

Hawaii Island Economic Development Board
ISLAND OF OPPORTUNITY
SENT VIA EMAIL

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January 22, 2008

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Testimony in Support of HB 2168 Relating to the Issuance of Special Purpose Revenue Bonds

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On behalf of the directors of the Hawaii Island Economic Development Board and our 112 member organizations, we wholeheartedly support HB 2168.

Director
Winston Chow
Senior Vice President
First Hawaiian Bank

As a State we need to reduce the over-dependence of importing fuel. H2 Technologies offers solutions in bringing Hawaii closer to energy self sufficiency with regards to both electricity and transportation fuels.

Director
Roberta Chu
Senior Vice President
Bank of Hawaii

Pricing for energy derived from fossil fuel will only to continue to rise, thus creating such opportunities for Hawaii to become a leader, producing clean hydrogen for use as a transportation fuel alternative.

Director
Greg Chun, Ph.D.
President and General Manager
Kamehameha Investment Corp.

We ask for your support of this bill and thank the committee for the opportunity to testify.

Director
Patricia Provalenko
President
PATDI, INC.

Yours sincerely,

Director
James Takemine
Market Manager
American Savings Bank

Director
Barry K. Taniguchi
President and CEO
KTA Super Stores

Mark McGuffie
Executive Director

Director
Mark McGuffie
Executive Director

Written Statement of
YUKA NAGASHIMA
Executive Director & CEO
High Technology Development Corporation
before the
HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION
Thursday January 24, 2008
8:30 AM
State Capitol, Conference Room 312

In consideration of
HB 2168 RELATING TO THE ISSUANCE OF SPECIAL PURPOSE REVENUE BONDS.

Chair Morita, Vice Chair Carroll, and Members of the House Committee on Energy & Environmental Protection.

The High Technology Development Corporation (HTDC) supports HB 2168 which authorizes Special Purpose Revenue Bonds to H2 Technologies, Inc. for construction of a Hydrogen Generator Appliance Laboratory and Hydrogen Generation and Conversion Facilities.

H2 Technologies, Inc. physically located on the Big Island of Hawaii is a member of the Statewide Incubation Network which is managed by the HTDC. Through this network there will be access to resources and assistance to further their plans to develop their technology to produce hydrogen-based renewable energy.

Thank you for the opportunity to offer these comments.

Testimony of Guy Toyama

Chief Operating Officer, H2 Technologies, Inc

73-4347 Malie Place, Kailua-Kona, HI 96740

Tel: 808-938-6325 e-mail: guy@h2-techs.com

In support of HB 2168

Relating to Issuance of Special Purpose Revenue Bonds

Before the

House Committee on Energy and Environmental Protection

January 22, 2008

Good morning, Chair Morita, Vice Chair Carroll and members of the committee.

My name is Guy Toyama and I am the COO of H2 Technologies a company developing high efficient hydrogen generation systems on the Island of Hawaii. Our company is the bond recipient in the bill.

I support the passage of HB 2168 for the following reasons:

1. Hawaii is too vulnerable as an island state importing 90% of our energy and fuel sources. I grew up in Maui in the 1970s and remember as a child back in 1974 how there would be green, yellow or red flags to determine whether we could buy gasoline to transport ourselves. I remember how my parents and grandparents waiting in very long lines at the pump and sometimes being told they won't have enough gasoline. Should Hawaii be in a position where there is an inability to import fuel, this will be crippling to Hawaii's economy.
2. I grew up in a time when the head of household could support the family. Now, both spouses have to work and sometimes two jobs to pay the bills. This is not right. The least we can do as leaders of our society is to lessen the burden of the people of Hawaii where we can and where it is hurting. One place of burden is the cost of transportation fuel. H2 Technologies will lease a system allowing people of Hawaii to fuel their own cars at home with hydrogen for less than it costs them to fuel with gasoline at the pump.
3. With the slowing of the economy, it is important that the State of Hawaii be careful of their investments due to lower revenues. The project with H2 Technologies helps to reduce risk by using revenue bond funds to build facilities that are on State of Hawaii lands and managed by a State agency (NELHA).
4. Much of today's private equity funding is heading into the renewable energy sector. A project supported by the State of Hawaii with a strong technology advantage, joint projects with the University and a business model that will drive sales demand will likely draw attention and interest from various private equity sources making this project stronger and likely to succeed. We expect the success of this project at NELHA to further enhance interest by new innovative green energy technology company to start up in Hawaii moving Hawaii closer to becoming self sufficient in energy needs in both electricity and fuels.
5. H2 Technologies has a quick solution to moving Hawaii to a hydrogen economy by creating an efficient hydrogen generation system that empowers people to make their own hydrogen fuel at home and converting gasoline cars and trucks to run on this clean alternative fuel

