



U.S. Country Update

28th IPHE Steering Committee (SC) Meeting

November 21, 2017 - Netherlands

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U.S. Department of Energy



Policy and Budget

- Early stage R&D direction
 - “Agencies should invest in early-stage, innovative technologies that show promise in harnessing American energy resources safely and efficiently.”
 - Aug. 17, 2017 OMB/OSTP Memo

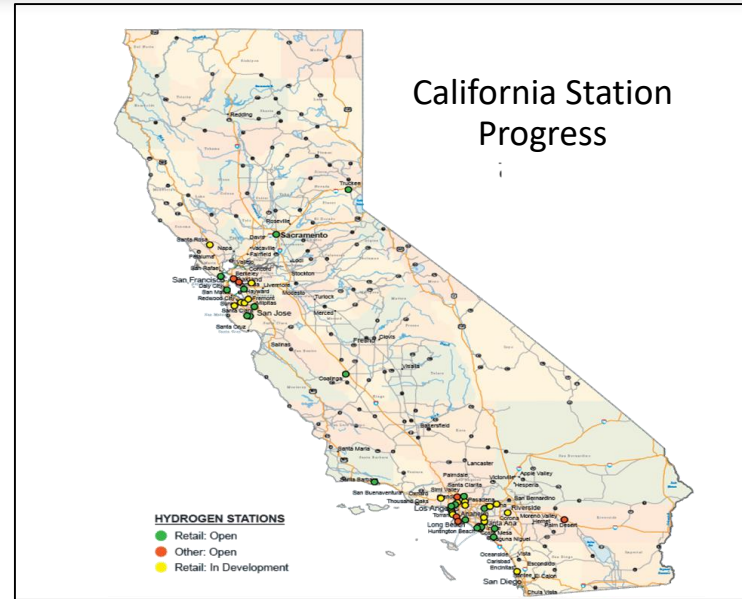
- Budget:
 - FY18 FCTO Budget To Be Determined (\$45M - \$101M)
 - SOFC (\$2M - \$30M)

- Organizational changes:
 - On August 7, 2017, **Mr. Dan Brouillette** was sworn in as the **Deputy Secretary of the U.S. Department of Energy**. Mr. Brouillette has previously served as Senior Vice President and head of public policy for USAA and as a Vice President of Ford Motor Company.



Market

- **Station Progress**
 - **31 retail stations and 3 non-retail stations open** in California, 13 additional in process, funding for 65 stations has been awarded
 - **15 retail stations** currently planned in the Northeast U.S.
- **Over 2,800 fuel cell cars** leased/purchased
- **FCEV Delivery Trucks**
 - Demo trucks will be delivering parcels in Sacramento, CA and Albany,
- **Over 15,000 fuel cell forklifts** purchased/ordered, ~6 million refuelings



Fuel Cell Electric Deliver and Parcel Trucks



Strategic Direction

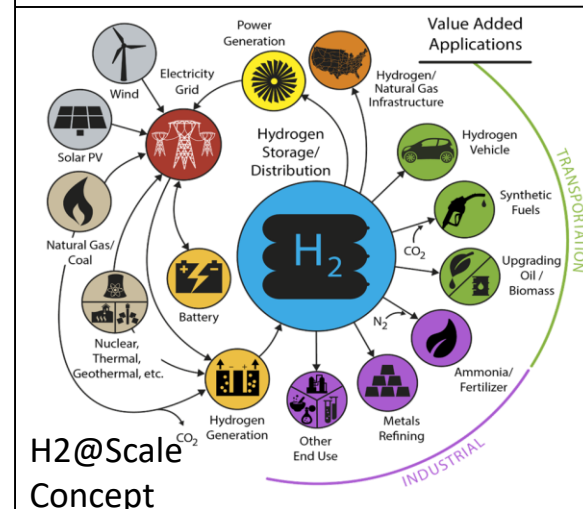
Funding Opportunities

- Fuel Cell Technologies Office Annual FOA
 - Over **30 awards (\$15.8M in funding)** have been announced
 - *Topics:* PGM-free catalyst and electrode R&D, advanced water splitting materials, hydrogen storage materials discovery, carbon fiber in pressure vessels
- H2@Scale Cooperative Research and Development Agreement (CRADA)
 - Up to \$6M in funding
 - **22 selections** from first round
 - *Topics:* modeling and analysis, materials compatibility, grid simulation, manufacturing R&D, co-products development, performance verification

