



AGENDA

Critical Issues Workshop

LNG is Hot:

Opportunities, Challenges & Strategies as a Vehicle Fuel

3 & 4 December 2009,

Le Chatelain Hotel, Brussels

This is the second in the series of Clean Fuels Consulting *Critical Issues Workshops*. This workshop is designed to gather expert speakers to address a knowledgeable audience of Liquefied Natural Gas (LNG) and Liquefied Bio-Gas (LBG) stakeholders who, together, can identify and explore new strategies to open the world-wide markets for cryogenic methane as a vehicle fuel. The workshop provides an excellent opportunity to interact and network with leading figures in the industry. The goal is to leave the workshop with a firm idea of the key issues facing the industry and what next steps and strategies are required by the industry to advance the sustainable growth of LNG and LBG in over-the-road and non-road vehicle transportation and fuelling technologies. A small table top exhibition accompanies the workshop.

DAY ONE: Thursday, 3rd December 2009

12.00-13.00 COFFEE & REGISTRATION

13.00-13.15 WELCOME, INTRODUCTIONS & OBJECTIVES OF THE WORKSHOP

Jeffrey Seisler, CEO, Clean Fuels Consulting

SESSION I

13.15-15.15 GLOBAL PROSPECTS FOR LNG SUPPLY & BUSINESS DEVELOPMENT

This session provides a worldwide overview of LNG supply prospects and gives a brief review of L-NGV activities on an international basis by region.

- **LNG Supply & Demand Prospects Today & Into the Future**, *Jörgen Henningsen, Sr. Adviser on Energy & Climate, European Policy Center (Denmark)*
- **Developments in the U.S. L-NGV Market**, *Erik Neandross, Gladstein, Neandross & Associates (USA)*
- **L-NGV Development in the Asia-Pacific Region**, *Brenda Smith, CEO, Gas Advisers, (Hong Kong)*
- **A European Perspective on L-NGV Market Development**, *Jeffrey Seisler, CEO, Clean Fuels Consulting*

15:15-15:45 COFFEE BREAK IN EXHIBITION AREA

SESSION II

15:45-17:45 LNG PRODUCTION & FUELLING: TECHNOLOGIES & STRATEGIES

LNG offers special advantages over CNG in that it can be transported and stored easily and with better density than gaseous methane. LNG also offers additional flexibility as liquefied-to-compressed natural gas (L-CNG). Additionally, LNG has a role to play in the development of bioqas-to-biomethane as a vehicle fuel, both for gas purification and transport. The development challenges, technologies and operational experiences of fuel supply, fuelling and fuel storage options will be evaluated and discussed.

- **Opportunities & Challenges for L-NGVs in the Fuel Supply & Distribution Chain**, *Philippe Heisch, Sales Engineer, Cryostar (France)*
- **The Art & Science of L-NGV Fuelling: Issues Resolved & Unresolved**, *Roy James, CEO, Chive Fuels Ltd.(United Kingdom)*
- **LNG as a Renewable Resource: UK Breaks New Ground**, *Richard Lilleystone, Gasrec (United Kingdom)*
- **Opening the Swedish Market for (Renewable) LNG**, *Joeri Jacobs, Scandinavian GtS (Sweden)*

18.00-19.30 Cocktails in the Foyer with Table Top Exhibits

DAY TWO: Friday, 4th December 2009

8.00-8.30 MORNING COFFEE

SESSION III

08:30-10:30 LNG VEHICLE TECHNOLOGY DEVELOPMENTS

Reliable, durable and economic technologies form the heart of the market for natural gas vehicles. Investments in technology improvement and field experience have brought NGVs and natural gas engines increasingly closer to the efficiency performance of the status-quo diesel engine systems but with much improved emissions results. Technology leaders discuss their latest achievements for a full range of heavy duty applications.

- **High Pressure Direct Injection (HPDI) LNG Systems for Heavy Duty Engines**, *Lance Follett, Vice President of Licensing, Westport Innovations, (Canada)*
- **Computerized Dual Fuel System Developments**, *Steve Whelan, Director of Technology, Clean Air Power (UK)*
- **OEM Perspective on L-NGVs**, *Rolf Willkrans, AB Volvo (Sweden)*
- **Green Ports & LNG**, *James Cannon, President, Energy-Futures, (USA)*
- **LNG for Urban Delivery Trucks: Opportunities & Challenges in the Developing Dutch Market**, *Koos Blaazer, LNG Europe bv, (Netherlands)*

10.30 -11.00 BREAK

SESSION IV

11.00-12.30 LNG STANDARDS, REGULATIONS AND SAFETY: DEVELOPMENT & HARMONIZATION

There are three principle concerns in the NGV/LNG business: safety, safety and safety. In-use safety and compliance depend upon having a foundation of adequate and explicit international standards and regulations. These must be rigorous to ensure safety and reliability of the equipment and fuel, yet flexible to reflect new developments in technology that also are supportive of innovation. To be effective, the standards and regulations must be reinforced by downstream training of vehicle and fuelling station stakeholders and customers. These critical, intertwined issues are presented by internationally recognized standards and safety professionals.

Moderator: Martin Seifert, Swiss Water & Gas Association

- **An Overview of Global Standards for LNG Technologies**, *Brenda Smith, CEO, Gas Advisers (Hong Kong)*
- **L-NGV Standards Development at the International Standards Organization**, *Vaclav Chrz, Chart Industries, (Czech Republic)*.
- **LNG Safety: Integrating Standards, Regulations, Best Practices and Compliance**, *Doug Horne, President, Clean Vehicle Education Foundation (USA)*
- **Communicating Safety from Supply-to-Customer: LNG Training**, *Gert Jan Rap, CEO, Rap Clean Air Products/International Clean Fuels Training Institute (Netherlands)*.

Session V

12.30-13.15 NEXT STRATEGIC STEPS INTO THE MARKET: THE FUTURE OF LNG VEHICLES

An interactive discussion between panelists selected from the session presenters and the audience will provide the final results of the workshop activities, with an eye toward pursuing activities and strategies to further develop the world-wide markets for L-NGVs. The discussion will focus on gaps and needs for further research, development and practical applications, including the development of *harmonized* international L-NGV standards and regulations requiring support by governments or by LNG 'champions' to bring more LNG vehicles to the market.

13.15 CLOSING REMARKS & END OF WORKSHOP

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