MAKAI OCEAN ENGINEERING, INC.
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LATE

Testimony To
House Committee on Finance

Relating To
S.B. 23
Relating to the Issuance of Special Purpose Revenue Bonds to Assist Kaiuli Energy Sea Water Air Conditioning (SWAC) Project in Waikiki

By
Billy Pieper, Makai Ocean Engineering

Date: March 29, 2013

To: Chair Luke and Members

The purpose of this proposed bill is to issue special purpose revenue bonds to assist Kaiuli Energy to develop a district cooling system for Waikiki. Makai Ocean Engineering is in support of this measure.

Air conditioning is estimated to make up about 45% of the electrical consumption in Waikiki each year. The use of deep cold seawater as a source of cooling can result in a significant decrease in energy consumption.

Makai is a longtime advocate of utilizing deep cold seawater as an efficient, renewable and environmentally sound source for large commercial cooling systems. Makai has successfully developed the technology to safely design, engineer and deploy deep ocean pipelines which are used to draw cold water from miles offshore. This cold seawater coupled with a heat exchanger reduces the need for energy intensive refrigeration systems. In some cases, we have seen energy savings approach upwards of 80%.

This technology has been successfully utilized at a number of places around the world.

- Cornell University where a pipeline was installed in Lake Cayuga to access cold water to provide air conditioning for the Cornell University campus and parts of the public school system.
- Toronto Canada where 3 pipelines were deployed to access cold water in Lake Ontario
- Natural Energy Lab (NELHA) on Hawaii Island
- Intercontinental Resort and Spa - Bora Bora, Tahiti
- Curacao Airport *

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* under planning and/or development

Kaiuli Energy is requesting your assistance for these special purpose revenue bonds to assist financing its proposed project in Waikiki. We believe that this is an excellent opportunity for the private and public sector to cooperatively work together in developing cooling systems using Hawaii's largest natural resource, its deep oceans. This project will encompass significant job creation and upwards of $200M worth of capital expenditures will remain with Hawaii companies. Makai Ocean Engineering would encourage you to support this measure.

Thank you for the opportunity to share these thoughts with you.

Best Regards,

Billy Piepel
Vice President
Makai Ocean Engineering

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KAIULIENERGY

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Written Statement of
DARRYL NAKAMOTO, Partner
Kaiuli Energy

before the
HOUSE COMMITTEE ON FINANCE

Monday, April 1, 2013
8:30 AM
State Capitol, Conference Room 325

In consideration of
SB 23 RELATING TO THE ISSUANCE OF SPECIAL PURPOSE REVENUE BONDS TO ASSIST A SEAWATER AIR CONDITIONING PROJECT.

Date: March 29, 2013

To: Chair Luke and Committee Members

Kaiuli Energy is in support of this measure that will allow the State of Hawaii to issue Special Purpose Revenue Bonds (SPRBs) for the development of a district cooling system for Waikiki.

Kaiuli Energy was founded in 2011 with the goal to be a global leader in ocean sourced energy development. Its current focus is on developing a 22,500 ton Waikiki based seawater air conditioning (SWAC) system, which is designed to provide district cooling to replace the energy-intensive central refrigeration system of a traditional air conditioning at individual buildings. The natural resource of cold seawater is used to chill freshwater that will be delivered to structures with centralized air conditioning systems.

A 22,500 ton SWAC system offers:

- Conservation of approximately 106,000 barrels of oil/year
- Reduction of approximately 48,000,000 kWh/year
- Reduction of potable water usage by approximately 157,000,000 gallons/year
- Reduction of sewage discharge by approximately 69,000,000 gallons/year
- Reduction of harmful gas emissions of approximately 50,000 tons/year
- Alignment with HCEI's goals of End-Use Efficiency and next generation technologies

There are five parameters that favor potential SWAC project locations. They are: access to cold water, high density of customer load, year-round air conditioning utilization, high electricity rates, and a good marine environment. A Waikiki system satisfies all five parameters. Other locations where SWAC projects are currently in operation are:

- Stockholm, Sweden – 80,000 tons
- Toronto, Canada – 75,000+ tons
- Amsterdam, Netherlands – 35,000 tons
- Cornell University, Ithaca, New York – 20,000 tons
- Bora Bora, French Polynesia – 3,000 tons

Our customers will be hotels and other buildings in and around the Waikiki and Ala Moana areas that have large air conditioning loads. It is estimated that air conditioning usage represents up to 45% of these buildings' total electricity costs. Not only will these SWAC customers benefit through substantial savings on electricity rates, SWAC customers will also realize significant savings on water and sewage consumption. In addition, these hotels, resorts, retail centers and other commercial and residential entities will be able to market themselves as environmentally conscious and friendly consumers.

The project is estimated to take five years to complete with the delivery of chilled water beginning in 2018. The estimated total project cost of the Waikiki SWAC system is projected to be approximately $225 million.

Kaiuli's management team is comprised of Hawaii business and community leaders with the necessary experience critical to the project's success. As the former CFO of Hoku Corporation, I have over seven years of experience in alternative energy and raising funds for large scale ventures. In addition, Rob Iopa, president of WCIT Architecture, has extensive experience and expertise in entitling, designing and constructing large complex projecting in Waikiki and urban Honolulu , and Ray Soon has over 40+ years consulting and delivering on construction projects in Hawaii.

Thank you for the opportunity to share our thoughts with you.