

Hawaii Hydrogen Partnerships

In 2000 the Hawaii Legislature passed a joint House-Senate resolution tasking the Department of Business, Economic Development & Tourism (DBEDT) to conduct a feasibility study to assess the potential for large-scale use of hydrogen, fuel cells, and renewable energy in Hawaii. HNEI, in collaboration with Sentech, Inc., presented preliminary results to the Legislature in January 2001. The final report, "[Nurturing a Clean Energy Future in Hawaii: Assessing the Feasibility of the Large-Scale Utilization of Hydrogen and Fuel Cells in Hawaii](#) ^[1]", was completed in June 2001 and revised in July 2004. In addition to identifying areas where hydrogen and fuel cells have the potential to contribute to Hawaii's energy mix, the study recommended the development of public-private partnerships to develop the necessary hydrogen infrastructure. The means to move forward with these partnerships was benefited by the passage of Act 283 by the 2001 Legislature, providing initial funding for the development of hydrogen partnerships in Hawaii.

HNEI, in collaboration with our state energy office (DBEDT) and other government and industrial partners, has made significant progress in identifying projects and partnerships to move forward with the development of hydrogen infrastructure in Hawaii. Partnerships involve relationships with UTC Fuel Cells, Stuart Energy Systems, Hawaiian Electric Company, Hawaii Electric Light Company, Sentech, Inc., The Gas Company, Sunline Services Group, and the National Renewable Energy Laboratory. Initial successes include the establishment of the [Hydrogen Power Park](#) being built by HNEI with funding from the U.S. DOE via the State Energy Partnership program. In August 2002, a Hydrogen Partnering Meeting, attended by DOD, DOE, industry, and local utilities, was held on the Big Island to provide additional focus and coordination. The partners are actively seeking several multimillion-dollar systems application projects in the areas of hydrogen, fuel cells, and renewable energy. These projects are designed to take advantage of Hawaii's unique energy situation, including a vast array of potential renewable energy resources and high costs for conventional energy. Generous State of Hawaii research and development tax incentives contribute to the positive climate for developing new energy technologies and products. With funding from DOE beginning in 2004, HNEI is now working on the [Hawaii Hydrogen Center for Development and Deployment of Distributed Energy Systems](#) ^[2]. This project includes activities involving augmentation of the Hydrogen Power Park, assessment of hydrogen fuels purity requirements for fuel cell applications, R&D of cost-effective renewable hydrogen production, and analysis of potential hydrogen and distributed energy systems for the Big Island grid system.

Hydrogen Power Park

The Hydrogen Power Park is an effort to bring hydrogen systems into the marketplace by establishing a hydrogen infrastructure and concurrently advancing the goals of the U.S. Department of Energy's (DOE's) hydrogen program. Project plans call for deployment and demonstration of an integrated system comprising electrolysis for hydrogen production, hydrogen storage, and grid-connected fuel cells. Some elements are already being operated on a preliminary basis at the Hawaii Fuel Cell Test Facility in

Honolulu.

The project is intended to be located on the Big Island of Hawaii, where renewable energy sources would be used for hydrogen production. Some portions of the project will be sited at Kahua Ranch in the North Kohala District and others at the Hawaii Gateway Energy Center at the Natural Energy Laboratory of Hawaii Authority facility in the North Kona District. Later phases will consist of experiments for system optimization, market development activities, and expansion of the state's hydrogen outreach and education efforts.

Participants include local and national industry and government partners, including Stuart Energy Systems, Sentech, Inc., SunLine Services Group, UTC Fuel Cells, The Gas Company, Hawaiian Electric Company, and Hawaiian Electric Light Company. Funded by DOE under the State Energy Partnership Program, the Hawaii Department of Business, Economic Development & Tourism serves as the lead agency with HNEI serving as the implementing partner and providing technical coordination and support.

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Last Updated: Wednesday, November 30, 2011

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Source URL: <http://www.hnei.hawaii.edu/research/hydrogen/hydro-partner>

Links:

[1]

http://web41.its.hawaii.edu/www.hnei.hawaii.edu/sites/web41.its.hawaii.edu.www.hnei.hawaii.edu/files/page/2010/07/h2_fuel

[2] <http://web41.its.hawaii.edu/www.hnei.hawaii.edu/research-development/hydrogen/fuel-hydrocenter>

[3] <http://web41.its.hawaii.edu/www.hnei.hawaii.edu/staff/richard-e-rocheleau>