMG Marin

16:00 Comparative Life Cycle Carbon Emissions of LNG vs other Energy Sectors
   Speaker: Mr Gao Wei, Regional Pre-contract and Technical Support Manager, DNV GL Region Greater China

16:30 End of day
Day 3: Friday 13 June

09:00 Session 5: Extension of the LNG Value Chain – new role for LNG
Chairperson: Ms. Xu Dongmei, SINOPEC and Dr. Terje Halmø, UoS

09:10 Experience from Norwegian Small Scale LNG Use and Distribution
Speaker: Mr. Egil Rensvik, Science and Technology Counsellor, Innovation Norway, The Royal Norwegian Embassy, Singapore

09:45 Technological Innovation and Developments in LNG Shipping
Speaker: Mr. Øyvind Solem, Head of the Newbuilding and Projects department, BW Fleet Management

10:30 Coffee/Tea

11:00 Universal Buoyancy System – Novel harbour concept for small and midsize LNG
Speaker: Morten Christophersen, CEO, Connect LNG, Drammen, Norway

11:30 Coastal and Rivers Redistribution of LNG from Northern to Southern China
Speaker: Yao Song, Norgas Carriers PL/LM Skaugen, Singapore/Shanghai

12:00 Keynote III: Global LNG Developments:
Strategies of key IOC players, LNG hotspots and possible pricing scenarios
Speaker: Prof. Dr Terje Halmø, Terica as, Norway

12:30 Closing Ceremony

13:00 Lunch
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<td>Dr. Li Xihong</td>
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<td>Associate Prof. Dr. Runar Bøe</td>
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<td>Mr. Morten Christophersen</td>
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Prof. Dr. Terje Halmø

Prof. Dr. Terje Martin Halmø is Partner and Principal Consultant in Terica AS and part time professor of Gas Management at the University of Stavanger, Department of Petroleum Technology. Terje also works closely with Accenture through Accenture Energy in Oslo and London. After his retirement from Statoil in 2008, he was President of the Risavika Gas Center in Norway (owned by Shell, Statoil and Lyse). Prior to this, he was Senior Advisor - Strategy with StatoilHydro ASA International E&P, after the Statoil-Hydro merger.

Before the merger of StatoilHydro, Dr Halmø held a variety of positions in the Statoil Group, including Vice President & Special Advisor, INT-North Africa, Vice President & Country Manager – Algeria, Vice President – GTL (Gas to Liquids), International E&P IGAS&P, VP- Chief of Staff, International E&P NVW, VP – Gas Caspian Region, VP - Gas in BP/Statoil Alliance Caspian and VP – Industrial Development Gas. Dr Halmø has also held senior positions with other organizations in the oil, gas and technology fields including Elkem ASA, Bryns Patentkontor Zacco, Norsk Jern Holding, Elf Aquitaine Norge and SINTEF, where amongst other things, he undertook several international assignments for NorConsult including in Kenya, Egypt, Ethiopia and the Philippines.

Dr. Halmø received his Ph.D. in Chemical Engineering from the Norwegian University of Science & Technology and has been a Visiting Scholar to Stanford University and the University of Washington, Seattle. He is a Member of the Norwegian Academy of Technical Sciences (NTVA) and the American Institute of Chemical Engineers (AIChE).

Mr. Odd Mosbergvik

Mr. Odd Mosbergvik is Project Director in Boralex, Abu Dhabi UAE. Since 2008 he has been seconded to Borouge in developing the Second and Third Phase of the Petrochemical Complex in Ruwais, Abu Dhabi, as Senior Project Manager. Mr Mosbergvik was an employee of Statoil, from 1979 to 2008. The first years as Project Services Manager for amongst other the Gullfaks and Statpipe developments and as Project Director for the Sleipner West Development from 1992. He was Project Director and Vice President for Operation of the Aasgard field development. He was seconded from Statoil to Boralex for the first step of the Borouge Development in 2001 and 2002, and worked as Senior Vice president in the Statoil International division before his last position as Senior Vice President for the completion of the Snohvit LNG Project in Arctic Norway.

Mr. Mosbergvik has Msc Degree in Physics and General Sciences from the Norwegian Institute of Technology (NTH) 1975.

