The Hydrogen Education Foundation's
Hydrogen Student Design Contest
www.HydrogenContest.org

Sponsored by U.S. Department of Energy

2011 Contest
Residential Fueling with Hydrogen
Student Information Sheet

About the Hydrogen Student Design Contest

The Hydrogen Student Design Contest challenges multi-disciplinary teams of university-level students from around the world to develop and design hydrogen applications for real-world use. The Contest showcases the talents of students in many disciplines, including engineering, architecture, marketing, and entrepreneurship. Each year, the Contest is administered with the assistance of leaders in government and the hydrogen and fuel cell industries.
This is the Contest's sixth year.

Why participate?

Exposure: Gain visibility with potential employers by participating in the only international student contest solely focused on hydrogen and fuel cells. Sponsors and judges from previous years have included representatives from many leading organizations, including the U.S. Department of Energy, Chevron, Ballard Power Systems, FuelCell Energy, Linde, NYSERDA, Sandia National Laboratories, South Carolina, Hydrogen and Fuel Cell Alliance, Swagelok, U.S. Green Building Council., and many others.

Prizes: Each year we aim to provide students from winning teams with an unforgettable experience. This year is no different. For the 2011 Contest, winning teams will receive:

- Expenses-paid trip to present design to thousands in a keynote session of 2011 National Hydrogen Association (NHA) Hydrogen Conference and Expo, February 13-16 in Washington, DC. Package includes $5,000 travel stipend and complimentary hotel rooms and conference registrations for team. (Grand Prize winner only)
- Priority consideration for summer internships at participating sponsor organizations (Grand Prize and Honorable Mention winners)
- Invitation to the NHA Members Only and Opening Receptions at the 2011 NHA Conference (Grand Prize and Honorable Mention winners)
- Invitation to present design in the poster presentations component of the 2011 NHA Conference (Honorable Mention winners)

Who's eligible?

The Contest is open to undergraduate and graduate students worldwide. Given the multi-disciplinary nature of the competition, teams are encouraged to include members from any field of study relevant to the team's design. Common disciplines include: engineering, architecture/planning, industrial design, economics, business, environmental science, policy, chemistry, marketing, and education.

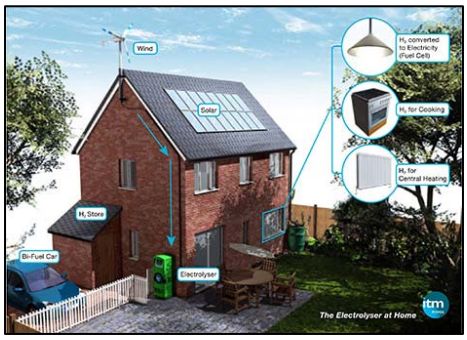
Theme of 2011 Contest: Residential Fueling with Hydrogen

The 2011 Hydrogen Student Design Contest will challenge university-level students to plan and design a residential hydrogen fueling system.

Background

For years, hundreds of companies around the globe have been working hard to make hydrogen-powered technologies a more common reality. In the transportation sector, major auto manufacturers and energy companies have invested billions of dollars in the development of hydrogen fuel cell vehicles and commercial hydrogen fueling stations.

The transition to using hydrogen as a fuel is underway, but there are still many key questions to be answered, including the well-known challenge of fueling infrastructure development. According to the Electric Power Research Institute, "the primary obstacle to [hydrogen vehicle] implementation is the perceived infrastructure investment cost associated with building and operating hydrogen fueling stations during the early market penetration years of hydrogen vehicles." In other words, which should come first—the hydrogen vehicles or the stations to fuel them?



Some are offering an innovative answer: residential fueling. In residential fueling, the hydrogen vehicle owner fuels the vehicle each evening using equipment installed at his or her residence. Developing residential hydrogen fuelers would mitigate the considerable investment needed for a commercial facility while providing early adopters in areas with no stand-alone station with a convenient option for their fueling needs.

This type of distributed fueling network is in the beginning stages but shows great promise. Several companies are exploring residential applications of both reformer- and electrolyzer-based hydrogen fueling equipment. For this Contest, we are inviting students to get involved in this exciting new frontier of hydrogen technology development.

Contest Sections

Note: The official rules and guidelines (available at www.hydrogencontest.org) provide detail on each of the following sections.

1. **Technical Design**

   Students will create a design concept for a residential hydrogen fueling system. Systems should be able to be integrated into a home, apartment complex, dorm, or other single residential building. Students must choose one type of residential building for their design and determine the specific characteristics of the hydrogen production, compression, storage, and delivery elements of the system. The use of renewable resources to produce the hydrogen is highly encouraged. Students must also consider all relevant codes and standards when siting the fueling unit.

