

# Hydrogen: Fueling the Sustainable Future

A Virtual Colloquium

ICEPAG 2021

Smart Grid | Mobility | Electricity | Storage | Economics | Microgrids

September 15, 16 (Wed, Thurs) | UC Irvine

## Program Day 1: Wednesday, September 15

8:00 – 9:00 am

### Colloquium Opening

- **Introduction to ICEPAG 2021**

Jack Brouwer, *UCI Advanced Power and Energy Program (APEP)*

- **Opening Keynotes:**

Hon. Mike Levin, *U.S. Congress, District CA-49*

Sunita Satyapal, *U.S. DOE Hydrogen & Fuel Cell Technologies Office*

9:00 – 10:00 am

### Hydrogen for Decarbonization & Zero Emissions

- **Building the Green Hydrogen Economy**

Tim Cortes, *Plug Power*

- **Hydrogen for Decarbonization & Zero Emissions**

Tony Leo, *FuelCell Energy*

- **Hydrogen: Implementing methodologies to enable decarbonization**

Venkat Venkataraman, *Bloom Energy*

10:00 – 10:30 am

### BREAK

10:30 – 12:10

### Leading CA Agency Thoughts on Hydrogen

- **The Role of Hydrogen for Decarbonizing the Global Economy**

Angelina Galiteva, *Chair, CA Independent System Operator Board of Governors*

- **Hydrogen & Regional Air Quality**

Aaron Katzenstein, *Asst. Deputy Executive Officer, South Coast AQMD*

- **Energy for Economy Wide Deep Decarbonization**

Richard Corey, *Executive Officer, California Air Resources Board*

### Reasons for Hydrogen Interest & Focus

- **H<sub>2</sub> Asset Readiness from an European Utility Perspective**

Pere Margalef, *Snam*

- **Hydrogen-Powered Backup Generators for Hyperscale Datacenters**

Sean James, *Microsoft*

12:10 – 1:10 pm

### BREAK

1:10 – 2:20 pm

### Hydrogen Research “From Science to Practical Application @ UCI”

- **Hydrogen: Enabling Sustainable Mobility**

Vojislav Stamenkovic, *Horiba Institute for Mobility and Connectivity<sup>2</sup>*

- **Energy high-durability, high performance polymer electrolyte fuel cell (PEFC) membrane electrode assemblies**

Iryna Zenyuk, *UCI APEP*

- **Impact of hydrogen/natural gas blends on end use combustion devices**

Vince McDonnell, *UCI APEP*

- **Hydrogen: Fueling the Sustainable Future**

Jack Brouwer, *Director, UCI APEP*

- **Optimal Decarbonization Strategies for the Gas System**

Jeff Reed, *UCI APEP*

- **Energy Policy Perspectives**

Katrina Fritz, *Stationary Fuel Cell Collaborative*

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2:20 – 2:40 pm

## Utility Perspective

- **Investing in Innovation: Building America's First Hydrogen Hub in the LA Basin**  
Maryam Brown, *Southern California Gas Company*

2:40 – 3:00 pm

## BREAK

3:00 – 4:40 pm

## Hydrogen for "Difficult to Electrify" Applications

- **Implementing hydrogen-based powertrain systems in maritime sector**  
Simona Di Micco, *University of Naples Parthenope*
- **Green Steel Production via Integrated Solid Oxide Electrolysis**  
Luca Mastropasqua, *UCI APEP*
- **Decarbonization of cement production through electrochemistry**  
Andrea Perego, *UCI APEP*
- **PV Solar Potential and Integration to Reach Carbon Neutrality at UCI**  
Clinton Thai, *UCI APEP*
- **Medium- and Heavy-Duty Zero-Emission Vehicle Hydrogen Fueling Infrastructure**  
Kate Forrest, *UCI APEP*
- **Air Quality and Public Health Benefits of On-road Vehicles in support of Carbon Neutrality**  
Mike Mac Kinnon, *UCI APEP*

4:40 pm

## Adjourn (Day 1)

## Program Day 2: Thursday, September 16

8:00 – 8:30 am

## Day 2 Colloquium Opening

- **Summary of Day 1 & Vision**  
Jack Brouwer, *UCI Advanced Power and Energy Program (APEP)*  
**Robert Schrecengost, U.S. DOE, Office of Fossil Energy & Carbon Management**

8:30 – 10:10 am

## Hydrogen for On-Road Transportation

- **The past, the present, and the Mirai**  
Craig Scott, *Toyota*
- **Zero emission vehicles should also be sustainable**  
Kim Leach, *Ballard*
- **Innovation in ZEB Fleet Deployment & Hydrogen Production**  
Rudy Le Flore, *Sunline Transit*
- **Hyundai's Hydrogen Vision**  
Yuval Steiman, *Hyundai*
- **Hydrogen Refueling Station Safety**  
Tim Brown, *First Element Fuel*

10:10 – 10:30 am

## BREAK

10:30 – 11:00 am

## Day 2 Keynote

- **Hon. Katie Porter, U.S Congress, District CA-45**

11:00 – 12:55 pm

## Hydrogen Production & Conversion

- **VRES-systems based on hybrid H<sub>2</sub>-batteries power-to-power storage structures: analysis of DEMO experiences in EU**  
Massimo Santarelli, *Politécnico di Torino, Italy*
- **Accelerating transition to climate neutral economies in CEE using hydrogen technologies**  
Jakub Kupecki, *Institute of Power Engineering, Warsaw, Poland*

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- **Techno-Economic Stochastic Analysis (TESA)**

Blake Lane, *UCI APEP*

- **Compact SMRs – Transforming the Natural Gas Grid into the Hydrogen Grid**

Dennis Walters, *STARS*

- **Waste to Hydrogen: Opening the pathway to carbon-negative fuel**

Jean-Louis Kindler, *Ways2H*

- **Green Hydrogen at Grid Scale: How do we get there?**

Steve Szymanski, *NEL Hydrogen*

12:55 – 1:20 pm

**BREAK**

1:20 – 2:20 pm

**Hydrogen in Electric & Gas Grids**

- **Applications of Hydrogen in Microgrids: Lessons Learned**

Jorge Elizondo, *Heila Technologies, Stone Edge Farm Microgrid*

- **Complementary Energy Infrastructure Platform**

Robert Pohlman, *New Jersey Resources Corporation*

- **Low-Carbon Resources: Enabling the Pathway to Economy-Wide Decarbonization**

Neva Espinoza, *EPRI*

2:20 – 3:40 pm

**Hydrogen for Heavy Duty & Backup Power Systems**

- **Commercial fuel cell applications**

James Kast, *Toyota*

- **Hyundai Xcient programs roll out, lessons learned and expected challenges**

Jerome Gregeois, *Hyundai*

- **Fuel Cells for Marine Application – recent advances in the HI-SEA Lab**

Alberto Traverso, *University of Genova*

- **Hydrogen Fuel Cells for Mobility and Stationary Applications**

Martin Hering, *Bosch*

3:40 - 4:40 pm

**Hydrogen and Natural Gas Infrastructure Transformation**

- **Hydrogen and Existing Infrastructure**

Yuri Freedman, *Southern California Gas Company*

- **Why Hydrogen Leaks at the Same Rate as Natural Gas**

Alejandra Hormaza, *UCI APEP*

- **Behavior of residential appliances operated on hydrogen/natural gas blends**

Vince McDonell, *UCI APEP*

4:40 pm

**Closing Remarks**