

Mission Innovation
Clean Hydrogen Mission (CHM) Workshop



Hydrogen Production Innovation – Policy and Technologies

October 9 (Wed) – 11 (Fri), 2024

Workshop: Tokyo, Japan
Site-visit: Koriyama, Fukushima, Japan

Program

Objective	The workshop focuses on hydrogen production policy and technologies, especially discussing hydrogen's role in the decarbonization of future energy systems, and innovations in hydrogen production.
Workshop	Hydrogen Production Innovation – Policy and Technologies
[1] Oct 9 (Wed)	<u>Workshop</u> 9:30-16:00 JST / 11:30-18:00 AEDT / 6:00-12:30 IST / 2:30-9:00 CEST / 20:30 ⁻¹ -3:00 EDT <u>ICEF “Hydrogen Readiness”</u> 16:15-17:15 JST / 18:15-19:15 AEDT / 12:45-13:45 IST / 9:15-10:15 CEST / 3:15-4:15 EDT
[2] Oct 10 (Thu)	<u>Workshop</u> 9:00-17:15 JST / 11:00-19:15 AEDT / 5:30-13:45 IST / 2:00-10:15 CEST / 20:00 ⁻¹ -4:15 EDT <u>Reception</u> 18:00 JST at Capitol Tokyu Hotel by Delegation of the European Union to Japan
Oct 11 (Fri)	<u>Site-visit</u> 8:30-18:30 JST (tbc) Fukushima Renewable Energy Institute (FREA), AIST
Format	Hybrid
Location	The Westin Tokyo (1 Chome-4-1 Mita, Meguro City, Tokyo, Japan) Room: Kusunoki (B1F)
Host	Ministry of Economy, Trade and Industry (METI), Japan
Workshop recording	Workshop recording is available for registered participants for limited period (approximately 10 days) after the workshop
Registration for (for online participation)	Registration is required for online participation: https://project.webex.com/webappng/sites/project/webinar/webinarSeries/register/9e616561f9594a2ab8db18d1746bfccc (Registration close: October 7, 2024 of each time zone)



[1] October 9 (Wed)

Workshop: Hydrogen Production Policy

9:30 – 9:40 Welcome Address

- **Welcome Address: Host**
Wataru Imamura, Deputy Director-General, Innovation and Environment Policy Bureau,
Ministry of Economy, Trade and Industry (METI)
- **Welcome Address: Mission Innovation - Clean Hydrogen Mission**
Piero Venturi, Director, **Mission Innovation - Clean Hydrogen Mission** <virtual>

9:40 – 10:00 MI Clean Hydrogen Mission: Activity Overview

- **Mission Innovation - Clean Hydrogen Mission**
Paula González Alexia, Unidad de Nuevos Energéticos,
División de Combustibles y Nuevos Energéticos, **Ministerio de Energía**

10:00 – 10:40 Keynotes - International Organizations

IEA provides the latest perspectives on hydrogen production and demand/supply toward 2050 (and required hydrogen production volume toward 2050). IPHE provides the view on hydrogen certification harmonization.

- **IEA**
Keisuke Sadamori, Director, Energy Markets and Security, **International Energy Agency**
- **IPHE**
Laurent Antoni, Executive Director, **International Partnership for Hydrogen and Fuel Cells in the Economy**

10:40 - 12:00 National/Regional Policy and Activities

MI CHM members provide their vision and targets on hydrogen deployment toward 2050 and their R&D on hydrogen production technologies.

[National]

- **Japan**
Wataru Kaneko, Assistant Director, Hydrogen and Ammonia Division, Agency for Natural Resources and Energy, **Ministry of Economy, Trade and Industry (METI)**
- **EU**
Nikolaos Lymperopoulos, Project Officer, **Clean Hydrogen Partnership**
- **USA**
David Peterson, Acting Program Manager, Hydrogen Production, HFTO, **Department of Energy (DOE)**
- **UK**
Laurence Holding, Senior Policy Advisor Hydrogen Production Strategy, **Department for Energy Security and Net Zero (DESNZ)**

12:00 - 13:00 Lunch Break

13:00 - 14:40 National/Regional Policy and Activities [Continued]

- **Australia**
Chris Simkus, Manager, Hydrogen Initiatives, **Department of Climate Change, Energy, the Environment and Water (DCCEEW)** <virtual>
- **Brazil**
Gabriela Bezerra Fischer, Partner, Trench Rossi Watanabe
Coordinator of the Legal and Regulatory Affairs Committee of **the Brazilian Hydrogen Association**
- **Chile**
Paula González Alexia, Unidad de Nuevos Energéticos,
División de Combustibles y Nuevos Energéticos, **Ministerio de Energía**
- **Netherlands**
Carla Robledo, Senior Policymaker, Directorate Energy Markt - Cluster Hydrogen and Gas, **Ministry of Climate Policy and Green Growth** <virtual>

[Regional]

- **Canada** <tb>

14:40 - 16:00 Decarbonization pathway (Hydrogen Roadmap)

Major research organizations from Europe, USA, and Japan provide their decarbonization pathway, and clarify the hydrogen's role in their scenarios (and hydrogen production technology scenarios).

