THE SENATE
TWENTY-FOURTH LEGISLATURE, 2007
STATE OF HAWAII

S.B. NO. 1915 S.D. 1

A BILL FOR AN ACT

RELATING TO HYDROGEN.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. The legislature finds that Hawaii's dependence on petroleum for about ninety per cent of its energy needs is more than any other state in the nation. This makes the State extremely vulnerable to any oil embargo, supply disruption, international market dysfunction, and many other factors beyond the control of the State. Furthermore, the continued consumption of conventional petroleum fuel negatively impacts the environment. At the same time, Hawaii has among the most abundant renewable energy resources in the world, in the form of solar, geothermal, wind, biomass, and ocean energy assets.

The legislature also finds that increased energy efficiency and use of renewable energy resources would increase Hawaii's energy self-sufficiency, achieving broad societal benefits, including increased energy security, resistance to increases in oil prices, environmental sustainability, economic development, and job creation.

Over the years, the legislature has worked steadily to encourage the deployment of renewable energy resources and energy efficiency initiatives. This includes:

(1) Establishing a net energy metering program, interconnection standards, and renewable energy tax credits;

(2) Establishing greenhouse gas and energy consumption reduction goals for state facilities and requiring the use of energy efficient products in state facilities; and

(3) Providing incentives for the deployment of solar energy devices.

The legislature also established an enforceable renewable energy portfolio standard under which twenty per cent of Hawaii's electricity is to be generated from renewable resources by the end of 2020.

There now exists an unprecedented, historical opportunity for Hawaii to emerge as a leader in the hydrogen economy.

Hydrogen technology development is already attracting billions of dollars in investment capital not only in the United States, but also in other countries in Europe, and Japan. On a national level, federal initiatives are resulting in the

development of hydrogen and fuel cell technologies in partnership with automakers and major energy companies. Analysts predict that these initiatives, along with efforts in other countries, will lead to the development of markets for hydrogen and supportive hydrogen fuel cell technologies and infrastructure. The question is no longer "if", but "when."

Locally, the historic confluence of the State's desire for energy self-sufficiency through development of renewable energy with the global opportunity of the emerging hydrogen economy calls for a major, far-sighted initiative, sustainable over the long-term, to develop Hawaii's renewable energy resources and, ultimately, to transition Hawaii to an indigenous-resource-based energy economy.

Right now, the greatest immediate opportunity to achieve this vision resides on the island of Hawaii.

On the island of Hawaii, more electricity is produced from renewable resources than can currently be used. Several wind projects are expected to be completed in the near term, exacerbating this problem. Furthermore, the Puna geothermal project is planning to increase its energy contribution only if the electric utility can take and use the energy. This provides an opportunity to use excess geothermal and other renewable

energy resources to produce hydrogen using water electrolysis. This clean, renewable hydrogen would then be used as an energy carrier for stationary power and transportation fuels, making the island self-sufficient.

Hydrogen could also be exported to Oahu and other islands as the clean fuel of choice for power generation and transportation fuels, achieving greater self-sufficiency for the State of Hawaii.

To shape Hawaii's energy future and achieve the goal of energy self-sufficiency for the State of Hawaii, our efforts must continue on all fronts, integrating new and evolving technologies, seizing upon economic opportunities to become more energy efficient and economically diversified, and providing incentives and assistance to address barriers.

The purpose of this Act is to further the State's transition to energy independence by clarifying that "hydrogen" is to be produced from renewable resources, and adding the following to the Hawaii renewable hydrogen program:

(1) Hydrogen research and development infrastructure projects, related to geothermal hydrogen production on the island of Hawaii, biomass hydrogen production on Maui and Kauai, and hydrogen production on Oahu;

(2) Integration of the State's automotive fleet with hydrogen powered vehicles, and the establishment of standards for hydrogen fuel vehicles;

(3) Establishment of a hydrogen public awareness campaign; and

(4) Advance the construction of hydrogen demonstration refueling stations throughout the State.

