
Hydrogen and Fuel Cells for Data Center Applications Project Meeting

Sponsored by U.S. Department of Energy (DOE) Fuel Cell Technologies Office

Hilton DoubleTree (The Arctic Club), Seattle, WA

March 20, 2019

Breakout Session Topics

10:30 am – 12:00 pm: Breakout Session I

Considering “typical” data centers, discuss the most beneficial way hydrogen and fuel cell technologies could be integrated to meet the data center needs. Develop up to three scenarios that cover a range of data center sizes from small, single rack centers to large hyper-scale data centers. Discussion should include whether on-site power generation is for prime or back-up power, what critical loads are to be powered, power requirements, thermal management considerations, and runtime required for back-up power or frequency of fuel delivery in case of prime power. The scenarios could be designed for either new or retrofit data centers. What are the priorities for the on-site generation? What economic, environmental, or other considerations should be met in powering the data center?

3:00 pm – 04:30 pm: Breakout Session II

Based on the scenarios developed in the morning breakout, discuss how different hydrogen and fuel cell systems could be integrated to meet the data center needs. This could include usage of large externally-located fuel cells or smaller “distributed” systems, as well as high or low temperature fuel cells. Other topics for discussion should include the level of redundancy; power and/or hydrogen distribution requirements in the data center; thermal integration options; fueling options e.g., natural gas feed, hydrogen delivery, or on-site hydrogen generation; on-site fuel storage requirements with considerations for size, amount, flow rates, etc. When possible, identify where current technology can meet the needs versus barriers and where there is a technology gap that needs to be addressed through further R&D.

Breakout Session Assignments

Electron - Dome Room South	
Aaron Harris	Air Liquide Hydrogen Energy
Kevin Keene	Cummins Inc.
Brian Chakulski	Doosan Fuel Cell America
Joseph Mercurio	General Motors
Philippe Gow	Google
Tahir Cader	Hewlett Packard Enterprise
Mark Monroe	Microsoft
Olga Marina	Pacific Northwest National Laboratory
Craig Skidmore	Power Innovations International Inc.
David Smith	Sandia National Laboratories
Roger Tipley	Schneider Electric
Chris Hostetter	Toyota Motor North America
Jack Brouwer	University of California Irvine
Giang Le	University of Washington
Mukesh Khattar	Electric Power Research Institute
Rachel Shepherd	DOE - Federal Energy Management Program
Neutron - Pioneer Room	
Rajesh Ahluwalia	Argonne National Laboratory
Alan Mace	Ballard Power Systems
Mahesh Madurai Kumar	Cummins Inc.
Owen Hopkins	Hexagon Purus LLC
Rob Del Core	Hydrogenics USA Inc.
Mark Williams	Keylogic
Maryam Asghari	University of California Irvine
Todd Brix	OCO Inc.
Abhi Karkamkar	Pacific Northwest National Laboratory
Robert Mount	Power Innovations International Inc.
Mark Watkins	Power Innovations International Inc.
Stuart Adler	University of Washington
Proton - Edward Curtis Room	
Dietrich Thoss	Daimler AG
Christian Johnson	Facebook
Margarita Mann	General Motors
Sean James	Microsoft
Steve Hammond	National Renewable Energy Laboratory
Joseph Hartvigsen	OxEon Energy
Robert S. Mount	Power Innovations International Inc.
Travis Wright	QTS Data Centers
Dave Martinez	Sandia National Laboratories
Alejandro Lavernia	University of California Irvine
Terry Grant	University of Washington
Shailesh Vora	DOE - National Energy Testing Laboratory
Jonathan Witt	University of Washington