

Enabling an Accelerated and Affordable Clean Hydrogen Future - Fossil Energy Sector's Role

An NETL-GTI Workshop – September 27-28, 2021 (Eastern Standard Time)

Overall Objective:

Validate and advance the role of the fossil energy sector as an economic means to rapidly deploy hydrogen pathways to decarbonized energy systems.

Day 1 – Monday, September 27th

Day 1 Theme: Focus on the big picture of the hydrogen economy, including timelines, scale, deployment scenarios.

Day 1 Objective: Delineate the potential roles of the fossil energy sector in the future hydrogen economy (present, transition, and end state). Brainstorm stakeholder action items to advance the hydrogen transition by leveraging the vast expertise and resources of the fossil energy sector.

10:00	Welcome	Welcome & Workshop Objectives, Logistics	NETL/GTI
10:10	Welcome	Opening Remarks	Jen Wilcox, DOE Fossil Energy & Carbon Management, Principal Deputy Assistant Secretary
10:30	Keynote	Hydrogen's Role in the Energy Transition to Achieve Net Zero by 2050.	Dr. Julio Friedmann, Center on Global Energy Policy at Columbia University SIPA, Senior Research Scholar
11:00	Keynote	Hydrogen Earthshot Summit Overview and Deployment Session Wrap-up	Sunita Satyapal, DOE Energy Efficiency and Renewable Energy, Director for Hydrogen and Fuel Cells Technology Office
11:10	Keynote	Thermal Conversion with CCS Summit Session Wrap-up	Sam Thomas, DOE Fossil Energy & Carbon Management, Director for Hydrogen and Carbon Management
11:20	Keynote	DOE Hydrogen RFI Wrap-up	Tim Reinhardt, DOE Fossil Energy & Carbon Management, Director of Emissions Mitigation Technologies
11:30	Panel	State/Utility Perspective on Fossil Energy Hydrogen Challenges <ul style="list-style-type: none"> Plans, programs and drivers to enable hydrogen fossil hydrogen to achieve Net Zero emissions. 	<i>Moderator</i> Mark Berry, Southern Co., VP of R&D <i>Speakers</i> Peter Hoeflich, Duke Energy Corp., Director Joe Del Vecchio, National Fuel Gas Distribution Corp., VP and Chief Regulatory Counsel Chris Kroeker, Northwest Natural, Emerging Technology Program Manager Anja Bendel, Wyoming Energy Authority, Program Director

12:30	Lunch		
1:30	Panel	<p>Industry Strategies on the Hydrogen Value Chain</p> <ul style="list-style-type: none"> What are the industry imperatives to approach Net Zero across the value chain, including deployment, scale, and integration challenges? 	<p><i>Moderator</i> Poh Boon Ung, BP, Manager - Hydrogen & CCUS Advisory Services</p> <p><i>Speakers</i> Michael Ducker, Mitsubishi Power, Vice President of Renewable Fuels Krish Krishnamurthy, Linde, Head of CE Technology NA and CCS David Edwards, Air Liquide, Director</p>
2:30	Breakout	<i>Questions to be provided</i>	4 breakout groups
3:30	Break		
3:45	Report Out	Report out and discussion from Day 1 Breakout Sessions	Session Moderators
4:15	Wrap Up	Highlights of today, Plan for tomorrow	NETL/GTI
4:30	Adjourn		

Day 2 – Tuesday, September 28th

Day 2 Theme: Focus on challenges of the various stakeholders throughout the hydrogen value chain, and brainstorm collaborative solutions to address them.

Day 2 Objective: Socialize challenges and opportunities of stakeholders throughout the hydrogen value chain, as well as stakeholder interactions to promote partnerships and overcome barriers. Identify next steps.

10:00	Welcome	Day 2 Welcome/Introduction/Day 1 Review	Brian Anderson, NETL, Director
10:10	Welcome	Day 2 Welcome/Introduction/Day 1 Review	Mike Rutkowski, GTI, SVP of Research & Technology Development
10:20	Keynote	Defining the Carbon Intensity of Hydrogen	Shannon Angielski, Van Ness Feldman, Principal
10:40	Panel	<p>Challenges for Fossil-Based Hydrogen Production</p> <ul style="list-style-type: none"> Examines the critical issues, research needs, and technology challenges for producing hydrogen from various feedstocks. 	<p><i>Moderator</i> John Marion, GTI, Senior Program Director</p> <p><i>Speakers</i> Dan Williams, Wabash Valley Resources, Managing Director Perry Babb, 'KeyState To Zero', KeyState Natural Gas Synthesis & CCS, Chairman & CEO Rob Hanson, Monolith Materials, CEO</p>

11:30	Panel	<p>Challenges for Hydrogen and CO₂ Pipelines & Storage</p> <ul style="list-style-type: none"> To achieve Net Zero, disposition of CO₂ must be integral to fossil hydrogen production; The panel should examine challenges and solutions for moving and storing CO₂ and H₂. 	<p><i>Moderator</i> Jared Ciferno, NETL, Technology Manager</p> <p><i>Speakers</i> Michael Tritt, Lane Power & Energy Solutions, President Seth Levey, Equinor, Director, Govt. Relations & Public Affairs Jason Ketchum, One Gas, VP Commercial Operations Angela Goodman, NETL, Senior Researcher</p>
12:30	Lunch		
1:30	Panel	<p>Challenges for Hydrogen Utilization</p> <ul style="list-style-type: none"> Technology challenges and other barriers to be overcome to expand use of clean hydrogen in existing (refining, ammonia) and new end-use sectors. 	<p><i>Moderator</i> Brian Weeks, GTI, Senior Director, Business Development</p> <p><i>Speakers</i> Brett Perlman, Center for Houston's Future, Inc., CEO Josh Martincic, Long Ridge Energy Terminal, Chief Sustainability Officer Trevor Brown, Ammonia Energy Association, Executive Director Bernhard Winkelmann, Nikola Motor, Global Head, Technology & New Product Development</p>
2:30	Keynote	Role of Public Private Partnerships	Bryan Morreale, NETL Research & Innovation Center, Director
3:00	Breakout	<i>Questions to be provided</i>	4 breakout groups
4:00	Break		
4:15	Report Out	Report out and discussion from Day 2 Breakout Sessions	Session Moderators
4:45	Next Steps/ Wrap-up	Summary and Conclusions from the Workshop. Identify next steps to continue workshop momentum	NETL/GTI
5:00	Adjourn		