- **Europe**
Christopher Hebling, Director of the Business Division Hydrogen Technologies, **Fraunhofer ISE (Germany)**
- **USA**
Alex Badgett, Researcher IV-Decision Support Analysis, Strategic Energy Analysis Center,
Energy Analysis Research Topic, **National Renewable Energy Laboratory (USA)**
- **India**
Anuraag Nallapaneni, Senior Program Associate – Hydrogen, **World Resources Institute (India)**
- **Japan**
Yuki Ishimoto, Associate Director, Hydrogen Group, **The Institute of Applied Energy (Japan)**

16:00 - 16:15 Coffee Break

16:15 - 17:15 ICEF “Hydrogen Readiness” (Room: Galaxy, B2F)

[2] October 10 (Wed)

Workshop: Hydrogen Production Technologies

9:00 - 11:00 Hydrogen Production: Renewable hydrogen (Electrolysis)

Electrolyser will be the main technology for hydrogen production toward 2050, and each company provides the advantages of their technologies.

- **Alkaline Electrolysis (1)**
Namiko Murayama, Group manager, Business Development & Sales of Green Hydrogen Group, **thyssenkrupp nucera Japan (Germany/Japan)**
- **Alkaline Electrolysis (2)**
Masami Takenaka, Senior General Manager, Green Solution Project, **Asahi Kasei Corporation (Japan)**
- **PEM Electrolysis (1)**
Magnus Thomassen, Chief Product Officer, **Hystar (Norway)**
- **PEM Electrolysis (2)**
Koichi Izumiya, Group Leader, Technology Development Section, Project Department, Electrolysis & PtG Business Unit, Carbon Neutral Solution Business Headquarters, **Hitachi Zosen (Japan)**
- **SOEC**
Kenichiro Kosaka, Chief Engineer, Senior Manager, Dr. Eng. Technology Strategy Department, Energy Systems, **Mitsubishi Heavy Industries (Japan)**
- **AEM**
Chugaev Alexander, Manager, Plant Dept. Environment Projects Division, **Mikuni Kikai Kogyo (Japan)**

11:00 - 11:40 Hydrogen Production: Fossil Fuel-Based Low Carbon Hydrogen

Together with renewable hydrogen (with electrolyser), fossil fuel-based hydrogen with CCS technology will take an important role on hydrogen supply chain development.

- **Natural gas-based hydrogen production**
H2M Eemshaven / Equinor (Norway) <tbc>
- **Coal-based hydrogen production**
Juzo Kotani, Project Director, Research & Development Dept., **J-Power (Japan)**

11:40 - 12:20 Hydrogen Production Innovations

The session focuses on innovation (emerging technologies) on hydrogen production, including methane pyrolysis, photoelectrochemical water splitting, thermochemical hydrogen and bio hydrogen.

- **Methane pyrolysis (1)**
Luc Kox, Chief Commercial Officer, **Hazer Group Limited (Australia) <virtual>**
- **Methane pyrolysis (2)**
Yinzhe Gu, Energy Solution Group, Green Innovation Development Center, **Air Water Inc.(Japan)**

12:20 - 13:30 Lunch Break

13:30 - 15:10 Hydrogen Production Innovations [Continued]

- **Photocatalytic water splitting**
Kazunari Domen, Professor, **Shinshu University/University of Tokyo (Japan)**
- **Thermochemical hydrogen**
Souzana Lorentzou,
Advanced Renewable Technologies & Environmental Materials in Integrated Systems (ARTEMIS),
Chemical Process and Energy Resources Institute (CPERI),
Centre for Research and Technology – Hellas (CERTH) (Greek) <virtual>
- **Biomass-based hydrogen**
Anuraag Nallapaneni, Senior Program Associate – Hydrogen, **World Resources Institute (India)**
- **Wasted plastic-based hydrogen**
Yoshikazu Shimazu, Yoshikazu Shimazu, CSO of Basic Chemicals Unit, **Resonac Corporation (Japan)**
- **Wasted aluminum-based hydrogen**
Nobuaki Mizuki, President, **Alhytec Inc.(Japan)**

15:10 - 15:30 Coffee Break

15:30 - 16:30	Breakout Session (Room: Kusunoki (B1F), Eniwa (2F), Tokachi (2F) *Rooms may change depending on the number of participants.) Speakers and audience will be divided into three sessions to discuss issues and recommendations for the future development of hydrogen technologies.
	<ol style="list-style-type: none"> Renewable hydrogen (electrolysis) Low Carbon Hydrogen (fossil fuel-based) Hydrogen Production Innovations
16:30 - 16:45	Short Break
16:45 - 17:15	Breakout Session Report Report from Breakout sessions
17:15 - 17:30	Closing Remarks
	<ul style="list-style-type: none"> Hiroki Uejima, Director, International Affairs Office, Innovation and Environment Policy Bureau, Ministry of Economy, Trade and Industry
18:00 -	Networking /Reception by Delegation of the European Union to Japan at Capitol Tokyu Hotel (Room: Kiri, 1F)

Oct 11 (Fri) Site-Visit (invitation only)

8:30 - 11:30	Transportation to FREA (arrival time 11:30)	https://www.aist.go.jp/fukushima/en/
11:30 - 13:00	Lunch	
13:00 - 15:30	FREA, AIST	
15:30 - 18:30	Transportation to Tokyo (arrival time 18:30)	