

H₂@Ports Workshop Agenda
Sept 10-12, 2019
Commandant Room, 10th Floor
Marines' Memorial Club & Hotel | San Francisco, CA

Workshop Introduction and Objectives

Government and industry technology developers world-wide are realizing the potential for hydrogen maritime applications including vessels, port vehicles, shore power, and port related equipment. This workshop will help identify needed research to accelerate technology development and address barriers to industry commercialization.

This workshop is being developed in collaboration with the U.S. Maritime Administration and the European Union Fuel Cells and Hydrogen Joint Undertaking (FCH JU). We welcome workshop participants and look forward to exploring opportunities for cooperation and collaboration on hydrogen maritime areas of interest.

The objectives of this workshop are to:

- Assess the state of the art for maritime applications specifically using hydrogen fuel cells
- Discuss operational requirements and lessons learned on early fuel cell maritime projects
- Understand current technology gaps and identify collaborative R&D opportunities
- Identify regulatory challenges and needed safety codes and standards

Tuesday, September 10 | Day 1

7:30 AM **Breakfast**

8:00 AM **Welcoming Remarks**
Elaine Forbes, Director, Port of San Francisco

Session I – U.S. Government Perspectives on Hydrogen at Ports and At-Sea Marine Applications

8:15 AM **U.S. Department of Energy**
Sunita Satyapal, Director, U.S. Department of Energy Fuel Cell Technologies Office (DOE-FCTO)

8:30 AM **U.S. Maritime Administration**
Michael Carter, Acting Associate Administrator for Environment and Compliance, U.S. Department of Transportation Maritime Administration

8:45 AM **U.S. Environmental Protection Agency**
Britney McCoy, Environmental Engineer, Office of Transportation & Air Quality, Transportation and Climate Division

9:00 AM **California Air Resources Board**
Leslie Goodbody, Engineer, Innovative Heavy Duty Strategies

9:15 AM **U.S. Government Panel Discussion**
Moderator: Pete Devlin, US DOE-FCTO

9:45 AM **Break & Network**

Session II – International Government Perspectives on Hydrogen at Ports and At-Sea Marine Applications

10:15 AM **European Commission**
Robert Missen, Head of Unit for Research, Directorate General for Mobility & Transport

10:30 AM **FCH JU**
Mirela Atanasiu, Head of Unit Operations and Communications

10:45 AM **Germany / NOW**
Erik Schumacher, Divisional Head Stationary Fuel Cells, NOW - National Organisation Hydrogen and Fuel Cell Technology

11:00 AM **Norway / SINTEF**
Steffen Møller-Holst, Vice President Marketing, Hydrogen & Fuel Cell Technologies

11:15 AM **Japan**
Eiji Ohira, Director General of NEDO's Fuel Cell and Hydrogen Group

11:30 AM **International Panel Discussion**
Moderator: Elizabeth Connelly, US DOE-FCTO

12:00 PM **Lunch & Network**

Session III - Infrastructure Stakeholders Perspectives: Port Authorities

1:00 PM **Port of Los Angeles**
Chris Cannon, Chief Sustainability Officer/Director of Environmental Management

- 1:15 PM **Valenciaport Foundation**
Mercedes de Juan, Project Manager
- 1:30 PM **Hamburg Port Authority**
Bjoern Pistol, Head of Port Estate and Maritime Affairs
- 1:45 PM **Infrastructure Stakeholders Panel Discussion**
Moderator: Charlie Myers, Oak Ridge National Laboratory
- 2:00 PM **Break & Network**

Session IV – Industry Perspectives: Ship Systems Developer

- 2:30 PM **Golden Gate Zero Emission Marine**
Joe Pratt, CEO & CTO
- 2:45 PM **NCE Maritime CleanTech**
Paul Helland, Project Manager Innovation
- 3:00 PM **Wilh. Wilhelmsen Holding**
Per Brinchmann, Vice President – Special Projects
- 3:15 PM **Ship Systems Developer Panel Discussion**
Moderator: Laurence Grand Clément, PersEE
- 3:45 PM **Day 1 Closing Remarks**
- 4:15 PM **Adjourn**
- 6:00 PM **Dinner – Hosted by FCH JU**
Location: Farallon
450 Post St, San Francisco, CA 94102

