



Natural Gas as a Fuel for Freight Transport *A Workshop*

May 13–14, 2014

Arnold and Mabel Beckman Conference Center

Irvine, California

Sponsored by
Transportation Research Board



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www.TRB.org

May 13–14, 2014



WELCOME

The Transportation Research Board (TRB) Freight Systems and Marine Groups are pleased to present the Workshop on Natural Gas as a Fuel for Freight Transport at the Arnold and Mabel Beckman Conference Center of the National Academies in Irvine, California.

A structural shift in U.S. natural gas fuel production is under way, and the emergence of plentiful, low-cost natural gas fuels for freight carriers makes energy one of the most important trends affecting the nation's freight systems. This workshop will bring natural gas fuel experts from around the country together with representatives from private industry, government, and academia to learn about issues related to adopting liquefied natural gas (LNG) and compressed natural gas (CNG) as a fuel for the movement of freight via the nation's highways, waterways, and rail systems.

There are many uncertainties about how proposed governmental regulations and incentives may affect this emerging market. The diverse community of stakeholders gathered at this workshop will have the opportunity to develop concepts for research to support the development of informed public policy decisions and regulatory frameworks and of the necessary infrastructure and delivery systems that can enable market adoption of natural gas fuels in freight systems.

The most useful part of this workshop is building the professional relationships that support the work we do every day and throughout our careers. The agenda includes time to learn from each other, such as at the Tuesday evening reception and at the Wednesday tour of natural gas fueling facilities. Welcome to sunny southern California, and enjoy the workshop!



Ivanov

—Barbara Ivanov

*Conference Planning Committee Chair and TRB Freight Group Chair
Washington State Department of Transportation*

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May 13–14, 2014



Tuesday, May 13

Complimentary shuttle from Marriott Newport Beach to Beckman Center at 7:15 a.m. and 7:45 a.m.

7:30 a.m.–5:30 p.m., *Atrium*

Registration

7:30 a.m.–8:30 a.m., *Dining Room*

Breakfast

8:30 a.m.–8:40 a.m., *Auditorium*

Opening Remarks

Barbara Ivanov, TRB Freight Group and Workshop Chair

8:40 a.m.–9:20 a.m., *Auditorium*

Keynote Address

**U.S. Natural Gas Supply Production Trends and Environmental Issues
Associated with Natural Gas Fuels**

Benjamin Schlesinger, Benjamin Schlesinger and Associates

9:20 a.m.–10:00 a.m., *Auditorium*

Natural Gas Energy Sector Outlook

Jason Tate, BP Energy

10:00 a.m.–10:15 a.m., *Auditorium*

Liquefied Natural Gas (LNG) and the Marine Sector

Captain John Holmes, TRB Marine Board

10:15 a.m.–10:45 a.m., *Auditorium*

Transporting Compressed Natural Gas and LNG Fuels in the Marine Sector

Peter Gallenberger, WesPac Energy Group

10:45 a.m.–11:00 a.m., *Atrium*

Morning Break

11:00 a.m.–11:30 a.m., *Auditorium*

Truck Fueling Station Infrastructure

Andres Carlos, Clean Energy

11:30 a.m.–Noon, *Auditorium*

The Challenges of the LNG Supply Chain for Fueling Marine Transportation

Richard Stewart, University of Wisconsin–Superior

Noon–1:30 p.m., *Atrium*

**Luncheon Panel: Creating the Necessary Market Conditions for Adopting Natural Gas
as a Fuel for Freight Transport**

Michael Fischer, Cambridge Systematics, *presiding*

Panelists

- Fred Silver, CALSTART
- Matt Miyasato, South Coast Air Quality Management District
- Vic La Rosa, Total Transportation Services, Inc.

Tuesday, May 13, 2014



1:30 p.m.–3:00 p.m., *Auditorium*

Fleet Adoption: Equipment

Melissa Shurland, *presiding*

- **Marine**
Kurt Larsen, American Bureau of Shipping
- **Truck**
Scott Perry, Ryder
- **LNG as Natural Gas Fuel For Locomotives and Associated Safety Issues**
Phani Raj, Federal Railroad Administration

3:00 p.m.–3:15 p.m., *Atrium*

Break

3:15 p.m.–4:30 p.m., *Board Room, Huntington Room, Balboa Room, Newport Room*

Research Problem Statement Development

Attendees will be assigned to one of four breakout groups addressing the following two areas:

- (1) Identifying research needed to inform public policy and regulatory decision making with respect to the use of natural gas, or
- (2) Identifying research needs related to the necessary infrastructure, delivery systems, and technology to supply natural gas to the freight system.

4:30 p.m.–5:30 p.m., *Auditorium*

Breakout Group Dissemination and Discussion, Next Steps, Closing Remarks

Barbara Ivanov, TRB Freight Group and Workshop Chair, *presiding*

- Sara Clark, TranSystems
- Michael Fischer, Cambridge Systematics
- Melissa Shurland, U.S. Department of Transportation

5:30 p.m.–6:30 p.m., *Atrium*

Networking Reception (drinks and light hors d'oeuvres provided)

Complimentary shuttle from Beckman Center to Marriott Newport Beach at 6:15 p.m. and 6:45 p.m.

