

**LNG16 Program  
Draft 9 February 2010**

**A. Paper Sessions**

**Session #1 : The Market Outlook for LNG after the Global Recession**

**Sunday, 18 April 2010, 14:45-17:45, Auditorium**

**Co-Chairs:**      **Guy Broggi, Head of LNG Supply, LNG Division, Total Gas & Power**  
                          **Takashi Kuroko, Vice-President, Global Gas Unit, Natural Gas Business Division B, Mitsubishi Corporation**  
                          **William E. Hauhe, General Manager, Angola LNG Supply Services**

PS1-1	<b>An Approach for Adapting Gas Marketing Strategies to the Evolution of Markets and to Ensure Supply and Demand Securities</b>	<b>Dr. Chawki Mohamed Rahal (Sonatrach)</b>
PS1-2	The Impact of Market Dynamics on the LNG Sector	De La Rey Venter (Shell) (Replacement author: Saskia Kapinga)
PS1-3	<b>Sustaining Gas and LNG Growth Through Economic Cycles: How Should Producers Adjust Their Forecasting Tools?</b>	<b>François Ravel (Total S.A.)</b>
PS1-4	<b>The Role of the US in a Globalizing Industry</b>	<b>Betsy Spomer and Andrew Walker (BG Group)</b>
PS1-5	<b>Moving Forward After a Year of Historic Achievements in the LNG Industry</b>	<b>Ahmed Al Klulaifi and Marcellus Catalano (Qatargas Operating Company Ltd.)</b>
PS1-6	<b>Evolution of the LNG market in a Context of Global Crisis and Rising LNG Production</b>	<b>Philip Olivier (GDFSUEZ)</b>
PS1-7	<b>Can the Emerging Asian Markets Save the LNG Market?</b>	<b>Fereidun Fesharaki, Shahriar Fesharaki, and Alexis Aik (Facts Global Energy)</b>

**Session #2 : Floating and Other Unconventional LNG Sources – The Future?**

**Monday, 19 April 2010, 09:00-12:00, Session Room 1**

**Co-Chairs:**      **Anthony Acton, ActOn LNG Consulting**  
                          **Max Nussbaum, LNG Development Manager, Gaz de France Exploration and Production Division**  
                          **Masayuki Hirabayashi, Business Development Manager, LNG Terminal & Power Generation Business Unit, Osaka Gas Co., Ltd.**

PS2-1	<b>An Unconventional Future for LNG Supply?</b>	<b>Frank Harris, Andrew Pearson, Andrew McManus, and Gavin Law (Wood Mackenzie)</b>
PS2-2	Commercialisation of Large Stranded Gas Fields Using Multiple LNG Producers	Fredrik Savio, Jostein Ueland, and Nicholas Jones (Flex LNG)
PS2-3	<b>Floating LNG: Shell’s Recent History and Current Approach</b>	<b>Neil Gilmour and Damian Deveney (Shell Upstream International)</b>

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PS2-4	<b>FLNG—Determining the Technical and Commercial Boundaries</b>	Christopher Caswell, Charles Durr, and Mark Kilcran (KBR)
PS2-5	<b>Unconventional Gas: Good And Bad News For Global LNG</b>	Daryl Houghton, (Poten & Partners [Australia] Pty. Ltd.); Majed Limam and Stephen Thompson (Poten & Partners, Inc.)
PS2-6	LNG from CSG – Challenges and Opportunities	Chris Sharratt (Foster Wheeler)
PS2-7	Coal Seam Gas to LNG- the Gladstone LNG (GLNG)tm Project	Jannie Laurens and Peter Mitchley (Santos)

**Session #3 : Technology Development**

**Monday, 19 April 2010, 15:00-18:00, Session Room 1**

**Co-Chairs:**       Jean-Pascal Biaggi, Project Director, Technip  
                           Moritaka Nakamura, General Manager, Innovation Business Division, Chiyoda Corporation  
                           Himanshu Patel, Manager - Gas Technologies, Bechtel Corporation