Mr. Egil Rensvik

Mr Egil Rensvik holds the position as Science and Technology Counsellor for Innovation Norway at the Royal Norwegian Embassy in Singapore since August 2010. He came from the position as Vice President Marketing at Norwegian Marine Technology Research Institute (MARINTEK). He has MSc degree in Engineering Cybernetics from the Norwegian Institute of Technology (NTH), 1977. He has been a Member of the Maritime R&D Advisory Board of the Maritime and Port Authority of Singapore from 2007- 2009.

Mr. Rensvik has been heading the MARUT, Norwegian Maritime Development program for Ministry of Trade and Industry 2007 – 2010.
| **Mr. Lars Petter Revheim** | Mr. Lars Petter Revheim holds a M.Sc. Degree in Energy and Environmental Engineering from the Norwegian University of Science and Technology, with specialization within Process Engineering, LNG Processes for Floating Applications. He started in Höegh LNG in 2009 in the FLNG business area, and has also worked on various Regas projects. Recently Mr. Revheim has been Engineering Manager for two Barge type FLNG design developments with production capacities from approximately 1 MTPA to just above 2 MTPA. Currently Mr. Revheim holds the position as Technical Manager, Process at Höegh FLNG ltd, a subsidiary of Höegh LNG Holdings. |
| **Mr. Øyvind Solem** | Mr. Øyvind Solem is head of the Newbuilding and Projects department of BW Fleet Management (BWFM). After graduating as a Naval Architect from the Norwegian University of Science and Technology in 1987, he started working with DNV as a hull structural engineer, doing plan approval for newbuildings. In 1996 he started working in the newbuilding department at BW, first as a newbuilding Site Inspector / Site Manager for 2 years, and has thereafter been working in the newbuilding department in Oslo. In this period the newbuilding department has contributed to the delivery of some 50 vessels, of these 13 LNG vessels and 12 LPG vessels. Mr. Solem is serving his 2nd term as a member of the SIGTTO Board. |
| **Mr. Yao Song** | Mr. Yao Song is Business Development Director, I. M. Skaugen Maritime Services Pte. Ltd. Mr. Yao Song graduated from China Petroleum University with major in petroleum and natural gas storage and transportation engineering in 1997, and got a MBA degree in Shanghai Jiao Tong University in 2006. Mr. Yao Song has been working in I. M. Skaugen for more than 4 years, currently focuses on LNG and Petrochemical gas business development in China and other Asia countries. Before joining Skaugen, Mr. Yao Song had worked for China National Offshore Oil Corporation (CNOOC) for more than 11 years, mostly focused on LNG/LPG business. |
| **Mr. Carl Johan Sverdrup** | Mr. Carl Johan Sverdrup has been working in the oil and gas industry for nearly 30 years. He was first working in different positions for Shell in Norway and the Nordic countries. For the last 12 years, Mr Sverdrup has been working in Asia for different Norwegian and American companies supplying new technologies for treatment of produced water. Sverdrup has been representing LMG Marin and their Gravifloat technology in Asia since 2011 and has been living in Bangkok since 2003. Mr. Sverdrup graduated in Political Science from the University of Oslo. |
| Mr. Ka Loon Toong | Mr. Ka Loon Toong is Offshore Business Manager, Maritime, DNV GL Greater China. He graduated from the University of Surrey, England in 1991 with first class honours in Mechanical Engineering. He has been working in DNV Maritime for more than 22 years in various positions in Singapore, Korea, Norway and USA. Mr. Ka Loon Toong currently function as Offshore Business Manager in Maritime for DNV GL Greater China focuses on five key areas: (1) Helping shipyards to upgrade into offshore business (2) Deep water exploration and production (3) Offshore LNG production and FSRU onshore terminal (4) Winterization and cold climate drilling for Arctic market (5) The development and market analysis in offshore segment. DNV established in 1864, as one of major classification society as GL. DNV and GL merge in 2013, as the largest global recognised organization providing risk management related service. Their customers engage in shipping industry, petro-chemical industry and general industry. DNV GL has more than 16,000 staffs working in more than 300 offices in 100 countries. Currently, more than 1,400 DNV GL staffs work in 36 offices in China. |
| Mr. Gao Wei | Technical Support and Pre-contract Manager of DNV GL Region Greater China. In August 1995, after graduating from Jiangsu University of Science and Technology with BA degree in shipbuilding engineering, Mr. Gao Wei joined Marine Design & Research Institute of China (MARIC) as naval architect for designing different types of ships in outfitting, hull and general section respectively. From April 1999 to May 2011, Mr. Gao Wei worked in Lloyd’s Register’s (LR) in Shanghai Design Support Office and Copenhagen Design Support Center in Denmark. Being the surveyor in charge of statutory section and technical leader in statutory department, Mr. Gao Wei engaged well in design assessment and approval of various types of ships for compliance with applicable international rules and regulations and is closely following up new legislation’s development. In June 2011, Mr. Gao Wei joined previous Det Norske Veritas (DNV) now DNV GL Group Maritime China as Regional Technical Support Manager responsible for general technical support and Pre-contract services on which role Mr. Gao Wei is continues providing excellent support to Chinese Shipbuilding industry with his professional knowledge and rich experiences. Mr. Gao Wei is also the member to the Shanghai Society of Naval Architect and Marine Engineering. |
| Prof. Dr. Zhixin Yu | Dr. Zhixin Yu became full Professor of Natural Gas Technology at Department of Petroleum Engineering, University of Stavanger (UiS), Norway since September 2013. He came from the position as Principle Researcher at Statoil Research Center. Prior to this, he has been working as Research Scientist for International Research Institute of Stavanger (IRIS), SINTEF Materials and Chemistry, and Norwegian University of Science and Technology (NTNU), mostly on projects related to both upstream and downstream gas processing. He obtained his Ph.D. degree in Chemical Engineering from NTNU in 2005, M.Sc. degree in Manufacturing Management from Linköping University, Sweden in 2001, and B.Sc. degree in Applied Chemistry from University of Science and Technology of China (USTC) in 1998. His main research interests include gas conditioning and processing, H₂S and CO₂ cleaning, H₂ production, syngas production, gas to liquids, CO₂ capture and storage, CO₂ utilization, as well as nanotechnology for clean energy production. |
**Petrad** is a non-profit Norwegian Government Foundation established in 1989 to facilitate sharing of knowledge and experience on Petroleum Management, Administration and Technology between managers and experts within Governments and National Oil Companies. Petrad arranges tailored courses and seminars covering a wide range of topics on the management of petroleum resources.