2. **Safety Analysis**

   In this section, teams must show how their system design will operate safely and maintain the safety of the surrounding environment. Teams should describe how safety concerns have been addressed for their fueling system. Safety equipment and operational safety, as well as public perception of safety, are included.

3. **Economic Analysis and Business Plan**

Students will complete an economic analysis of the home fueler that includes capital costs, operating costs, and maintenance costs. Students will develop projections for market growth and determine the optimal market price for the system.

4. **Environmental Analysis**

   Students will clearly explain the environmental impacts (positive and negative) of the design. For example, water use should be considered if your design produces hydrogen through electrolysis. Think about how to minimize energy losses throughout the system. Innovative energy efficiency will be rewarded.

5. **Marketing and Public Education Plan**

   Students will create a marketing and education plan to build customer interest in their residential hydrogen fueling station.

Timeline

August 15, 2010 – Registration Opens
October 15, 2010 – Abstracts Due
January 3, 2011 – Entries Due
February 13-16, 2011 – Grand Prize winner presents at NHA Annual Conference in Washington, DC

Register Your Team

Signing up for the Contest is easy. Go to our website and fill out our registration form with the name of your Team Leader:

www.hydrogencontest.org/participate.asp

More Info

Got questions? Want to learn more? Contact Josh Lieberman at 202-261-1322 or liebermanj@hydrogenassociation.org.

Sponsors:

The Hydrogen Education Foundation's Hydrogen Student Design Contest
www.HydrogenContest.org
Sponsored by the U.S. Department of Energy

2011 Sponsors and Supporters

Proton ENERGY SYSTEMS
The Leader in On-site Hydrogen Generation

FOR IMMEDIATE RELEASE

2010-2011 Hydrogen Student Design Contest Rules and Guidelines Now Available

Online info session on the Contest to be held on Sept. 21 at 3PM ET

Washington, D.C. - September 14, 2010 - Today, the official rules and guidelines for the *2010-2011 Hydrogen Student Design Contest: Residential Fueling* were released online at www.HydrogenContest.org. Teams have until October 15 to register for this year's Contest.

For this year's Contest, teams are tasked with planning and designing a residential hydrogen fueling system for a home, apartment complex, dorm, or other single residential building. As a part of their entry, teams will develop a technical design; conduct an economic analysis; and develop business, marketing, and public education plans for their systems.

The Contest organizer, Hydrogen Education Foundation, will be holding a free informational webinar on the Contest for prospective participants on September 21 at 3PM ET. Information on the webinar can also be found on the Contest website. Those interested can register directly by clicking this link.

This year's Contest is sponsored by the U.S. Department of Energy and Proton Energy Systems. Teams of university students worldwide can now register to compete at www.hydrogencontest.org.

For more information on the Contest, please contact:

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About the Hydrogen Student Design Contest
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About the Hydrogen Education Foundation
The Hydrogen Education Foundation is the charitable, education-focused arm of the National Hydrogen Association which administers three hallmark programs: the H2 & You outreach program, the Hydrogen Student Design Contest, and the H-Prize Competition. www.HydrogenEducationFoundation.org

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FOR IMMEDIATE RELEASE

2010-2011 Hydrogen Student Design Contest Theme Announced

University students worldwide can register to compete in the design of a residential hydrogen fueling system

Washington, D.C. - September 1, 2010 - The Hydrogen Education Foundation announced residential fueling with hydrogen as the contest theme for the 2010-2011 Hydrogen Student Design Contest. This year's Contest is sponsored by the U.S. Department of Energy and Proton Energy Systems. Teams of university students worldwide can now register to compete at www.hydrogencontest.org.

"Each year, the Contest focuses on a key issue in the hydrogen and fuel cell industry," said Kyle Gibeault, Contest Coordinator. "For 2010-2011 we're looking at hydrogen fueling infrastructure from the residential perspective. Based on our experience in past years, I'm confident we will receive some very innovative and thought-provoking entries from the student teams."

Teams will be tasked with planning and designing a residential hydrogen fueling system for a home, apartment complex, dorm, or other single residential building. As a part of their entry, teams will develop a technical design; conduct an economic analysis; and develop business, marketing, and public education plans for their systems.

The Grand Prize Winning team will receive an expenses-paid trip to present their winning entry to thousands of industry professionals in a keynote session at the 2011 National Hydrogen Association Conference and Expo. Students from winning teams will also receive priority consideration for summer internships at participating sponsors at supporting organizations. A full description of prize packages can be found online at www.HydrogenContest.org

Registration for the Contest is open until October 15, 2010. Official rules and guidelines for the Contest will be posted on the website in the next two weeks.

For more information on the Contest, please contact:

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