PS3-1	<b>Development of Medium-Sized Gas Turbines for LNG Applications</b>	Bengt Gudmundsson, Jenny Larfeldt, and Christian Troger (Siemens Industrial Turbomachinery AB); Gordon Cox (Siemens Ltd.)
PS3-2	<b>Technical Issues Related to Send Out Gas Calorific Value Control at LNG Receiving Terminals in Japan</b>	Yoshifumi Numata and Daisuke Wada (Chiyoda Corp.)
PS3-3	<b>Next Generation On-Shore LNG Plant Designs</b>	Sjarel van de Lisdonk, Cathalijn van Rijmenam, Irina Tanaeva, Gianluca Di Nola, Marjan van Loon, and Rob Klein Nagelvoort (Shell Global Solutions International B.V.)
PS3-4	<b>The Challenges With the World’s Largest 250,000kl LNG Tank</b>	Hiroshi Hiraga (Tokyo Gas Co., Ltd.); Masaki Wakabayashi (Shimizu Corp.); Isho Nakachi and Masaharu Miyazaki (IHI Corp.)
PS3-5	<b>How the Right Technical Choices Lead to Commercial Success</b>	William P. Schmidt, Christopher M. Ott, Yu Nan Liu, and William A. Kennington (Air Products and Chemicals, Inc.)
PS3-6	<b>GST, a New Generation of LNG Membrane Type Land Storage Tank</b>	Pascale Grieve (G.T.T.--Gaztransport & Technigaz)
PS3-7	<b>Progress in the Qualification Process of Components and Systems for LNG Offshore Transfer</b>	Evert van Bokhorst, Bas van den Beemt, and Gerard van der Weijde, (TNO)
PS3-Spare	<b>Cost-Effective LNG Regasification With Multi-Temperature Level (MTL) Air Heaters—An Economic and Environmentally Friendly Approach</b>	Cong Dinh, Joseph Cho, and Jay Yang (SK Engineering & Construction Co. Ltd.)

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**Session #4 : Plant Construction, Start-up, and Operations**

**Tuesday, 20 April 2010, 09:00-12:00, Session Room 1**

**Co-Chairs: Hidefumi Omori, Chief Engineer, Gas Process, Engineering Division, JGC Corporation  
Francis Van De Walle, LNG Plant Manager, Fluxys LNG**

PS4-1	<b>Start-Up Experiences From Hammerfest LNG, A Frontier Project in the North of Europe</b>	<b>Sivert Vist, Morten Svenning, Hilde Furuholt Valle, Henrik Ormbostad, Gunder Bure Gabrielsen, Dan Pedersen, Roy Ivar Nielsen, Jostein Pettersen, and Arne Olav Fredheim (Statoil ASA)</b>
PS4-2	<b>Sakhalin Energy's Initial Operating Experience From Simulation to Reality: Making the DMR Process Work</b>	<b>René Verburg and Sander Kaart (Sakhalin Energy Investment Co. Ltd.); Bert Benckhuijsen, Padraig Collins, and Rob Klein Nagelvoort (Shell Global Solutions International)</b>
PS4-3	<b>Pluto LNG—LNG Optimisation Using Existing Plant Experience</b>	<b>Antonio Pelagotti and Emiliano Toci (GE Oil &amp; Gas); Rob Nibbelke (Shell Global Solutions); and Gary Bowtell (Woodside Energy Ltd.)</b>
PS4-4	<b>LNG Mega Trains—"Design One, Build Many," the Qatargas 2 Example</b>	<b>Yow Yeen Lee, David A. Williams, Abdelkader Haouari, Robert Talbot, Robert C. Collins, and Georges A. Maalouf (Qatargas Operating Co. Ltd.)</b>
PS4-5	<b>How to Enhance LNG Assets' Performance Through an Efficient Maintenance</b>	<b>Filippo Cinelli, Biagi Fernando Roberto, Fausto Carlevaro, Mochi Gianni, and Amore Bianco Francesco (GE Oil &amp; Gas)</b>
PS4-6	<b>GNL Quintero: A Success Story on Many Fronts</b>	<b>Steve Ollerearnshaw (BG Group)</b>
PS4-7	<b>Successful Start-Up and Operation of GE Frame 9E Gas Turbine Refrigerant Strings</b>	<b>Steven Judd (ExxonMobil Development Co.); Roy Salisbury (Qatargas Operating Co. Ltd.); Peter Rasmussen (ExxonMobil Upstream Research Co.); Paolo Battagli (GE Oil and Gas); Darrell Mosier (RasGas Co. Ltd.); Arthur Smith, III (W.S. Nelson)</b>
PS4-Spare	<b>Snohvit; Storage and Loading: How to Respect The Planning in Spite of Harsh Climatic Conditions</b>	<b>Pierre Vander Meulen (Tractebel Engineering)</b>

