

JAN 24 2007

A BILL FOR AN ACT

RELATING TO HYDROGEN.

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

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

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



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

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

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

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

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

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

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



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

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

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

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



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

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

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

15 The purpose of this Act is to further the State's
16 transition to energy independence by:

- 17 (1) Investing in hydrogen research and development of
18 hydrogen infrastructure, with respects to geothermal
19 hydrogen production on the island of Hawaii,
20 developing biomass hydrogen production on Maui and
21 Kauai, and developing liquefied natural gas hydrogen
22 production on Oahu;



- 1 (2) Integrating the State's automotive fleet with at least
- 2 twelve hydrogen powered vehicles, and establishing
- 3 standards for hydrogen fuel vehicles;
- 4 (3) Allocating funding to the hydrogen investment capital
- 5 special fund to establish a hydrogen public awareness
- 6 campaign;
- 7 (4) Constructing hydrogen demonstration refueling stations
- 8 throughout the State; and
- 9 (5) Defining hydrogen as a transportation fuel;

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

12 " [§196-10] Hawaii renewable hydrogen program. There is
13 established, within the department of business, economic
14 development, and tourism, a Hawaii renewable hydrogen program to
15 manage the State's transition to a renewable hydrogen economy.
16 The program shall design, implement, and administer activities
17 that include:

- 18 (1) Strategic partnerships for the research, development,
- 19 testing, and deployment of renewable hydrogen
- 20 technologies;
- 21 (2) Engineering and economic evaluations of Hawaii's
- 22 potential for renewable hydrogen use and near-term



1 project opportunities for the State's renewable energy
2 resources;

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

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

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

14 (6) Promotion of Hawaii's renewable hydrogen resources to
15 potential partners and investors;

16 (7) A plan, for implementation during the years 2007 to
17 2010, to more fully deploy hydrogen technologies and
18 infrastructure capable of supporting the island of
19 Hawaii's energy needs, including:

20 (A) Expanded installation of hydrogen production
21 facilities;



- 1 (B) Development of integrated energy systems,
2 including hydrogen vehicles;
- 3 (C) Construction of additional hydrogen refueling
4 stations; and
- 5 (D) Promotion of building design and construction
6 that fully incorporates clean energy assets,
7 including reliance on hydrogen-fueled energy
8 generation;
- 9 (8) A plan, for implementation during the years 2010 to
10 2020, to transition the island of Hawaii to a
11 hydrogen-fueled economy and to extend the application
12 of the plan throughout the State; and
- 13 (9) Evaluation of policy recommendations to:
- 14 (A) Encourage the adoption of hydrogen-fueled
15 vehicles;
- 16 (B) Continually fund the hydrogen investment capital
17 special fund; and
- 18 (C) Support investment in hydrogen infrastructure,
19 including production, storage, and dispensing
20 facilities.
- 21 (10) As used in this section:



1 "Hydrogen" means a fuel composed of the chemical
2 hydrogen intended for consumption in an internal
3 combustion engine or fuel cell."

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

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

13 SECTION 4. There is appropriated out of the hydrogen
14 investment capital special fund the sum of \$, or so much
15 thereof as may be necessary for fiscal year 2007-2008, for
16 development of geothermal hydrogen production infrastructure on
17 the island of Hawaii, development of biomass hydrogen production
18 infrastructure on Maui and Kauai, and development of liquefied
19 natural gas hydrogen production infrastructure on Oahu.

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



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

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

14 SECTION 6. There is appropriated out of the hydrogen
15 investment capital special fund the sum of \$, or so much
16 thereof as may be necessary for fiscal year 2007-2008, to be
17 used for the diversification of the state automotive fleet by
18 leasing up to twelve hydrogen powered vehicles, and for the
19 purpose of purchasing two hydrogen internal combustion engine
20 vehicles such as shuttle buses for use at the University of
21 Hawaii at Manoa. These vehicles shall demonstrate the viability



1 and functionality of hydrogen as a transportation fuel and of
2 hydrogen powered vehicle technology.

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

6 SECTION 7. New statutory material is underscored.

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

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INTRODUCED BY:

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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 investment in the State's hydrogen infrastructure, integration of twelve hydrogen powered vehicles into the State's automotive fleet, establishment of a hydrogen public awareness campaign, and the construction hydrogen refueling stations.