DE-FOA-0001647: Fuel Cell Technologies Office Annual FOA Recipients

| Topic | Recipient | Title | Proposed DOE Share (FY17) | Proposed DOE Share (FY17) | Proposed DOE Share (FY17) |
|--|--|---|---------------------------|---------------------------|---------------------------|
| Topic 1: ElectroCat (Electrocatalysis Consortium) – PGM-free Catalyst and Electrode R&D | Carnegie Mellon University | Advanced PGM-free Cathode Engineering for High Power Density and Durability | \$2,000,000 | | |
| Topic 1: ElectroCat (Electrocatalysis Consortium) – PGM-free Catalyst and Electrode R&D | GreenWay Energy, LLC | PGM-free Engineered Framework Nano-Structure Catalysts | \$2,000,000 | | |
| Topic 1: ElectroCat (Electrocatalysis Consortium) – PGM-free Catalyst and Electrode R&D | Giner, Inc. | Durable Mn-based PGM-free Catalysts for Proton Exchange Membrane | | | \$250,000 |
| Topic 1: ElectroCat (Electrocatalysis Consortium) – PGM-free Catalyst and Electrode R&D | Paul Scherrer Institute, National Laboratory | | \$645,101 | \$448,931 | \$238,113 |
| Topic 2A: HydroGEN – Durable, High-Performance Materials and Interfaces for Advanced Water Splitting – High Temperature Electrolysis | University of Connecticut | Proton-Conducting Solid Oxide Electrolysis Cells for Large-scale Hydrogen Production at Intermediate Temperatures | \$250,000 | \$250,000 | \$250,000 |
| Topic 2A: HydroGEN – Durable, High-Performance Materials and Interfaces for Advanced Water Splitting – High Temperature Electrolysis | United Technologies Research Center | Thin-Film, Metal-Supported High-Performance and Durable Proton-Solid Oxide Electrolyzer Cell | \$249,978 | \$250,000 | \$250,000 |
| Performance Materials and Interfaces for Advanced Water Splitting – Low Temperature Electrolysis | Argonne National Laboratory | PGM-free OER Catalysts for PEM Electrolyzer | | \$250,000 | \$222,566 |
| Performance Materials and Interfaces for Advanced Water Splitting – Low Temperature Electrolysis | National Laboratory | abundant Catalysts and Durable Layered 2D Perovskites | | | \$250,000 |

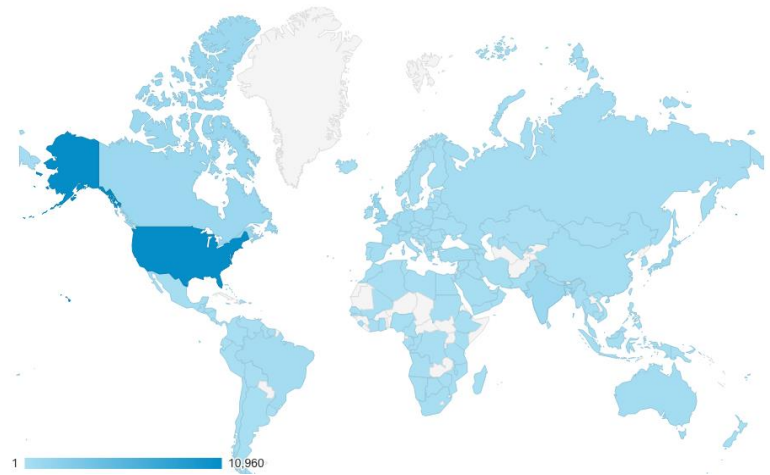
Selectees





Collaboration and Resources Available

- IPHE International Safety and Reliability Data Sharing Initiative
- H2Tools.org
 - Hydrogen Equipment Certification Guide
 - Permitting Hydrogen Fueling Stations Video



H₂Tools site visit tracking shows global reach

Save the date:

Hydrogen and Fuel Cell Technology Showcase (planned)

June 11-12, 2018 - Washington, D.C.

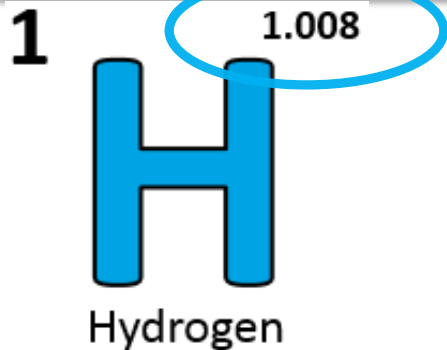
Hydrogen and Fuel Cell Annual Merit Review (AMR)

June 13-15, 2018 - Washington, D.C.