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**Session #5 : New Projects and Commercial Terms in a time of Change**

**Wednesday, 21 April 2010, 09:00-12:00, Session Room 1**

**Co-Chairs:** Mohammed Taleb, CEO, HELIOS Spa, Secretary Task Force LNG 16  
Yoga P. Suprpto, President Director, PT Badak NGL Co.  
José J. Fernández Martínez, Executive Vice President for Business Development and Trading, Union Fenosa Gas

PS5-1	Price Re-openers-in LNG SPAs	Paul Griffin and Mehdi Haroun (Herbert Smith LLP)
PS5-2	Yemen LNG Project Places Yemen on the Global Map of Producers and Exporters Of LNG	Jean-Luc Boisset (Yemen LNG Co.); Bruno Delesquen (Technip)
PS5-3	Long-Term LNG Contracts Flexibility: Driver of Spot Market	Amine Mohsen Yacef (Sonatrach)
PS5-4	Outline of the Ichthys Project in Australia and the Abadi Project in Indonesia Undertaken by Inpex	Seiya Ito and Shunichiro Sugaya (Inpex Corp.)
PS5-5	Can Henry Hub or NBP Become a Price Index for Asia Pacific LNG Contracts?	Kyoichi Miyazaki, (Poten & Partners, Inc.); Daryl Houghton and Christopher Rumley (Poten & Partners [Australia] Pty Ltd.)
PS5-6	Challenges of a LNG Project in Northern Chile	Frederik Janssens (GDFSUEZ)
PS5-7	Can Price Terms in Yesterday's LNG Contracts Survive the Upheaval of Today's Markets?	Rob Fenton and James Ball (Gas Strategies)
PS5-Spare	The Skikda New LNG Train Project—A New Train With New Innovations	Kamel Bouzid (Sonatrach); Pamela Roche and David Coyle (KBR)

**Session #6 : LNG Shipping and Terminals**

**Wednesday, 21 April 2010, 09:00-12:00, Session Room 2**

**Co-Chairs:** Roald T. Lokken, Senior Marine Consultant, ExxonMobil Development Company  
Lorenz Claes, Senior Naval Architect, Head of LNG Department – France, STX Europe  
Julio Trenas Fernández, Maritime Transport Director, Repsol – Gas Natural LNG, S.L.

PS6-1	An Overview of Future Regulation of Greenhouse Gases and the Effect On LNG Shipping	Gordon Milne (GDF SUEZ)
PS6-2	Summary of Investigations Into the Effect of Fire on LNG Carrier Cargo Containment Systems	Mark Hodgson (Shell International Trading and Shipping); Roger Roue (Society of International Gas Tanker & Terminal Operators); and Jim Gaughan (American Bureau of Shipping)
PS6-3	An Environmental Sea Change in LNG Shipping	Julie Nelson (BG Group)

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PS6-4	<b>LionGas LNG Terminal in Rotterdam: A New Approach to Nautical Risk Analysis</b>	Geoffrey Bothamley and R. Dirx (Royal Haskoning); H. Ligteringen (Delft University of Technology); C. van der Tak (MARIN); and F.A. de Boer (4GAS B.V.)
PS6-5	<b>On Assessing Rollover Under Offshore Conditions</b>	Yacine Zellouf and Julia Mariotti (GDF Suez)
PS6-6	<b>Refloating the Global LNG Shipping Industry</b>	Majed Limam and Anne Tricerrì (Poten & Partners, Inc.)
PS6-7	<b>Improving propulsion on a Diesel Electric LNG Carrier by BOG Quality Management: Setting of an Analytical Unit on Board for A Better Control</b>	Stéphanie Regni, Christophe Tastard, Noela Vazquez, and Philippe Loisel (GDF SUEZ)

**Session #7 : Environment, Safety, and Training**

**Wednesday, 21 April 2010, 15:00-17:15, Session Room 1**

**Co-Chairs:        John Driscoll, Manager Process and Process Safety Engineering, BP Exploration Operating Company Limited  
                          Mohammad Medan Abdullah, Managing Director & Chief Executive Officer, Malaysia LNG Companies**