A summary of the H2 Technologies

We are currently in a fossil fuel economy, relying on an energy source that is non-renewable and depleting. The use of fossil fuels are not only expensive (and getting worse), but damaging to our environment by increases

greenhouse gases into the atmosphere. Hydrogen is an inexhaustible fuel. And a fuel just like gasoline or natural gas. It can be created by separating hydrogen from oxygen in water and can be burned like any fuel for producing electricity or running engines or converted to electricity and heat by use of a fuel cell. Unfortunately, the so called "hydrogen economy" has been slow in developing because it has not been efficient or feasible to use hydrogen for electricity due to the cost of producing hydrogen from water.

The solution arrives: H2 Technologies has developed a new hydrogen generation unit (patent pending) that produces more hydrogen than conventional electrolyzers. Outdated electrolyzers generate far less hydrogen and therefore require more initial energy through unreasonably large wind, solar or geothermal systems. By using a hydrogen generator that is more efficient in its production of hydrogen than outdated electrolyzers, generation systems require less initial energy and therefore fewer solar panels or wind generators, resulting in lower cost to the consumer. H2 Technologies will offer the following products to generate revenue:

- H2 Technologies energy and Fueling systems
 - Patent-pending hydrogen generator
 - Wind generator/solar panels
 - Installation and maintenance
 - Lease option
 - Gasoline to Hydrogen Internal Combustion Engine Conversion
- Carbon credits
 - Trading
 - Sales

Before delving into the Company's products, it is important to understand a few important aspects of hydrogen power in the context of the current "Fossil Fuel Economy." Fossil fuels such as gasoline and natural gas are energy carriers. Energy carriers are converted to electricity or heat, which can be used to run an engine, a home, an office, etc. Hydrogen is also an energy carrier. However, unlike fossil fuels (gasoline, natural gas, etc.), the bi-product of converting hydrogen to energy is water and heat. Gasoline and natural gas have more harmful byproducts such as carbon monoxide. More importantly, fossil fuels are of finite supply. The more people use them, the less they have to use. This increases expense as dependency increases, which is a futile and pointless formula (one people are currently trapped in). Hydrogen is the escape plan, allowing people the same power without the harmful side effects or the degradation of resources.

Hydrogen power is created by isolating the hydrogen from water molecules. (Water is two parts hydrogen and one part oxygen.) This process is conducted through electrolysis such as the Company's. Hydrogen comprises 92% of the planet's chemical make-up, and is therefore easily the most abundant element on Earth. Likewise, the planet is composed of 80% water, therefore providing an abundant source of raw material for hydrogen production. More importantly, the byproduct of creating power (harnessing the power of re-fusion between hydrogen and oxygen) is water, resulting in recycled raw material. In this way, the resources will not be depleted, but reused.

Another aspect of hydrogen power to be considered is the current model's need for an established infrastructure. Much of the cost of fossil fuels goes toward funding government and military services required to protect the source of fuel. Since hydrogen power can be made anywhere there is water, there is no need for this military and government infrastructure. The transition could be instantaneous. Technology exists to modify cars, homes, and offices to hydrogen power. H2 Technologies' patent pending hydrogen generator, which is more efficient than conventional electrolyzers, brings the cost of one kilogram of hydrogen to less than a gallon of gas. Keep in mind that gas prices are steadily rising and show no signs of decreasing, as people have no way of manufacturing raw materials.

H2 Technologies will lease a system complete with a solar or wind turbine (depending on the location and zoning laws), hydrogen generator, power storage, a compressor, and a fuel cell for powering both a homeowner's home and for fueling their cars. Automobile modification will also be included. This offering is the first step in

establishing the hydrogen economy, which will save consumers money, protect natural resources, and contribute to a cleaner environment.

H2 Technologies will construct a one-MWH solar hydrogen power station and technology laboratory where the public can observe this innovative system firsthand and receive consultation on purchasing and installing such systems for home, automotive, or office use. This Hawaii-based power station and tech laboratory, located at the Hawaii Gateway Energy Center at NELHA (Natural Energy Laboratory of Hawaii Authority), will also serve as a nucleus of education to expose new technology to world citizens, resulting in broader awareness of the problems posed from fossil fuels and the solutions thereof. This unique facility will enable, educate, and motivate many people to consider using renewable energy solutions. The Company's pursuit of the triple bottom line – profit, ecology, and social responsibility – amounts to a better and brighter future paved by transformative technology. H2 Technologies' services and products are described below:

H2 Technologies energy systems: H2 Technologies will install, maintain, and lease on a monthly basis its energy production units. H2 Technologies' new and patent pending hydrogen generator produces hydrogen with greater efficiency than conventional electrolyzers, resulting in substantially more hydrogen and reduced costs for consumers. The low electrical needs of the H2 Technologies system allow efficient operation from alternative energy conversions through wind, solar panels (as well as any other sources such as geothermal power). The hydrogen will be used for both fuel in the customer's automobiles as well as for electricity production using a fuel cell.

