Overview

Timeline
- Start – Sept. 2008
- Finish – Sept. 2011
- ~50% Complete

Budget
- Total project funding: $1.3M
  - Administrative: $300K
  - Prize: $1M
- DOE share: $1.3 M
- Contractor share: $0

Barriers
- Hydrogen storage materials capacity
- Hydrogen storage materials efficiency
- Hydrogen storage materials durability/operability

Partners
- Hydrogen Education Foundation, Project lead
- Technology Transition Corporation
- South Carolina Research Authority (SCRA)
Overview:
About the H-Prize

- Part of Sec. 654, *Energy Independence & Security Act of 2007*
- Congress authorized Secretary of Energy to create a program to competitively award cash prizes to incentivize dramatic research achievements to advance the commercialization of hydrogen energy technologies
- Private contributions can augment government provided prize funds
Overview:

H-Prize Categories

1. Advancements in technologies, components and systems (4 prizes, ≤ $1M), biennial
   - Hydrogen production, storage \([\text{the current prize}]\), distribution, utilization

2. Prototypes (up to 1 prize every 2 years, ≤ $4 M)—vehicles or products

3. Transformational technologies (1 competition, ≥ $10 M + matching funds)—production or distribution
Overview:
Initial H-Prize Competition

- A single $1 M award
- Demonstrating advancement for an on-board storage material exceeding certain performance targets
- Pilot program administered by Hydrogen Education Foundation.
- Announced in Federal Register: Aug. 26, 2009
- Registration deadline: Feb. 15, 2010
- Deadline for receipt of materials: Nov. 15, 2010
Objectives - Relevance

- Manage the H-Prize competition to create solutions that move hydrogen and fuel cell technology closer to markets
- Create a pilot award process
- Augment H-Prize awards by organizing and managing a comprehensive fund raising program
- Encourage robust contest participation by individuals or teams
- Deploy H-Prize funds through fair and open competition to reward success in addressing critical technical challenges
Progress and Accomplishments
From May 2009 – June 2010

Contest Publicized
For publicity and encouraging competitors and sponsors

• Contest announced in Federal Register: August 26, 2009
• Website launched: www.hydrogenprize.org/
• Press release issued: Sept. 2009
• Announcement widely circulated by HEF to materials science and hydrogen community encouraging strong contest registration
  – Targeted universities active in hydrogen storage and materials research
  – Presented and advertised at conferences
  – Leveraged the National Hydrogen Association’s wide network
Progress and Accomplishments
From May 2009 – June 2010

Fundraising Outreach

• Marketing lists and flyers created
• SCRA leading extensive fundraising effort
  – Reached out to more than 200 donors and foundations in ongoing effort, 40% have responded
  – Awaiting approval to participate in the 2010 Combined Federal Campaign
Progress and Accomplishments
From May 2009 – June 2010

**Technical Criteria Established**

- Goal for a material with potential for use as an on-board rechargeable hydrogen storage material
- Gravimetric capacity: >7.5-wt%
  - Reversible H2 capacity between -40 and +85 degrees C (between 1.5 – 150 bar)
- Volumetric cap >70 g/liter
- Charging kinetics: ≥4x10^-4 g H2 per g of material per second
- Cycle life: 100 cycles
The H-Prize’s Target: >70g/L and >7.5wt%
Collaborations

• Hydrogen Education Foundation, *Project lead*
• Subcontract with:
  – Technology Transition Corporation
  – South Carolina Research Authority (SCRA)

*Also collaborating with:*
  – The Combined Federal Campaign
  – Over 200 private and corporate foundations
  – A judging panel of individuals with deep hydrogen storage expertise and various backgrounds
  – DOE Hydrogen Program’s storage team
  – The National Hydrogen Association to gather info and publicize the H-Prize with its broad network of members and industry contacts
Future Work
For remainder of FY10 and FY11

- Establish judging panel and judging schedule – June/July 2010
- Receipt of test results and materials for subsequent independent verification of results – by Nov. 15, 2010
- Fundraising efforts and building momentum for future H-Prizes – completed and ongoing
- Judging Panel decision on winning entry, if any – Jan. 2011
- Disbursement of $1M prize to winning individual/team, if awarded – Feb. 2011
Project Summary

Objective:
Create a pilot H-Prize, the first of 4 biennial technology components and systems prizes. This first H-Prize focuses on the technical challenges with hydrogen storage materials for vehicular applications.

Progress Achieved:
Schedule and administrative framework established, technical criteria set, contest publicized, official competitors registered and verified, fundraising commenced for future prizes.

Announced in Federal Register: Aug. 2009
Disbursement of prize to winning individual/team, if awarded: Feb. 2011
Thank you!

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