PS7-1	<b>Making Efforts for the Accomplishment of 100% Utilization of the LNG Cold Energy</b>	Hirofumi Ukitsu, Suguru Kitagaki, and Takayuki Shimokawatoko (Osaka Gas Co., Ltd.)
PS7-2	Tanggung's contribution to environmental sustainability	Refrizal Boestaman and Fintan O'Neill (BP)
PS7-3	<b>Start-Up of Freeport LNG, a Terminal With Low Environmental Impact and the First on the Gulf Coast in Two Decades</b>	Rajeev Nanda (Technip); Paul Lindahl (SPX Thermal Equipment & Services); Dirk Eyermann (Air Tower LLC)
PS7-4	Operation of LNG Production, Storage and Shipping Complex: Risk Analysis	Roman Samsonov and Vladimir Safonov (Gazprom)
PS7-5	<b>Extending the Useable Life of an LNG Receiving Terminal</b>	Chihiro Nishizawa (Tokyo Gas Co., Ltd.)
PS7-Spare	<b>Innovated Use of Emulated Operator Training Simulator in the Yemen LNG Bal Haf Plant</b>	Pierre Rabeau, Régis Rieubon, and Romain Coupier (Technip) ; Philippe Thiabaud and Fabrice Rey (RSI)

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## **B. Workshops**

### **Workshop #1: Economy of Scale Trends and Challenges**

**Monday, 19 April 2010, 09:00-11:00, Session Room 2**

**Co-Chairs:       John Baguley, VP, Gas Monetization Development, KBR**  
**Jim Solomon, Director, LNG, Air Products and Chemicals, Inc.**

#### ***Workshop Summary:***

Economy of scale has been a key method to reduce the overall cost of LNG projects- both in terms of train size and size of complex. Is this still true? Does going “too big” create problems of its own?

At the same time there seems to be a lot of interest in smaller or midsize LNG projects which tends to go counter to the logic of economy of scale. So what is going on?

Also the optimum train size or “rightsizing” may be different for onshore and offshore FLNG projects.

What is the impact of the world economy on the cost of LNG plants and ships- large or small?

How will these trends affect vendor and process licensor selection?

What are the issues relative to ship size? Rightsizing of ships and integration into overall LNG chain.

A panel consisting of experts in the LNG field, who have been involved in handling such issues, will discuss this topic and answer questions from the floor.

### **Workshop #2: Evolution of the LNG Market in Changing Times – Long or Short?**

**Monday, 19 April 2010, 15:00-17:00, Session Room 2**

Chair - De La Rey Venter (Shell) - Co-chair Ieda Gomes (BP)

#### ***Workshop Summary:***

Over the last two years the LNG market has experienced a fundamental structural shift as a result of the global economic recession, the emergence of unconventional gas in North America and the coming on-stream of a wave of new LNG supply projects. How will the market evolve over the medium term as a result of these developments? Will emerging markets absorb supply gluts? And how will the physical flows of LNG change - North or South; East or West? Bull or bear; long or short?

#### **Confirmed Speakers:**

1. Maria das Graças Foster, Director of Gas and Energy, Petrobras
2. Alaa Abujbara, Marketing Director, Qatargas
3. Amitabh Sengupta , Chief Financial Officer, Petronet
4. Vitaly Vasiliev, Gazprom Marketing & Trading , Gazprom

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5. Simon Cattle, Head of Gas Trading Europe and LNG, BP
6. Simon Bonini, Director, LNG, Centrica

### **Workshop #3: Safety and Life Duration Management**

**Tuesday, 20 April 2010, 09:00-11:00, Session Room 2**

**Co-Chairs: William S. Wayne, General Manager, Society of International Gas Tanker & Terminal Operators Ltd (SIGTTO)  
Alain Goy, Head of LNG Technical Department, ELENGY**

#### ***Workshop Summary:***

The LNG industry has well deserved reputation for operating ships and terminals for very long lives. This reputation is based on good design, together with sound operating and maintenance practices. Concomitant with this long life, is a high reputation for safety.

Before addressing the issues, we need to understand why we keep these old LNG facilities for so long. With these more mature assets, are there specific measures to be taken to ensure retention of the safety record and industry reputation? How do we do this in the face of increased demands and expectations from stakeholders and society?

A new factor in this subject is the re-use of trading ships as floating terminals. Are there specific safety implications to be addressed in this?

The panel members will bring their experience and expertise from revamping programs on their facilities to address these questions and related issues, and thus to help identify key factors for continued safe and reliable operation.