Wednesday, September 11 | Day 2

7:30 AM **Breakfast**

Session V - Industry Perspectives: Power Systems Developers

8:00 AM **ABB Marine & Ports**
Klaus Vanska, Global Business Development Manager

8:15 AM **BAE Systems**
Peter Brooks, Global Marine Account Manager

8:30 AM **General Electric**
Renaud Cornu, Senior Market Leader GE Power Conversion

8:45 AM **Wärtsilä**
Stefano Cantarut, Segment Manager Cruise and Ferry

9:00 AM **Power Systems Developers Panel Discussion**
Moderator: Charlie Myers, Oak Ridge National Laboratory

Session VI – Industry Perspectives: Vehicle & Fuel Cell Manufacturers

9:30 AM **Hyster-Yale/Nuvera**
Gus Block, Manager of Business Development

9:45 AM **Kenworth**
Brian Lindgren, Director of Research & Development

10:00 AM **Cummins**
Joerg Ferchau, General Manager, Electrified Power

10:15 AM **Hydrogenics**
Ryan Sookhoo, Director of New Initiatives

10:30 AM **Break & Network**

11:00 AM **Ballard Marine Center of Excellence**
Alan Mace, Market Manager

11:15 AM **PowerCell Sweden**
Johan Burgren, Business Manager Marine

- 11:30 AM **Nedstack**
Roel Van de Pas, CCO
- 11:45 AM **Vehicle & Fuel Cell Manufacturers Panel Discussion**
Moderator: Dimitrios Papageorgopoulos, US DOE-FCTO
- 12:15 PM **Lunch & Network**

Session VII – Regulations, Codes and Standards

- 1:15 PM **PersEE**
Laurence Grand Clément, CEO
- 1:30 PM **Lloyd's Register**
Olav Hansen, Senior Principal Risk Management Consultant
- 1:45 PM **DNV-GL**
Anthony Teo, Technology and LNG Business Development Director
- 2:00 PM **ClassNK**
Koichi Nishifuji, Manager of Technical Solution Department
- 2:15 PM **US Coast Guard (USCG)**
LCDR Frank Strom, USCG Sector San Francisco
- 2:30 PM **Regulations, Codes and Standards Panel Discussion**
Moderator: Lionel Boillot, FCH JU
- 3:00 PM **Break & Network**

Session VIII – Recent Research and Analyses

- 3:30 PM **Development of a Containerized 100kW Fuel Cell System for Maritime Applications**
Lennie Klebanoff, Technology Staff, Sandia National Laboratories
- 3:45 PM **Refueling Analysis**
Nico Bouwkamp, Technical Program Manager, California Fuel Cell Partnership
- 4:00 PM **Hydrogen Demands at Ports**
Lindsay Steele, Senior Research Scientist, Pacific Northwest National Laboratory

- 4:15 PM **FCH JU TCO Analysis/EMSA study**
Lionel Boillot, Project Manager, FCH JU
- 4:30 PM **Total Cost of Ownership (TCO) Analysis for Maritime Applications**
Rajesh Ahluwalia, Manager, Fuel Cell and Hydrogen, Argonne National Laboratory
- 4:45 PM **Session VIII Q&A**
Moderator: Pete Devlin, US DOE-FCTO
- 5:00 PM **Participant Feedback**
- 5:15 PM **Adjourn**

Thursday, September 12 | Day 3

- 8:00 AM **Bus Pick-up**
Location: Marines' Memorial Club & Hotel
609 Sutter St, San Francisco, CA 94102
- 9:00 AM **Tour of Water-Go-Around, Golden Gate Zero Emission Marine**
Location: It's Bay Ship & Yacht
2900 Main St., Alameda, CA 94501
- 11:00 AM **Bus Departure**
- 12:00 PM **Bus Drop-off**
Location: Marines' Memorial Club & Hotel
609 Sutter St, San Francisco, CA 94102