



# Center for Clean Hydrogen

Accelerating the Transition to Clean Energy



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#### THE GROWING ROLE OF H<sub>2</sub> IN THE ENERGY SYSTEM AND THE IMPORTANCE OF ELECTROLYSIS

Today represents a truly remarkable time for H<sub>2</sub>. The importance of H<sub>2</sub> in the future energy system is changing due to a number of societal megatrends: 1) cheap and available renewable energy; 2) concerns on GHG emissions and criteria pollutants; and 3) commercial demonstration of fuel cell vehicle technology. This has resulted in significant legislation in the United States with \$9.5B in hydrogen activities out of the Bipartisan Infrastructure Law and Inflation Reduction Act .

The US Department of Energy's H<sub>2</sub>@Scale initiative is investigating how to make, move, store, and use hydrogen more cost effectively at GW scale. At NREL, we have a large RD&D effort (>\$20M/yr) that spans from materials development to system demonstration. The presentation will focus on the US efforts to promote hydrogen at scale, the challenges that still exist, and the role that electrolyzers can play in a sustainable energy system. Recent scientific advances on low temperature electrolysis from the H<sub>2</sub>NEW consortium will also be presented.

#### BIOGRAPHY

Bryan Pivovar is Senior Research Fellow at the National Renewable Energy Laboratory in Golden, CO where he has worked in the area of fuel cells and electrolysis for the past 16 years. He is Director of the H<sub>2</sub>NEW Consortium (Hydrogen from Next-generation Electrolyzers of Water), which focuses on addressing components, materials integration, and manufacturing R&D to enable manufacturable electrolyzers that meet required cost, durability, and performance targets, in order to enable \$2/kg H<sub>2</sub>. He received his PhD in chemical engineering from the University of Minnesota and led fuel cell R&D at Los Alamos National Laboratory prior to joining NREL. He is a Fellow of the Electrochemical Society and received the 2012 Tobias Young Investigator Award and the 2021 Energy Technology Division Research Award from The Electrochemical Society as well. He has coauthored over 200 papers with over 15,000 citations in the general area of fuel cells and electrolysis.

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