### **Workshop #4: Technical Innovations for the Future of the LNG Business**

**Wednesday, 21 April 2010, 15:00-17:00, Session Room 2**

**Co-Chairs: Paul Sibal, Surveillance and Reliability Manager, ExxonMobil Production Company  
Robert Klein Nagelvoort, Global Manager Gas Technology, Shell Global Solutions International B.V.**

For an industry with over 45 years of operational experience, “mature” is not yet a fitting adjective. The past decade has seen technical innovations across the full value chain, enabling continued, rapid growth of the LNG industry. Looking ahead, we see this accelerating. Technology will be the key success factor for future projects, which are in increasingly challenging locations, in increasingly stringent regulatory environments. Focus areas for this workshop include:

- Liquefaction technology for onshore, offshore, and varying train capacity to fit the resource
- Advances in shipping, from smaller ships for small markets to mega-carriers, onboard liquefaction, propulsion, and fuel options, and use as floating storage

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- Developments in LNG Transfer Systems - Cryogenic pipelines, hoses, and tandem loading
- Receiving Terminals – Floating Storage and Regasification Units, Gravity Base terminals, Shipboard regasification systems, and advances in vaporizer technology
- Impact of resource location and evolving environmental regulations on technology selection and approach to construction (modular, arctic).
- Impact of market forces on project cost and schedule

This workshop will provide a lively forum for discussing these topics, facilitated by an expert panel representing nearly all aspects of the LNG industry.

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**C. Poster Session**

Tuesday, 20 April 2010, 15:00-18:00,

**Group #1 - New Developments in LNG Process, Plant and Equipment Design**

PO1-1	<b>Small-Scale Production of LNG From Low-Pressure Pipeline Gas by an Innovative Methane Expansion Cycle</b>	Alessia Arteconi, Carlo Maria Bartolini, Caterina Brandoni, and Fabio Polonara (Università Politecnica delle Marche)
PO1-2	The New Wave of LNG PC Tanks by IHI	Junko Kanbayashi (IHI Corp.)
PO1-3	<b>Experience With Water Cooled Mixed Refrigerant Condensation</b>	Jostein Pettersen, Arne Olav Fredheim, and Henrik Ornbostad (Statoil ASA)
PO1-4	<b>CBM Liquefaction Process Integrated With Distillation Separation of Nitrogen</b>	Ting Gao, Wensheng Lin, and Anzhong Gu (Shanghai Jiao Tong University)
PO1-5	<b>Comparison of Expander Processes for Natural Gas Liquefaction</b>	Knut Arild Maråk and Bengt Olau Neeraas (Statoil Research Center)
PO1-6	<b>Introducing Flexibility Into FLNG Plant Designs</b>	Peter J. H. Carnell, Vince A. Row, and Sebastien Grizard (Johnson Matthey Catalysts)
PO1-7	<b>An Innovative Way of Reducing BOG on Existing or Newbuilt LNG Storage Tanks</b>	Damien Féger (New Generation, Natural Gas)
PO1-8	<b>Sulfinol-X for Acid Gas Removal: A Solution for LNG Production From Contaminated Gas</b>	Djordje L Nikolic and Mark Claessen (Shell Global Solutions International B.V.); Jun-ichiro Tanaka (Chiyoda Corp.)
PO1-9	<b>Mid-Small Scale LNG Plant—Compact, Pre-assembled and Standardized Design</b>	Shin Matsui and Yoshio Yatsuhashi (JGC Corp.)
PO1-10	<b>Reducing the CO<sub>2</sub> Footprint Through Increased Overall Cycle Efficiency</b>	Filippo Cinelli, A. Miliani, and G. Seghi (GE Oil & Gas); M. Lehar (GE Global Research Center)
PO1-11	<b>New Set of Rules for LNG FPSO</b>	Guillaume Gourdet and Cătălin Toderan (Bureau Veritas)
PO1-12	<b>Dual Enhanced Tubes for the Hydrocarbon Processing Industry—From Debottlenecking to Grassroots</b>	Thomas Lang (Wieland-Werke AG); and Brigitte Ploix (Technip)
PO1-13	<b>LNG Process Selection Considerations for Future Developments</b>	John B. Stone, Dawn L. Rymer, Eric D. Nelson, and Robert D. Denton (ExxonMobil Upstream Research Co.)
PO1-14	Contribution to the Natural Gas Demercuration by using the Zeolite Nax	Habib Hammoudi (University of Mostaganem)
PO1-15	<b>An Experimental Method for Studying the Discrete Droplet Impact Phenomena in a Flammable Gas Environment</b>	He Zhao (Norwegian University of Science and Technology); Amy Brunsvold, Svend T. Munkejord,