Tuesday, May 13, 2014



Wednesday, May 14

Complimentary shuttle from Marriott Newport Beach to Beckman Center at 8:45 a.m.

9:00 a.m.–1:15 p.m.

Industry Tour

Bus leaves Beckman Center at 9:00 a.m. and returns attendees at 12:30 p.m. for lunch. Tour events include:

- Ryder Natural Gas Refueling Station and Maintenance Yard
- Clean Energy Natural Gas Refueling Facility

Complimentary shuttle provided from Beckman Center to Marriott Newport Beach for those not attending committee meetings.

1:30 p.m.–4:00 p.m.

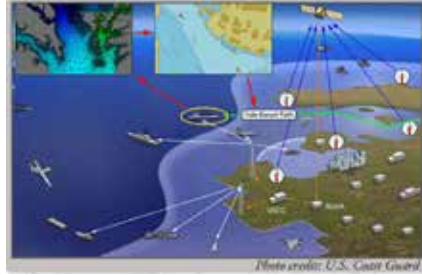
TRB Committee Meetings

- International Trade and Transportation (AT020), *Huntington Room*
- Ports and Channels (AW010), *Board Room*
- Marine Environment (AW030), *Balboa Room*
- Marine Safety and Human Factors (AW040), *Newport Room*

Complimentary shuttle from Beckman Center to Marriott Newport Beach at 4:00 p.m.

Wednesday, May 14, 2014





Innovative Technologies for a Resilient Marine Transportation System
3rd Biennial Research and Development Conference

June 24–26, 2014

The National Academy of Sciences Building

Washington, D.C.

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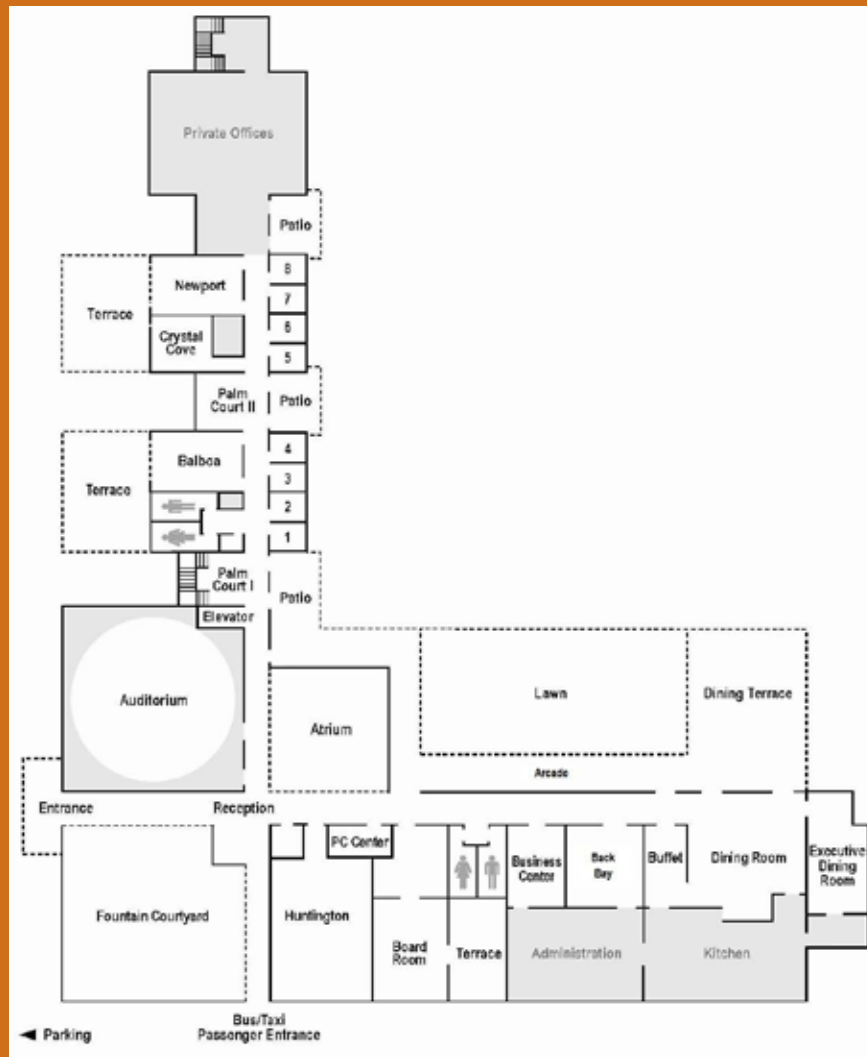
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Area Maritime Security Committee Conference:
Partnering for Safe, Secure, and Resilient Port Operations**

August 25–27, 2014

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