California State University Commitment to Sustainability

Campus as a Living Lab



California State University, Los Angeles

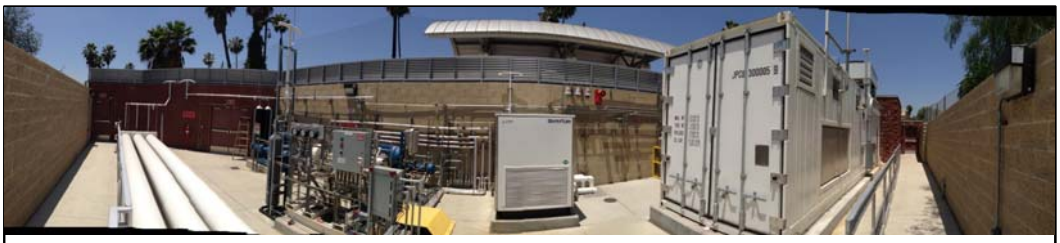
Using the Cal State L.A. Hydrogen Station to Learn about Global Sustainability and Alternative Energy

Living Lab Champion
Michael Dray, Technical Operations Manager
Hydrogen Research and Fueling Facility
Cal State L.A.

Lead Faculty Partner
James Rudd, Professor
Department of Chemistry & Biochemistry
Cal State L.A.

Cal State L.A. Living Lab Project Goals

The project will redesign the course **Global Climate Change: The Science and Responsible Societal Response** into a course on global sustainability and alternative energy. The redesigned course will be taught in **Spring 2016** as an upper division, general education course that uses the Cal State L.A. Hydrogen Research and Fueling Facility as a living laboratory. The Station is the largest university-based hydrogen fueling station in the nation and in January 2015 became the first station in the U.S. to sell hydrogen fuel by the kilogram to the public. The station is in close proximity to the convergence of four major California freeways and is ideally positioned to play a key role in building commercial viability and consumer confidence in alternative energy.



Storage banks (6k psi) Compressors H_2 chiller (-20°C) Electrolyzer with O_2 vent

In addition to selling hydrogen fuel and offering tours to the public, the station produces the fuel on site using an electrochemical process in which the electricity is supplied by green energy sources, including solar and wind power. With hydrogen fuel and green electricity, the station operates as a zero emission (carbon free) power station, and in the redesigned course, students will study the station as an actual, working model of global sustainability.

Students will study the science of global climate change, its impact on society, and the science, technology, and societal role in alternative energy in supporting global sustainability. Students will engage in hands-on laboratory activities that demonstrate the scientific concepts and technological principles, including gas behavior, electrochemistry, energy, and power, underlying the operations of the station. Along with the classroom lessons, students will go to the station to learn about those same concepts and principles in a living lab. Further, students will collect data at the station to create an annual status report on the station operations and a public brochure explaining its operations, energy conservation role, and societal benefits.

Supported by the California State University