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Testimony of
MARK B. GLICK, Chief Energy Officer

before the
HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

Thursday, February 1, 2024
9:30 AM
State Capitol, Conference Room 325 and Videoconference

In Support of
HB 2103

RELATING TO LONG DURATION CLEAN ENERGY STORAGE.

Chair Lowen, Vice Chair Cochran, and Members of the Committee, I am writing in support of HB 2103 which relates to long duration clean energy storage.

Longer duration storage technologies will be increasingly important to Hawai'i's energy transition as more renewables are deployed on the grid. At high rates of renewable penetration, such storage enables renewable sources generated during the daytime, such as solar generated power, to be used throughout the night. A long duration clean energy storage investment capital special fund would provide the Hawai'i State Energy Office (HSEO) with seed and venture capital for investments in private sector and federal projects for long duration storage research, development, testing, and implementation.

Long-duration storage, including hydrogen (H₂) and pumped hydroelectric storage, can make renewable energy available in times of need. It further has the potential to act as firm renewable, subject to the storage capacity. Kauai Island Utility Cooperation (KIUC) issued a Power Purchase Agreement (PPA) at \$0.08/kWh PPA for a pumped hydroelectric storage project combining 35MW solar and battery, and 25MW pumped hydro. KIUC estimates project will save over \$150 million compared to fossil fuels for term of PPA.

O'ahu has the potential for pumped hydro at Lake Wilson. Previous estimates show 40MW capacity from Wahiawā, Nu'uānu, and Maunawili reservoirs (USDOE and DBEDT 1981).

The measure as written provides sufficient flexibility to pursue electrochemical, mechanical, thermal, chemical carriers, or any combination that has the potential to meet the necessary duration and cost targets for grid flexibility. The changes also preserve the crucial role of hydrogen pursuant to the original intent of the renewable hydrogen program but broadens it appropriately to include all long duration storage options.

Thank you for the opportunity to testify.

HB-2103

Submitted on: 1/29/2024 5:06:43 PM

Testimony for EEP on 2/1/2024 9:30:00 AM

Submitted By	Organization	Testifier Position	Testify
Douglas Perrine	Individual	Support	Written Testimony Only

Comments:

I support HB2103. The recent blackouts on Oahu amply demonstrate the need for development of more long-term energy storage.

Statement of
Brigadier General Stanley J. Osserman Jr. (USAF Ret.), President
Tigershark, LLC
Before the
House Committee on Energy & Environmental Protection
1 February 2024
9:30 am
State Capitol Conference Room #325
In consideration of
HB2103
Relating to Long Duration Clean Energy Storage

Chair Lowen

30 January 2024

Vice Chair Cochran and Distinguished Committee Members:

I stand in strong support to this bill.

As the former director of the Hawaii Center for Advanced Transportation Technologies (HCATT; 2013 to 2019), Hawaii Department of Business, Economic Development and Tourism (DBEDT), my HCATT Director position was designated by the legislature as the “Hydrogen Implementation Coordinator for the State of Hawaii”. I continue to serve our state by promoting clean, renewable energy solutions. This testimony is NOT being given for compensation of any kind, commercial, political or private. I am presenting to you today as a concerned “Life-Long” citizen of the State of Hawaii with extensive professional experience in energy systems, retail and wholesale business, military matters, international commerce, aviation, construction, maritime operations, and public safety, among others. My goal is to help our government leaders make good strategic choices.

I have studied and worked with The U.S. Dept. of Energy’s National Labs, organizations and companies trying to develop solutions to the many challenges we face as we divest from fossil fuels, on the grid and in all forms of transportation. Obviously, this bill has some miles on it from previous sessions, but I’m happy to see it still has life. Those of you that know me, know that I have worked tirelessly to make hydrogen a common element in our state’s clean energy plan. That plan started with Spark Matsunaga many years ago, and I joined HCATT at the request of Jen Sabas from Senator Inouye’s D.C. office. We have progressed a long way with hydrogen, world-wide! You may not see it yet, but it is being looked at by companies like Air Bus , who’s promising commercial aircraft using hydrogen as fuel available for purchase by 2035, but also in the plans of Toyota, Honda, Ford Motor Company and General Motors, Mercedes Benz, BMW, Zero Avia and Zero Emission Industries (hydrogen powered boats and ships). Hawaii needs to be ready to fuel those jets when they come here. That requires hydrogen storage in gaseous form,

liquid hydrogen and even ammonia (which may also be needed in our sustainable agricultural efforts).

Many predict that hydrogen may even be produced here in high enough volume that we would be able to EXPORT hydrogen to the Mainland US and Asia. Can you imagine Hawaii becoming an Energy exporting state! It starts with enabling the safe and economical storage of hydrogen across our state as we transition to a fossil fuel free economy. HB2103 needs your support to get through cross over and to the governor's desk.

For six and a half years I did a weekly show on Think Tech Hawaii dedicated to energy called "Stan the Energy Man". I'm humbled and amazed at how many people have watched those videos and many of them deal with hydrogen. I hope you will look at hydrogen as one of the key enablers to get Hawaii to a clean and sustainable energy future! HB 2103 is an important part of that effort.

Brigadier General, Stanley J. Osserman Jr. (USAF Ret.)

President, Tigershark, LLC

HB-2103

Submitted on: 1/31/2024 11:31:49 PM

Testimony for EEP on 2/1/2024 9:30:00 AM

Submitted By	Organization	Testifier Position	Testify
Cory Harden	Individual	Comments	Written Testimony Only

Comments:

Aloha legislators,

Hydrogen is flammable, leaks easily, and is difficult to transport. It is far less energy efficient to use renewable power to make hydrogen than to use renewable power directly.

Please consider focusing instead on supporting distributed solar and wind energy with advanced storage solutions (battery, pumped hydro, etc) for a sustainable, resilient power supply with minimal dependence on shipping supplies over thousands of miles.

mahalo, Cory Harden