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Humboldt State University Energy Systems Team Wins Grand Prize in the National Hydrogen Association's 2005 "H2U" Student Design Competition

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Humboldt State University's Evolution Energy Systems Team won the grand prize in the National Hydrogen Association's 2005 "H2U" Student Design Competition.



Pictured in photo: Team members (front row left to right: Nicole Campbell, Anand Gopal, Juliette Bohn, Avram Pearlman; back row left to right: Douglas Saucedo, Dustin Jolley, Steve Lora, Stephen Kullmann, David Carter) after their presentation.

HSU's first place triggered immediate invitations from high-ranking state and private sector executives to meet with them about potential implementation of the students' prize-winning design.

The international contest, co-sponsored by the U.S. Department of Energy and ChevronTexaco, involved designs for a hydrogen "power park," a facility producing hydrogen for multiple purposes at a single location.

HSU's team envisioned a park on the Eureka waterfront to reform local landfill gas into hydrogen, in turn providing electricity, vehicle fuel, and heat energy. The team focused on making the design practical and realistic, consulting closely with Pacific Gas & Electric, the Eureka Fire Department, and other agencies to ensure its submission was both safe and economically feasible.

The award was given to the HSU students at a lunchtime ceremony during the National Hydrogen Association's annual meeting in Washington, D.C. on Thursday, March 31. They presented a multi-media depiction of their design to the attendees.

In the wake of HSU's victory, the team has been invited to Sacramento by California Environmental Protection Agency Secretary Alan Lloyd to present the design to state officials. In addition, Dr. Don Paul, ChevronTexaco's chief technology officer, invited the students to the company's headquarters in San Ramon to make a presentation there. ChevronTexaco engineers in Houston will participate in the meeting via video conference. Dr. Paul has already expressed interest in working with the students to implement their design.

Thirteen teams competed, representing universities from the United States, Canada, and Russia. Runners-up included teams from University of Toronto, Cornell University, University of Washington, and the University of Waterloo, Ontario, Canada. This marked HSU's second consecutive year in the competition. Humboldt State's 2004 entry finished in the top three.

HSU's team is nine strong and headed by David Carter, an environmental resources engineering (ERE) senior. From St. Paul, MN, Carter is father of three boys. "I'm passionate about incorporating renewable energy into solutions to our energy related problems," he says. Carter works as a student research assistant at Humboldt State's Schatz Energy Research Center (SERC).

Other team members include (in alphabetical order):

Juliette P. Bohn, Corrales, NM, who describes herself as a graduate student "in HSU's international development technologies program, a returned Peace Corps volunteer, and a member of the HSU Women's Ultimate Frisbee Team." She is a volunteer docent at SERC.

Nicole Campbell, a senior in ERE with a minor in applied mathematics, graduating in May 2005. She hails from Topanga Canyon, CA, and competes in HSU's cross-country and track teams. She too is a SERC docent.

Dustin Jolley, an ERE major with a minor in appropriate technology. He is a senior, graduating in May, from Seattle, WA. Father of a five-month old daughter, he is an avid surfer and outdoorsman. He is also a student research assistant at SERC.

Stephen Kullmann, an ERE sophomore pursuing his second college degree. Transplanted from Westfield, NJ, and Oakland, CA, he earned a BA in English/Creative Writing from Rutgers University, 1989 and is a yoga teacher and rock climber. He plans to use his diverse skills to work with renewable energy in developing nations. Looking ahead, he says, "I'm already mentally preparing for a leadership role in next year's competition."

Steve Lora, an ERE senior from Mentor, OH, graduating in May. "I plan on employment in the Hydrogen /Fuel Cell industry upon graduation," Lora says.

Matthew Marshall is a grad student in international development technology with a previous BA in studio art from HSU. Born in Denver, CO, Marshall also works at the Center for Environmental Economic Development and is on the faculty of the Big Lagoon Charter High School, where he teaches art and field biology.

Avram L. Pearlman, an ERE senior graduating in May, from Muir Beach, CA.

Douglas R. Saucedo, an ERE major with a minor in applied mathematics. He is a graduating senior from Orange County and holds an AA degree in Mathematics and Natural Sciences from College of the Redwoods. "I enjoy applying my knowledge of engineering, applied mathematics, and optimization to

new and challenging problems," Saucedo says. "Besides the Hydrogen Design Competition, I have been applying these skills to help develop a hazardous wave forecasting model for the Humboldt Bay Harbor entrance. This work is being performed through the National Oceanic and Atmospheric Administration's National Weather Service on Woodley Island."

Faculty advisor for the team was Anand Gopal, a SERC research engineer. He earned an MS in environmental systems from HSU in December 2003. He received his undergraduate degree from the Indian Institute of Technology in Madras, India, in 1999. He is from Chennai, India and also devoted to renewable energy applications in the developing world.

In the process of developing their power park design, two of the team members, Carter and Saucedo, created a computer algorithm to simulate and optimize the fueling station's hydrogen storage system and the dispensing of fuel to vehicles arriving at random time intervals. They developed a poster presentation on this model, which was accepted by the NHA for exhibition at its poster session.

HSU team members pursued their design on an extracurricular basis. They worked through both their winter and summer breaks to complete it.

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