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	(Zhao confirmed change in title)	and Mona J. MølInvik (SINTEF Energy Research)
<b>Group #2 - New Developments in Facility Start-up, Operation, Distribution and Commercial</b>		
PO2-1	<b>Algerian LNG Maritime Transport Network Optimization</b>	Chabbi Abdeldjallil and Bentabba Zine Alabidine (Sonatrach)
PO2-2	<b>Implications of Mercury Removal Bed Material Changeout: Brownfield Versus Greenfield</b>	Canute Hudson (Atlantic LNG Co. of Trinidad and Tobago)
PO2-3	Studies of Risks Associated with Different LNG Storage Methods: the GL4/Z Complex Case	Soumia Ameur (Es Senia University)
PO2-4	<b>Work Methodology Implemented to Diagnose the LNG Terminal of Fos Tonkin and Set Up the Options for Its Life Extension</b>	Marc Lecron (Tractebel Engineering); Pierre Bréban (ELENGY)
PO2-5	<b>Reducing Environmental Footprint for Ageing Qatargas 1 Facilities</b>	Muh Ilyasak and Abdelouahab Madouri (Qatargas Operating Company)
PO2-6	<b>A Flexible Method for Adjusting LNG Heating Value, Also Applicable Offshore</b>	Christian Bladanet and Fara Rasolondraibe (Technip); Jean-Claude Garcel and Christophe Thomas (Total)
PO2-7	<b>Availability Model of an LNG Import Plant in Function of the Send Out Demand</b>	José A. Lana and Claudio Rodríguez,(Enagás, S.A.); Aniceto Valverde and Gregorio Munuera (Technical University of Cartagena)
PO2-8	<b>LNG Supply Developments Using Distributed LNG Concepts</b>	Brian C. Price and Shawn D. Hoffart (Black & Veatch Corp.)
PO2-9	<b>Cost-Effective Revamping of LNG Plants to Maximize Production at Elevated Ambient Temperatures</b>	Donald K. McMillan and Joseph H. Cho (SK Engineering & Construction)
PO2-10	<b>Accumulation of Radon Decay Products in the Dehydration Process of LNG Plants</b>	Ryosuke Tsukamoto and Shuzo Kojima (JGC Corp.); Masao Murata, Jun Moriizumi, Hiromi Yamazawa, and Takao Iida (Nagoya University)
PO2-11	<b>LNG Master<sup>®</sup> : Safe and Optimized Storage Despite LNG Diversity</b>	Yacine Zellouf (GDF Suez)
PO2-12	<b>Managing Process Operations with Nitrogen Content Excursions</b>	Jorge Vincentelli and Ryan Rice (RasGas Co. Ltd.)
PO2-13	Improvement of the start-up behaviour, flexibility and efficiency of large gas-turbine driven compressor trains	Jerome Pigourier Axens and Jorg Rattay (Siemens)
PO2-14	<b>First Encounter of Excessive Heat and Toxic Gas Release During Mercury Removal Unit Changeout Activity</b>	Salihin B M Ismail (Malaysia LNG Sdn. Bhd.)
PO2-15	<b>Maintaining Plant Thermal Efficiency in a Declining Gas Supply Situation at PT Badak NGL Plant</b>	Rahmat Safruddin and Sutopo Ramelan (PT Badak)

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PO2-16	<b>Argentina LNG</b>	<b>Juan José Rodríguez and Carlos Alberto Weis (YPF S.A.)</b>
PO2-17	Life Cycle Assessment of the Union Fenosa Gas LNG Chain: A Mediterranean Case	Fernando Estebanz Casla and Esperanzo Hayd Leiva (Union Fenosa)
PO2-18	The Strategies of LNG Producing Countries, Comparative Approach to the Three Countries	Benabbou Senouci (Universite d'Oran Essenia)

