

**ACT 283**

S.B. NO. 1435

A Bill for an Act Relating to Hydrogen Research and Development.

*Be It Enacted by the Legislature of the State of Hawaii:*

SECTION 1. Scientists have recognized hydrogen as a potential source of fuel for many years. Currently, hydrogen is used in industrial processes, rocket fuel, and spacecraft propulsion. With further research and development, hydrogen could

competitively serve as an alternative source of energy for fueling vehicles and generating electricity.

Recognizing the potential of hydrogen fuel, the United States Department of Energy and the private sector have for several years funded hydrogen research and development programs. The federal government alone allocates an average of \$18,000,000 annually for hydrogen research and development. Currently, the market capitalization of fuel cell companies that rely on hydrogen as the fuel source for the cell is in excess of \$10,000,000,000.

The legislature finds that Hawaii represents an excellent site to attract government and industry investment in hydrogen. Hawaii's major advantages include:

- (1) The availability of indigenous renewable resources, including geothermal energy;
- (2) The excellent research capabilities at the University of Hawaii;
- (3) Hawaii's central location for trade opportunities with Pacific Rim nations; and
- (4) Hawaii's high transportation fuel costs.

There has been significant progress in hydrogen research and development in Hawaii. For example, in 1999, University of Hawaii chemists discovered a new way to store hydrogen energy that may result in more economical, pollution-free vehicles. Tackling one of hydrogen's major challenges, the team found a catalyst that will release hydrogen from lightweight materials at a moderate temperature. This has major implications for developing effective fuel cells for vehicles. As a result of these accomplishments, the Hydrogen Technical Advisory Panel and the United States Department of Energy named the Hawaii team leader as the "1999 Research Success Story."

In addition, the 2000 legislature requested a study to recommend options that could result in hydrogen becoming a future ingredient in the State's energy economy. The Hawaii natural energy institute (HNEI) of the University of Hawaii concluded that large-scale hydrogen use for transportation can be competitive this decade. The study also determined that fleet and military transportation on Oahu has the largest potential for hydrogen and fuel cell use.

On the national level, many advancements are taking place to develop technologies that will utilize hydrogen as a fuel source. Major companies are investing in the development of fuel cells for both stationary and mobile power. Automakers are projecting the commercial availability of fuel cell powered vehicles that could be fueled by hydrogen within this decade. Significant amounts of investments are being made to develop fuel cells and other distributed generation technologies.

With its traditional high fuel costs and a wealth of renewable energy resources, Hawaii could attract these advanced technology development companies for both research and development, testing, and deployment. The University of Hawaii is recognized as a "center for excellence in hydrogen research" by the United States Department of Energy. These factors can lead to the development of a hydrogen-based economy where Hawaii produces more of its own environmentally clean fuels, thus reducing its dependence on fossil fuels, and resulting in job growth, reduced pollution, and a more robust state economy.

The legislature finds that the State should do more to continue efforts to enhance hydrogen use in Hawaii. Accordingly, the purpose of this Act is to establish a hydrogen private/public partnership to implement the recommendations contained in HNEI's 2001 study.

SECTION 2. (a) There is established within the department of business, economic development, and tourism, for administrative purposes only, the hydrogen public/private partnership to support and promote hydrogen use in Hawaii's energy

economy. The HNEI of the University of Hawaii shall provide assistance to the department.

(b) The department shall invite the participation of the following entities to the partnership:

- (1) The State, including the University of Hawaii and any of its entities, as appropriate;
  - (2) The counties;
  - (3) The federal government, including the military;
  - (4) The utilities; and
  - (5) The private sector.
- (c) The department, with the assistance of the partnership, shall:
- (1) Sponsor a stakeholder workshop with interested parties to review and critique the Hawaii hydrogen plan;
  - (2) Evaluate and adopt policy options to promote industry investment in hydrogen infrastructure;
  - (3) Initiate pilot projects to install multi-megawatt electrolyzers to produce hydrogen from indigenous resources on the Kona coast of the island of Hawaii;
  - (4) Conduct a comprehensive evaluation and market study for the production of hydrogen on the island of Hawaii and the importation and production of hydrogen for Oahu;
  - (5) Conduct engineering assessments of biomass or wind energy pathways for hydrogen for all islands;
  - (6) Initiate pilot projects that include distribution of hydrogen produced on the island of Hawaii to the other islands;
  - (7) Initiate discussion of tax incentives for investors; and
  - (8) Conduct assessments of potential cost benefits to consumers and recommend ways to educate consumers about the benefits of hydrogen fuel.

The department shall submit annual reports regarding the partnership to the legislature no later than twenty days prior to the convening of each regular session. The reports shall include summaries of accomplishments, including expenditures, research projects funded, and external funding received.

SECTION 3. There is appropriated out of the special land and development fund the sum of \$200,000 or so much thereof as may be necessary for fiscal year 2001-2002 to support hydrogen research and development efforts; provided that funds shall be made available under this Act on the basis of one dollar of special fund moneys to not less than one dollar from the federal government.

The sum appropriated shall be expended by the department of business, economic development, and tourism for the purposes of this Act.

SECTION 4. This Act shall take effect upon its approval and shall be repealed on July 1, 2006; provided that section 3 shall take effect on July 1, 2001.

(Approved June 25, 2001.)