

Appendix D: List of Projects Presented but Not Reviewed

Project ID	Project Title	Principal Investigator Name	Organization
AMO-001	Flexible Natural Gas/Hydrogen Engine for CHP Applications	David Montgomery	Caterpillar, Inc.
ARPAE-001	ARPA-E Hydrogen and Fuel Cells Portfolio	Grigori Soloveichik	U.S. Department of Energy
ARPAE-002	Development of PiperION Membranes and Ionomers	Yushan Yan	Versogen
ARPAE-003	Bipolar Membranes with an Electrospun 3D Junction	Peter Pintauro	Vanderbilt University
ARPAE-004	Cost-Effective, Intermediate-Temperature Fuel Cells for Carbon-Free Power Generation	Greg Tao	Chemtronergy
ARPAE-005	Adaptive Solid Oxide Fuel Cells for Ultra-High-Efficiency Systems	Hossein Ghezeli-Ayagh	FuelCell Energy, Inc.
ARPAE-006	Progress on Solid Oxide Fuel Cell/Turbine Hybrid Power System Design and Development	Scott Swartz	Nexceris, LLC
ARPAE-007	Channeling Engineering of Hydroxide Ion Exchange Polymers and Reinforced Membranes	Chulsung Bae	Rensselaer Polytechnic Institute
ARPAE-008	Modular Ultra-Stable Alkaline Exchange Ionomers to Enable High-Performance Fuel Cells and Electrolyzer Systems	Kristina Hugar	Ecoltecto, Inc.
ARPAE-009	Stable Diacid Coordinated Quaternary Ammonium Polymers for 80°C–230°C Fuel Cells	Yu Seung Kim	Los Alamos National Laboratory
ARPAE-010	Metal-Supported Solid Oxide Fuel Cells for Ethanol-Fueled Vehicles	Michael Tucker	Lawrence Berkeley National Laboratory
ARPAE-011	Low-Cost Intermediate-Temperature, Fuel-Flexible Protonic Ceramic Fuel Cell Stack	Ryan O'Hayre	Colorado School of Mines
BES-001	U.S. Department of Energy Fuels from Sunlight Hub: The Joint Center for Artificial Photosynthesis	Harry Atwater	California Institute of Technology
BES-002	Combining Non-Coupled Potentials and Charge Conservation to Access Electrochemical Barriers	Frank Abild-Pedersen	Stanford Linear Accelerator Center (SLAC) National Accelerator Laboratory, SUNCAT Center for Interface Science and Catalysis

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BES-003	Fundamental Research Underpinning Hydrogen and Fuel Cells	Raul Miranda	U.S. Department of Energy
FC-145	Corrosion-Resistant, Non-Carbon Electrocatalyst Supports for Polymer Electrolyte Fuel Cells	Vijay Ramani	Washington University
FC-156	Durable High-Power Membrane Electrode Assemblies with Low Platinum Loading	Swami Kumaraguru	General Motors
FC-157	High-Performance Polymer Electrolyte Fuel Cell Electrode Structures	Rob Darling	Raytheon Technologies
FC-171	ElectroCat: Advanced Platinum-Group-Metal-Free Cathode Engineering for High Power Density and Durability	Shawn Litster	Carnegie Mellon University
FC-304	ElectroCat: Fuel Cell Membrane Electrode Assemblies with Platinum-Group-Metal-Free Nanofiber Cathodes	Peter Pintau	Vanderbilt University
FC-315	High-Efficiency Reversible Alkaline Membrane Fuel Cells	Hui Xu	Giner, Inc.
FC-318	ElectroCat: Accessible Platinum-Group-Metal-Free Catalysts and Electrodes	Jacob Spendlow	Los Alamos National Laboratory
FC-321	Lab Call Fiscal Year 2019: Solid Phase Processing for Reduced Cost and Improved Efficiency of Bipolar Plates	Ken Ross	Pacific Northwest National Laboratory
FC-332	Reversible Fuel Cell Cost Analysis	Max Wei	Lawrence Berkeley National Laboratory
FE-001	Performance Validation of a Thermally Integrated 50 kW High-Temperature Electrolyzer System	Tyler Westover	Idaho National Laboratory
FE-002	Integrated Water-Gas Shift Pre-Combustion Carbon Capture Process	Gokhan Alptekin	TDA Research, Inc.
FE-003	Ammonia Gas Turbine Combustor	Majed Toqan	Creative Power Solutions (USA), Inc.
FE-004	A Highly Efficient and Affordable Hybrid System for Hydrogen and Electricity Production	Ying Liu	Phillips 66 Company
FE-005	Low-Cost, Large-Area Solid Oxide Electrolyzer Cell Stack for Hydrogen and Chemicals	Olga Marina	Pacific Northwest National Laboratory