**Group #3 - New Developments in Instrumentation, Control and Simulation**

PO3-1	<b>Dynamic Simulation of C3-Mr LNG Plants With Parallel Compression Strings</b>	<b>Matthew J. Okasinski and Yu Nan Liu (Air Products and Chemicals, Inc.)</b>
PO3-2	<b>Fibre Optic Distributed Temperature Sensors for LNG Pipelines: A Study of LNG Pipe Cool-Down Monitoring and Leakage Detection</b>	<b>Femi Tanimola (Sensornet Ltd.); Katrin Riesner (R&amp;M Ship Technologies GmbH)</b>
PO3-4	<b>Distributed Leak Detection and Cool-Down Monitoring on LNG Facilities</b>	<b>Kuljit Singh and Andrew Strong (Schlumberger Terrestrial Surveillance)</b>
PO3-5 052	<b>Instrumentation and Regulatory Control Layer Requirements for Effective LNG APC Applications</b>	<b>Sebastien Osta (IPCOS Aptitude Ltd.)</b>
PO3-6	CCS Options for LNG Liquefaction Facilities	Chris Sharatt (Foster Wheeler)
PO3-7	<b>Test Method for Measuring Insulation Values of Cryogenic Pipes</b>	<b>J.F.M Velthuis, H. Blokland, B. W. Klaver, and C. van de Beld (TNO Science and Industry)</b>
PO3-8	<b>Analysis of the Effect of Fast Transients in LNG Process Equipment</b>	<b>J.P.M. Smeulers and M. Oldenburg (TNO Science and Industry)</b>
PO3-9	<b>Investigation of Subsynchronous Torsional Interactions on LNG Power Plants</b>	<b>Piergiovanni La Seta, Edwin Lerch, Rainer Zurowski, Shiva B. Kumar, and Richard Osman (Siemens); Bharatendu Deo and Brian Bahr (QatarGas Operating Co. Ltd.); Junichi Sakaguchi, Yasushi Okazaki, and Toshiaki Saito (Chiyoda Corp.)</b>
PO3-10	<b>Expansion and Integration of the RasGas Control and Information System</b>	<b>D. M. Thomas, Elias S. Elias and Ahmed Tayeeb Zangeneh (RasGas Co. Ltd.)</b>

**Group #4 - New Developments in Mechanical and Machinery**

PO4-1	<b>The Role of an Efficient Anti-Surge System in Energy</b>	<b>Mohamed el Amine and Kaddour Brahim (Sonatrach)</b>
PO4-2	<b>Study on the Behavior and Localized Corrosion Inhibition Based Polyphosphates of Pipeline Steel API 5L X60 for Natural Gas</b>	<b>Samia Bensoltane, Mohamed Hadjel, and Abdelrahim Benmoussat (Technological University of Oran)</b>
PO4-3	<b>Bearing Fault Detected on Instrument Air Compressor at LNG Plant</b>	<b>Mike Hastings and Theo van Santen (Brüel &amp; Kjær Vibro)</b>

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PO4-4	<b>Marine Impact On Liquefaction Processes</b>	<b>Marlies van Osch, , S.P.C. Belfroid, and Monique Oldenburg (TNO Science and Industry)</b>
PO4-5	<b>Development of 7% Ni-TMCP Steel Plate for LNG Storage Tanks</b>	<b>Maki Yamashita (Osaka Gas Co., Ltd.); David Knowles (Shell Global Solutions International B.V.); Masahiko Mitsumoto and Tomoya Kawabata (Sumitomo Metal Industries, Ltd.)</b>
PO4-6	<b>LNG Pipelines Thermal Insulation—Operator Evaluation Tests for Fire Protection</b>	<b>David Maocec and Stéphanie Regni (GDF Suez)</b>
PO4-7	<b>Behavior of LNG Concrete Tank at Cryogenic Temperatures</b>	<b>Lahlou Dahmani (Université Mouloud Mammeri)</b>

**Group #5 - New Developments in LNG Safety**

PO5-1	Modeling LNG pool spreading and vaporization	Davood Rashtchian (Sharif University of Technology)
PO5-2	Dimensioning of a Water Curtain for the Protection of Hydrocarbon Storage Tank Against a Thermal Radiation	Mohamed Cherifi and Abderrahmane Benbrik (University of Boumerdes)
PO5-03	<b>EVOLCODE: Last Evolution for the Calculations of Consequences of LNG Releases and LNG Fires</b>	<b>Vincent Blanchetière and J. Duhart (GDF SUEZ)</b>
PO5-04	<b>FireSafe Isolation While Minimizing Corrosion</b>	<b>David Wittekind (Pikotek)</b>