Education and Outreach

Celebrate Hydrogen & Fuel Cell Day
 October 8 or 10/8
 (Held on its very own atomic- weight-day)



Learn more:
energy.gov/eere/fuelcells

Give an *“Increase your H2IQ presentation”* in your community!



Download for free at:
energy.gov/eere/fuelcells/downloads/increase-your-h2iq-training-resource

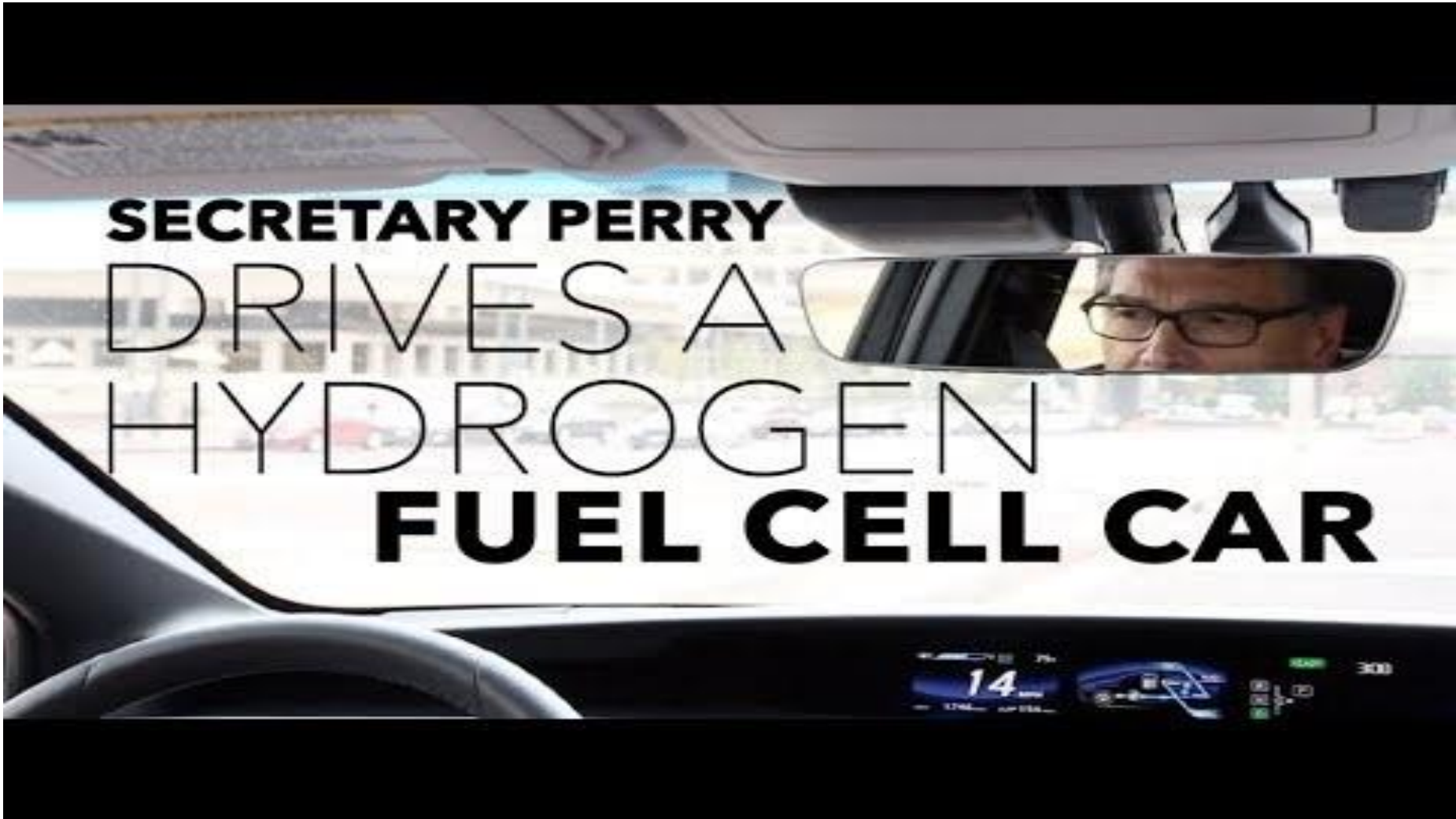
Hydrogen & Fuel Cell Day 2017

- **Energy Secretary Perry drove a Toyota Mirai**
- FCEVs on display in D.C. and Colorado
- Media announcements on interagency and international collaboration



Secretary Perry







Thank You

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