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FE-006	Microwave Catalysis for Process-Intensified Modular Production of Carbon Nanomaterials from Natural Gas	John Hu	West Virginia University Research Corporation
FE-007	Impacts of Hydrogen Blending in Natural Gas Networks	Bri-Mathias Hodge	National Renewable Energy Laboratory
FE-008	Modular Processing of Flare Gas for Carbon Nanoproducts	Alan Weimer	University of Colorado Boulder
H2-041	California Hydrogen Research Consortium	Sam Sprik	National Renewable Energy Laboratory
H2-042	Hydrogen Contaminant Detector	Bill Buttner	National Renewable Energy Laboratory
H2-053	Hydrogen Safety Panel Evaluation of Hydrogen Facilities	Nick Barilo	Pacific Northwest National Laboratory
H2-056	Hydrogen Safety Outreach to Expedite Hydrogen Fueling and Energy Project Deployment and Promote Public Acceptance for Zero-Emission Vehicles and Reliable Distributed Power Generation	Nick Barilo	Pacific Northwest National Laboratory
H2-057	Electrolyzer–Bioreactor Integration	Kevin Harrison	National Renewable Energy Laboratory
H2-059	Electrolytic Renewable Fuel Production Optimal Operation Investigation	Omar Guerra	National Renewable Energy Laboratory
H2-060	Hydrogen Blending into Natural Gas Pipelines	Chris San Marchi	Sandia National Laboratories
IA-001	U.S. Department of Energy Research and Development Overview	Sunita Satyapal	U.S. Department of Energy Hydrogen and Fuel Cell Technologies Office
IA-002	U.S. Department of Transportation Maritime Administration Update	Michael Carter	U.S. Department of Transportation Maritime Administration
IA-003	California – New Awards and Funding	Andrew Martinez	California Air Resources Board
IA-004	The Michigan Hydrogen Economy	Joel Rinebold	Connecticut Center for Advanced Technology, Inc.
IA-005	Northeast Fuel Cell and Hydrogen: Heavy-Duty Demand Clustering	Charles Myers	Massachusetts Hydrogen Coalition

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IA-006	Regional Hydrogen – Midwest	Pat Valente	Ohio Fuel Cell Coalition
IA-007	California Hydrogen and Fuel Cell Vehicle Activities: Market Launch to Market Acceleration	Bill Elrick	California Fuel Cell Partnership
IA-008	H2@Rescue: Design and Deployment of Polymer Electrolyte Membrane Fuel Cell–Battery-Powered Hybrid Emergency Relief Truck	Nick Josefik	U.S. Army
IA-009	Energy Management Overview and Hydrogen Research Initiatives	David Cook	U.S. Navy
IA-010	Power Generation Needs of the Dismounted Soldier	Shailesh Shah	U.S. Army
IA-011	U.S. Army Combat Capabilities Development Command: Hydrogen Fuel Cell Project Overview and Update	Kevin Centeck	U.S. Army
IA-012	Federal Railroad Association Hydrogen and Fuel Cell Research Program	Melissa Shurland	U.S. Department of Transportation Federal Railroad Administration
IA-014	NASA Fuel Cell and Hydrogen Activities	Ian Jakupca	NASA
IA-015	Hydrogen Corridor Update	Diane Turchetta	U.S. Department of Transportation Federal Highway Administration
IA-016	Hydrogen Fuel Cells for Unmanned Systems	Ben Gould	U.S. Naval Research Laboratory
IA-017	Hydrogen Integration in Utility, Transportation, and Expeditionary Systems	Benjamin Wilcox	U.S. Navy
IN-001	Hydrogen Materials Consortium (H-Mat) Overview	Chris San Marchi	Sandia National Laboratories
IN-010	Cryogenically Flexible, Low-Permeability Hydrogen Hose (Small Business Innovation Research)	Jennifer Lalli	NanoSonic, Inc.
IN-014	Non-Destructive Examination Techniques for Pressure Vessels (Small Business Innovation Research): Detection of Micron-Scale Flaws through Nonlinear Wave Mixing	Matthew Webster	Luna Innovations Inc.
IN-018	Heavy-Duty Compressor Development	Josh Adams	Nel Hydrogen