The activities are conducted in Norway and abroad lasting from 1 day to 10 weeks. The courses and seminars have a practical focus. Petrad also conducts Training Needs Assessments and assistance with Institutional Development.

Petrad draw on resource persons and lecturers from the total Norwegian and International petroleum industry. They hold considerable experience from senior managerial and technical positions with Government, Operating, Engineering and Service Companies, Consultancies, R&D Institutions and Universities. Petrad has arranged a total of more than 700 courses and seminars with more than 20,000 participants from 111 countries.

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**The Coordinating Committee for Geoscience Programmes in East and Southeast Asia (CCOP)** is an Intergovernmental Organization focused on regional geo-scientific aspects.

CCOP was founded under the auspices of the United Nations (ESCAP) in 1966. Initially its remit was to "promote and coordinate the planning and implementation of joint prospecting programmes and research in Asian offshore and geologically related areas of countries who are members of CCOP". CCOP became an independent intergovernmental organization in 1987 based on the common understanding of its member countries and the aspirations of the United Nations.

CCOP's current mission is to contribute significantly to the economic development and sustainable management of the environment and improvement of the quality of life of its Member Countries by the application of Earth science knowledge through outreach, cooperation and partnership, knowledge enhancement and sharing, and data and information. Its activities are focused on the following: geo-hazards prediction and mitigation, environmental geology, water resources integrated management, energy and mineral resources sustainable development.

CCOP Technical Secretariat is based in Bangkok, Thailand. CCOP consists of 13 member countries i.e., Cambodia, China, Indonesia, Japan, Republic of Korea, Laos, Malaysia, Papua New Guinea, Philippines, Singapore, Thailand, Timor-Leste, Vietnam. Myanmar is an observer with the intent of becoming a member of CCOP. CCOP is assisted by 14 cooperating countries and several international organizations.