SECTION 2. Section 196-10, Hawaii Revised Statutes, is amended to read as follows:

"**[~~§~~] §196-10 [~~]~~] Hawaii renewable hydrogen program.** (a) There is established, within the department of business, economic development, and tourism, a Hawaii renewable hydrogen program to manage the State's transition to a renewable hydrogen economy. The program shall design, implement, and administer activities that include:

(1) Strategic partnerships for the research, development, testing, and deployment of renewable hydrogen technologies;

(2) Engineering and economic evaluations of Hawaii's potential for renewable hydrogen use and near-term project opportunities for the State's renewable energy resources;

(3) Electric grid reliability and security projects that will enable the integration of a substantial increase of electricity from renewable energy resources on the island of Hawaii;

(4) Hydrogen demonstration projects, including infrastructure for the production, storage, and refueling of hydrogen vehicles;

(5) A statewide hydrogen economy public education and outreach plan focusing on the island of Hawaii, to be developed in coordination with Hawaii's public education institutions;

(6) Hydrogen research and development infrastructure projects, related geothermal hydrogen production on the island of Hawaii, biomass hydrogen production on Maui and Kauai, and hydrogen production on Oahu;

(7) Integration of the State's automotive fleet with hydrogen powered vehicles, and establishment of standards for hydrogen fuel vehicles;

(8) Establishment of a hydrogen public awareness campaign;

(9) Advancement of the construction of hydrogen demonstration refueling stations throughout the State;

[~~(6)~~] (10) Promotion of Hawaii's renewable hydrogen resources to potential partners and investors;

[~~(7)~~] (11) A plan, for implementation during the years 2007 to 2010, to more fully deploy hydrogen technologies and infrastructure capable of supporting the island of Hawaii's energy needs, including:

(A) Expanded installation of hydrogen production facilities;

(B) Development of integrated energy systems, including hydrogen vehicles;

(C) Construction of additional hydrogen refueling stations; and

(D) Promotion of building design and construction that fully incorporates clean energy assets, including reliance on hydrogen-fueled energy generation;

[~~(8)~~] (12) A plan, for implementation during the years 2010 to 2020, to transition the island of Hawaii to a hydrogen-fueled economy and to extend the application of the plan throughout the State; and

[~~(9)~~] (13) Evaluation of policy recommendations to:

(A) Encourage the adoption of hydrogen-fueled vehicles;

(B) Continually fund the hydrogen investment capital special fund; and

(C) Support investment in hydrogen infrastructure, including production, storage, and dispensing facilities.

(b) For the purposes of this section "hydrogen" means hydrogen produced from renewable energy sources as specified in section 269-91."

SECTION 3. There is appropriated out of the hydrogen investment capital special fund of the State of Hawaii the sum of $, or so much thereof as may be necessary for fiscal year 2007-2008, to establish a hydrogen public awareness campaign, including funding for a hydrogen convention to be hosted in 2008 by the State at the convention center.

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

SECTION 4. There is appropriated out of the hydrogen investment capital special fund the sum of $, or so much thereof as may be necessary for fiscal year 2007-2008, for

development of geothermal hydrogen production infrastructure on the island of Hawaii, development of biomass hydrogen production infrastructure on Maui and Kauai, and development of liquefied natural gas hydrogen production infrastructure on Oahu.

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

SECTION 5. There is appropriated out of the hydrogen investment capital special fund the sum of $, or so much thereof as may be necessary for fiscal year 2007-2008, to be used for the construction of at least three hydrogen demonstration refueling stations across the State. Each station shall provide public access, shall meet or exceed the environmental goals of the State of Hawaii, and shall use renewable energy, such as solar energy, to produce and dispense hydrogen, or combine fuel dispensing with electricity generation to power the station.

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

SECTION 6. There is appropriated out of the hydrogen investment capital special fund the sum of $, or so

much thereof as may be necessary for fiscal year 2007-2008, to be used for the diversification of the state automotive fleet by leasing up to twelve hydrogen powered vehicles, and for the purpose of purchasing two hydrogen internal combustion engine vehicles such as shuttle buses for use at the University of Hawaii at Manoa. These vehicles shall demonstrate the viability and functionality of hydrogen as a transportation fuel and of hydrogen powered vehicle technology.

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

SECTION 7. Statutory material to be repealed is bracketed and stricken. New statutory material is underscored.

SECTION 8. This Act shall take effect upon its approval.

Report Title:
Hydrogen

Description:
Further the State's transition to energy independence by defining hydrogen as a transportation fuel and allocating funds for the development of Hawaii's hydrogen industry through the investment in the State's hydrogen infrastructure, integration of hydrogen powered vehicles into the State's automotive fleet, establishment of a hydrogen public awareness campaign, and the advancement of the construction of hydrogen demonstration refueling stations. (SD1)