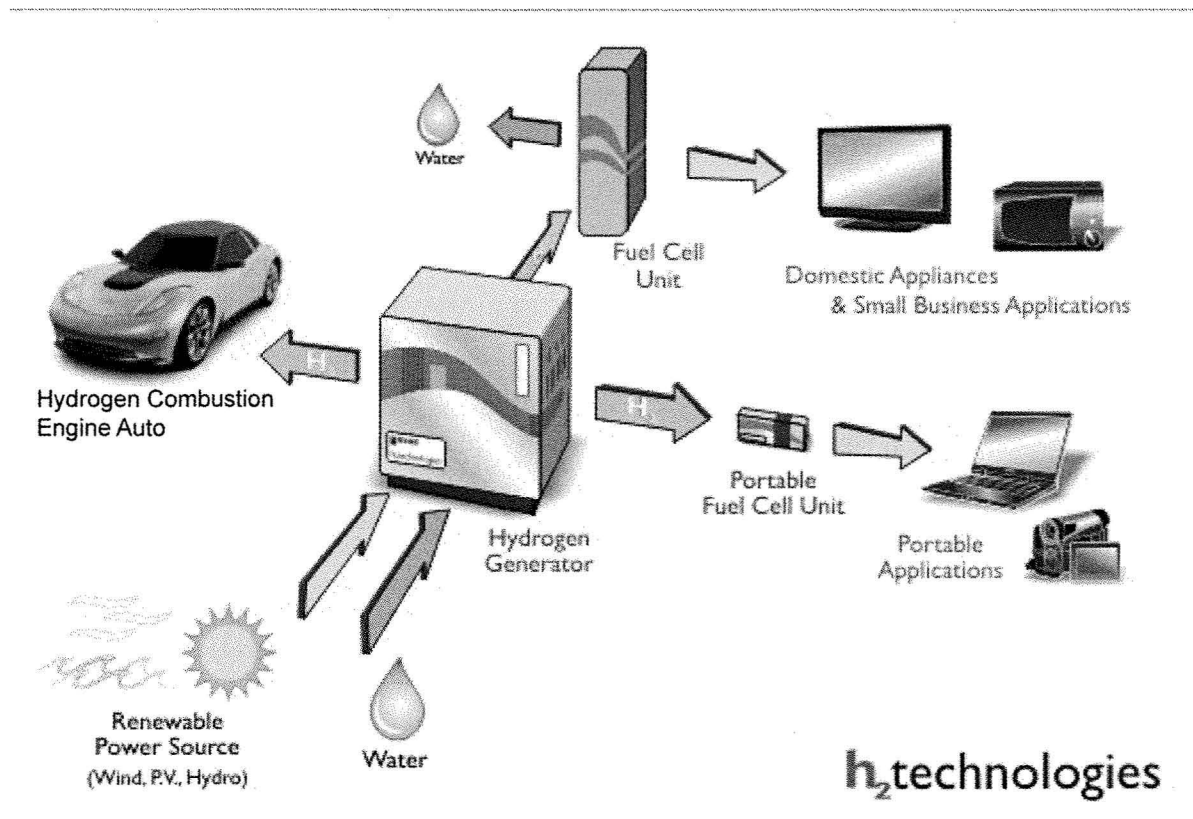
H2 Technologies Hydrogen Generator: H2 Technologies hydrogen generator allows electrolysis to happen with much lower electrical requirements than pure electrolyzers. H2 Technologies is able to create the same high temperature and high pressure properties required to decompose water into hydrogen and oxygen using a combination of electricity and a high acoustic frequency in the system reactor as opposed to just electricity. An easy analogy is the comparison of boiling water with an electric stovetop versus a microwave oven. The microwave oven uses electricity to generate a high frequency that causes water molecules to rotate rapidly creating heat. The microwave oven uses only 75% the electricity to boil the same volume of water compared to an electric stovetop. This main proprietary intellectual property is the key to moving us to the hydrogen economy and independence from fossil fuels.

H2 Technologies Gasoline to Hydrogen Conversions: To help clean the air and reduce harmful carbon emissions while driving the sales and leasing of our hydrogen energy systems, H2 Technologies will build and operate a conversion garage which will allow regular gasoline cars and trucks to run on both gasoline and gaseous compressed hydrogen. This process is similar to the recently popular trend to convert gasoline cars to run on propane as many people in the mainland have done to save on fuel costs. With the ability to produce hydrogen at home, H2 Technology hydrogen energy system leasees will be able to produce their transportation fuels from water and the sun during the day while at work to be compressed and stores for refueling at night.

