

FY 19 H2@Scale Funding Opportunity Announcement (FOA)

FOA # DE-FOA-0002022

Selectee Name	Location (city, state)	Project Title	Federal Share
Topic 1A: Novel Hydrogen Carrier Development			
Colorado School of Mines	Golden, CO	High Capacity Step-Shaped Hydrogen Adsorption in Robust, Pore-Gating Zeolitic Imidazolate Frameworks	\$381,022
University of Hawaii	Honolulu, HI	Development of Magnesium Borane Containing Solutions of Furans and Pyroles as Reversible Liquid Hydrogen Carriers	\$994,326
University of Southern California	Los Angeles, CA	Hydrogen Release from Concentrated Media with Reusable Catalysts	\$1,000,000
Washington State University	Pullman, WA	A Reversible Liquid Hydrogen Carrier System Based on Ammonium Formate and Captured CO ₂	\$1,000,000
Topic 1B: H-Mat Materials Compatibility Consortium R&D: Hydrogen Effects in Materials for Fueling Infrastructure			
Clemson University	Clemson, SC	Self-healable Copolymer Composites for Extended Service H ₂ Dispensing Hoses	\$1,000,000
Colorado School of Mines	Golden, CO	Microstructural Engineering and Accelerated Test Method Development to Achieve Low Cost, High Performance Solutions for Hydrogen Storage and Delivery	\$1,443,648
Hy-Performance Materials Testing, LLC	Bend, OR	Reducing the Cost of Fatigue Crack Growth Testing for Storage Vessel Steels in Hydrogen Gas	\$616,270
Massachusetts Institute of Technology	Cambridge, MA	Micro-Mechanically Guided High-Throughput Alloy Design Exploration Towards Metastability-Induced Hydrogen Embrittlement Resistance	\$1,000,000
The University of Alabama	Tuscaloosa, AL	Tailoring Carbide Dispersed Steels: A Path to Increased Strength and Hydrogen Tolerance	\$999,870
University of Illinois at Urbana-Champaign	Champaign, IL	Tailoring Composition and Deformation Modes at the Microstructural Level for Next Generation Low-Cost High-Strength Austenitic Stainless Steels	\$2,000,000
Topic 2A: Advanced Water Splitting Materials Research (integrated with HydroGEN Consortium)			
Georgia Institute of Technology	Atlanta, GA	Interface and Electrode Engineering for Durable, Low Cost Alkaline Anion Exchange Membrane Electrolyzers	\$999,997
Nexceris, LLC	Lewis Center, OH	Advanced Coatings to Enhance the Durability of SOEC Stacks	\$1,000,000
Redox Power Systems, LLC	College Park, MD	Scalable High-H ₂ Flux, Robust Thin Film Solid Oxide Electrolyzer	\$999,976
The Chemours Company FC, LLC	Wilmington, DE	Performance and Durability Investigation of Thin, Low Crossover Proton Exchange Membranes for Water Electrolyzers	\$1,000,000

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The University of Toledo	Toledo, OH	Perovskite/Perovskite Tandem Photoelectrodes for Low-Cost Unassisted Photoelectrochemical Water Splitting	\$750,000
University of California: Irvine	Irvine, CA	Development of Composite Photocatalyst Materials that are Highly Selective for Solar Hydrogen Production and their Evaluation in Z-Scheme Reactor Designs	\$999,999
University of California: San Diego	La Jolla, CA	New High-Entropy Perovskite Oxides with Increased Reducibility and Stability for Thermochemical Hydrogen Generation	\$1,000,000
University of Florida	Gainesville, FL	A New Paradigm for Materials Discovery and Development for Lower Temperature and Isothermal Thermochemical H2 Production	\$999,589
University of Oregon	Eugene, OR	Pure Hydrogen Production through Precious-Metal-Free Membrane Electrolysis of Dirty Water	\$500,000
University of South Carolina	Columbia, SC	A Multifunctional Isostructural Bilayer Oxygen Evolution Electrode for Durable Intermediate-Temperature Electrochemical Water Splitting	\$1,000,000
William Marsh Rice University	Houston, TX	Highly Efficient Solar Water Splitting Using 3D/2D Hydrophobic Perovskites with Corrosion Resistant Barriers	\$799,998
Topic 2B: Affordable Biological Hydrogen Production from Biomass Resources			
Oregon State University	Corvallis, OR	Scalable and Highly-Efficient Microbial Electrochemical Reactor for Hydrogen Generation from Lignocellulosic Biomass and Waste	\$999,906
Topic 2C: Co-production of H2 and Value-add Byproducts			
C-Zero, LLC	Santa Barbara, CA	Binary Chloride Salts as Catalysts for Methane to Hydrogen and Graphitic Powder	\$999,878
University of Colorado, Boulder	Boulder, CO	Extremely Durable Concrete using Methane Decarbonization Nanofiber Co-Products with Hydrogen	\$1,000,000
Topic 2D: Reversible Fuel Cell Development and Validation			
FuelCell Energy, Inc.	Danbury, CT	High Efficiency Reversible Solid Oxide System	\$2,000,000
Proton Energy Systems, Inc.	Wallingford, CT	A Novel Stack Approach to Enable High Round Trip Efficiencies in Unitized PEM Regenerative Fuel Cells	\$2,000,000
Topic 3: H2@Scale Pilot - Integrated Production, Storage, and Fueling System			
Exelon Corporation	Chicago, IL	Demonstration of Electrolyzer Operation at a Nuclear Plant to Allow for Dynamic Participation in an Organized Electricity Market and In-House Hydrogen Supply	\$3,619,061
Frontier Energy, Inc.	Oakland, CA	Demonstration and Framework for H2@Scale in Texas and Beyond	\$5,400,000
Giner ELX, Inc.	Newton, MA	Demonstration of Integrated Hydrogen Production and Consumption for Improved Utility Operations	\$4,000,000