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NE-001	Coupling a Light Water Reactor Nuclear Plant to High-Temperature Electrolysis	Tyler Westover	Idaho National Laboratory
NE-002	Technical and Economic Assessment of Hydrogen Production at Nuclear Plants	Paul Talbot	Idaho National Laboratory
NE-003	Safety Analysis of Closely Coupled Nuclear Power Plants and Hydrogen Production Plants	Richard Boardman	Idaho National Laboratory
P-102	Hydrogen Production and Delivery Analysis	Brian James	Strategic Analysis, Inc.
P-148A	HydroGEN: Low-Temperature Electrolysis	Shaun Alia	National Renewable Energy Laboratory
P-148B	HydroGEN: High-Temperature Electrolysis	Gary Groenewold	Idaho National Laboratory
P-148C	HydroGEN: Photoelectrochemical Water Splitting	Francesca Toma	Lawrence Berkeley National Laboratory
P-148D	HydroGEN: Solar Thermochemical Hydrogen Water Splitting	Anthony McDaniel	Sandia National Laboratories
P-148E	HydroGEN: Cross-Cut Modeling	Tadashi Ogitsu	Lawrence Livermore National Laboratory
P-152	Proton-Conducting Solid Oxide Electrolysis Cells for Large-Scale Hydrogen Production at Intermediate Temperatures	Prabhakar Singh	University of Connecticut
P-153	Degradation Characterization and Modeling of a New Solid Oxide Electrolysis Cell Utilizing Accelerated Life Testing	Scott Barnett	Northwestern University
P-154	Thin-Film, Metal-Supported High-Performance and Durable Proton-SOEC (Solid Oxide Electrolyzer Cell)	Tianli Zhu	Raytheon Technologies Research Center
P-161	Protective Catalyst Systems on III-V and Silicon-Based Semiconductors for Efficient, Durable Photoelectrochemical Water-Splitting Devices	Thomas Jaramillo	Stanford University
P-162	Novel Chalcopyrites for Advanced Photoelectrochemical Water Splitting	Nicolas Gaillard	University of Hawaii
P-165	Accelerated Discovery of Solar Thermochemical Hydrogen Production Materials via High-Throughput Computational and Experimental Methods	Ryan O'Hayre	Colorado School of Mines

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P-166	Computationally Accelerated Discovery and Experimental Demonstration of High-Performance Materials for Advanced Solar Thermochemical Hydrogen Production	Charles Musgrave	University of Colorado Boulder
P-167	Transformative Materials for High-Efficiency Thermochemical Production of Solar Fuels	Chris Wolverton	Northwestern University
P-168	Mixed Ionic Electronic Conducting Quaternary Perovskites: Materials by Design for Solar Thermochemical Hydrogen	Ellen Stechel	Arizona State University
P-175	Intermediate-Temperature Proton-Conducting Solid Oxide Electrolysis Cells with Improved Performance and Durability	Xingbo Liu	West Virginia University
P-176	Development of Durable Materials for Cost-Effective Advanced Water Splitting Utilizing All-Ceramic Solid Oxide Electrolyzer Stack Technology	John Pietras	Saint-Gobain
P-177	Proton-Conducting Ceramic Electrolyzers for High-Temperature Water Splitting	Hossein Ghezeli-Ayagh	FuelCell Energy, Inc.
P-196a	Hydrogen from the Next-generation of Electrolyzers of Water (H2NEW) Low-Temperature Electrolysis (LTE): Durability and Accelerated Stress Test Development	Deborah Myers	Argonne National Laboratory
P-196b	H2NEW LTE: Benchmarking and Performance	Nem Danilovic	Lawrence Berkeley National Laboratory
P-196c	H2NEW LTE: Manufacturing, Scale-Up, and Integration	Nem Danilovic	Lawrence Berkeley National Laboratory
P-196d	H2NEW LTE: System and Technoeconomic Analysis – Hydrogen from Next-Generation Electrolyzers	Bryan Pivovar	National Renewable Energy Laboratory
P-196e	H2NEW High-Temperature Electrolysis (THE): Durability and Accelerated Stress Test Development	Olga Marina	Pacific Northwest National Laboratory
P-196f	H2NEW HTE: Cell Characterization	David Ginley	National Renewable Energy Laboratory
P-196g	H2NEW HTE: Multiscale Degradation Modeling	Brandon Wood	Lawrence Livermore National Laboratory
P-197	Advanced Manufacturing Processes for Gigawatt-Scale Proton Exchange Membrane Water Electrolyzer Oxygen Evolution Reaction Catalysts and Electrodes	Andrew Steinbach	3M Company