Carbon credits: Another form of generating income includes participation in the carbon credit market. Since the Company will operate in the renewable energy market, it will be able to generate revenue by trading and selling its carbon credits, which will further support research and development of advanced electrolyzer products and other business operation activities. These carbon credits act as incentives to generally reduce total carbon emissions. According to the latest research conducted by the U.S. Department of Energy's Carbon Dioxide Information Analysis Center (CDIAC), the average person in the United States was responsible for 20.4 metric tons of carbon emissions in 2004. This is a jump from the year before, which makes it the largest single year increase

since 1997, when per capita emissions jumped from 19.4 metric tons to 20.2 metric tons. For the years in between, per capita emissions remained constant, which meant that they steadily increased with the population.¹

An illustration H2 Technologies residential applications



In Conclusion

For these reason, I am proposing this bill to legislature and urge its passing. Thank you for the oppportunity to testify.

Sincerely,

Guy Toyama

H2 Technologies, Inc.

Chief Operating Officer

guy@h2-techs.com

808-938-6325

¹ U.S. Department of Energy's CDIAC. Obtained at: http://cdiac.esd.ornl.gov/trends/emis/tre_usa.htm

January 22, 2008

Representative Hermina Morita
Chair, Energy and Environmental Protection Committee
Representative Mele Carroll
Vice Chair, Energy and Environmental Protection Committee
State Capitol, Honolulu Hawaii 96813

Testimony in Support of HB 2168 Relating to the Issuance of Special Purpose Revenue Bonds

Chair Morita, Vice Chair Carroll and members of the committee, my name is Kenneth R. Fowler and I am a substitute school teacher K-12 on the Big Island teaching at schools from Honaunau Elementary to Kealahou High School. I have volunteered with and served on the Boards of two 501c3s: The Friends of NELHA and The Hawaii Center for Learning Science through Art.

Ken R. Fowler strongly supports HB 2168. After review of the H2 Technologies executive summary, I believe that this project is in the best interest of the people of Hawaii and will be a key step in bringing Hawaii to self sufficiency with regards to both electricity and transportation fuels.

Because we import 90% of our energy source and fuel and 85% of our food, as an island state, Hawaii is extremely vulnerable. Because we rely on importing all our necessities, it is costing all of us more money to survive. And I am certain that electricity and fuel prices will only go up over time causing more hardship. However, blessed with abundant sunshine, wind, geothermal, ocean currents and falling waters, we are in a great position to become less dependent on our imported energy needs. With so many renewable ways to produce electricity, Hawaii is also in a great position to be a major producer of clean hydrogen for use as a transportation fuel. The ability to convert a car or truck to run on hydrogen which can be produced on site will save money now and even more over time.

The price of gasoline and diesel are hitting us hard in the pocketbooks. I fully support any efforts to develop safe alternative fuels made in Hawaii as it will benefit our society and our local economy.

Again, for these reasons, Ken R. Fowler is in support of this bill and thank the committee for the opportunity to testify.

Sincerely,

Ken R. Fowler
74-5533 Luhia St. B-1A#506, Kailua-Kona, HI 96740
808-756-2558

Janice Lehner

From: Ken Fowler [krfowler@hawaiiantel.net]
Sent: Tuesday, January 22, 2008 6:58 PM
To: EEPtestimony
Subject: testimony in support of H2168

House of Representatives
Committee on Energy and Environmental Protection
State Capitol Building

Letter of Testimony

By

Ken R. Fowler

House Committee on Energy and Environmental Protection

January 24, 2008. 8:30am

Regarding Measure number: HB2168

5 copies being requested by the Committee (please make if needed)

January 22, 2008 From: Kenneth R. Fowler

On January 15th 2008 an important and urgent message was conveyed in the documentary, "Hawaii's Climate Crisis" by the Hawaii Energy Policy Forum and the Hawaiian Electric Company as a public service. Many new renewable energy alternatives that are now being considered for Hawaii were mentioned.

From what I've read on the H2 Technologies Executive Summary, and from my persistent interest in helping raise interest in Hawaii for renewable technologies, I think it is imperative that we support measure HB2168 because it brings Hydrogen Technology into the present and does not leave it only as a possibility off in the future. I believe that Hawaii must begin acting now to wean itself off imported fuels, and that Hawaii has the potential and the incentives to be a leader in converting to a renewable energy based economy.

Thank You,

Ken R. Fowler 74-5533 Luhia St. B-1A#506 Kailua-Kona 96740