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P-198	Enabling Low-Cost Polymer Electrolyte Membrane Electrolysis at Scale Through Optimization of Transport Components and Electrode Interfaces	Chris Capuano	Nel Hydrogen
P-199	Integrated Membrane Anode Assembly and Scale-up	Monjid Hamdan	Plug Power Inc.
PRA-001	2020 Hydrogen and Fuel Cell Technologies Office (HFTO) Postdoctoral Recognition Award – First Place: Development of Polymer Electrolytes for Electrochemical Devices	Eun Joo (Sarah) Park	Los Alamos National Laboratory
PRA-002	2020 HFTO Postdoctoral Recognition Award – Runner Up: Platinum-Group-Metal-Free Catalysts for Proton Exchange Membrane Fuel Cells – Electrode Diagnostics for Performance and Durability	Luigi Osmieri	Los Alamos National Laboratory
PRA-003	2020 HFTO Postdoctoral Recognition Award – Runner Up: Self-Improving GaN/Si Photocathode in Photoelectrochemical Water Splitting	Guosong Zeng	Lawrence Berkeley National Laboratory
SA-181	Global Change Analysis Model Expansion – Hydrogen Pathways	Page Kyle	Pacific Northwest National Laboratory
SCS-001	Component Failure Research and Development	Jacob Thorson	National Renewable Energy Laboratory
SCS-027	Guidance for Indoor Hydrogen Sensor Placement	Andrei Tchouvelev	A.V. Tchouvelev & Associates
SCS-028	Hydrogen Education for a Decarbonized Global Economy (H2EDGE)	Thomas Reddoch	Electric Power Research Institute
ST-008	Hydrogen Storage System Modeling: Public Access, Maintenance, and Enhancements	Matt Thornton	National Renewable Energy Laboratory
ST-143	Hydrogen Materials Advanced Research Consortium (HyMARC) Seedling: Atomic Layer Deposition Synthesis of Novel Nanostructured Metal Borohydrides	Steven Christensen	National Renewable Energy Laboratory
ST-144	HyMARC Seedling: Optimized Hydrogen Adsorbents via Machine Learning and Crystal Engineering	Don Siegel	University of Michigan
ST-148	Novel Plasticized Melt Spinning Process of Polyacrylonitrile (PAN) Fibers Based on Task-Specific Ionic Liquids	Sheng Dai	Oak Ridge National Laboratory
ST-202	HyMARC – National Renewable Energy Laboratory Activities	Tom Gennett	National Renewable Energy Laboratory

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ST-204	HyMARC – Pacific Northwest National Laboratory Activities	Tom Autrey	Pacific Northwest National Laboratory
ST-207	HyMARC – Lawrence Livermore National Laboratory Activities	Brandon Wood	Lawrence Livermore National Laboratory
ST-210	HyMARC Seedling: Metal–Organic Frameworks Containing Frustrated Lewis Pairs for Hydrogen Storage at Ambient Temperature	Shengqian Ma	University of South Florida
ST-213	HyMARC Seedling: Uniting Theory and Experiment to Deliver Flexible Metal–Organic Frameworks for Superior Methane (Natural Gas) Storage	Brian Space	University of South Florida
ST-222	HyMARC: Characterization of Hydrogen Storage Materials at Oak Ridge National Laboratory’s Spallation Neutron Source	Anibal Ramirez-Cuesta	Oak Ridge National Laboratory
ST-224	HyMARC – Lawrence Berkeley National Laboratory Activities	Jeffrey Long	Lawrence Berkeley National Laboratory
ST-225	HyMARC – Lawrence Berkeley National Laboratory Advanced Light Source Activities	David Prendergast	Lawrence Berkeley National Laboratory
ST-231	Precursor Processing Development for Low-Cost, High-Strength Carbon Fiber for Composite Overwrapped Pressure Vessel Applications	Matthew Weisenberger	University of Kentucky
ST-233	HyMARC – Sandia National Laboratories Activities	Mark Allendorf	Sandia National Laboratories
ST-234	Development of Magnesium Borane Containing Solutions of Furans and Pyroles as Reversible Liquid Hydrogen Carriers	Craig Jensen	University of Hawaii
TA-008	Material–Process–Performance Relationships in Polymer Electrolyte Membrane Catalyst Inks and Coated Layers	Michael Ulsh	National Renewable Energy Laboratory
TA-013	Fuel Cell Bus Evaluations	Leslie Eudy	National Renewable Energy Laboratory
TA-029	Autonomous Hydrogen Fueling Station	Dustan Skidmore	Plug Power Inc.
TA-039	Solid Oxide Electrolysis System Demonstration	Hossein Ghezel-Ayagh	FuelCell Energy, Inc.
TA-040	Hydrogen Storage Tank Packaging On Board Heavy-Duty Trucks	Shaun Onorato	National Renewable Energy Laboratory

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TA-044	System Demonstration for Supplying Clean, Reliable, and Affordable Electric Power to Data Centers using Hydrogen Fuel	Dave Montgomery	Caterpillar, Inc.
TA-045	Marine Hydrogen Demonstration	Narendra Pal	Hornblower
TA-051	Low Total Cost of Hydrogen by Exploiting Offshore Wind and Polymer Electrolyte Membrane Electrolysis Synergies	Hui Xu	Giner, Inc.
TA-052	Solid Oxide Electrolysis Cells Integrated with Direct Reduced Iron Plants for Producing Green Steel	Jack Brouwer	University of California, Irvine
TA-053	Grid-Interactive Steelmaking with Hydrogen	Ronald O'Malley	Missouri University of Science and Technology
WPTO-001	Marine Energy to Hydrogen Analysis Project	Jacob Thorson	National Renewable Energy Laboratory