

# HAWAII STATE ENERGY OFFICE STATE OF HAWAII

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Testimony of  
**MARK B. GLICK, Chief Energy Officer**

before the  
**SENATE COMMITTEES ON  
ENERGY AND INTERGOVERNMENTAL AFFAIRS  
AND  
ECONOMIC DEVELOPMENT AND TOURISM**

Tuesday, February 11, 2025  
3:10 PM  
State Capitol, Conference Room 016 and Videoconference

In Support of  
**SENATE BILL NO. 1338**

## **RELATING TO LONG DURATION CLEAN ENERGY STORAGE.**

Chairs Wakai and DeCoite, Vice Chairs Chang and Wakai, and members of the Committees, I am writing in support of DBEDT and Administration Priority Senate Bill No. 1338 which relates to long-duration clean energy storage.

Longer duration storage technologies typically refer to longer duration than the four-hour lithium ion (Li-ion) battery energy storage systems that in 2021 and 2022 comprised about 40% of storage capacity installed according to the National Renewable Energy Laboratory. During that same period less than 6% had durations of greater than four hours.

Technological improvements offer the potential for several storage technology options to achieve lower per-unit of energy storage costs and longer service lifetimes to compete with Li-ion technology and support Hawai'i's energy transition as more renewables are deployed on the grid. At high rates of renewable penetration, longer duration storage enables solar and other renewable sources generated during the daytime that exceed demand to be used throughout the night or at other times when most needed. 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.

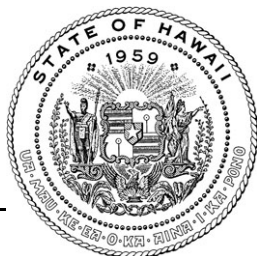
Long-duration storage, including hydrogen (H<sub>2</sub>) and pumped hydroelectric storage, can make renewable energy available in times of need. It further has the potential to act as firm or dispatchable renewable, subject to the storage capacity, at competitive costs. For example, Kaua'i Island Utility Cooperation (KIUC) had 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

had estimated that the project would save over \$150 million compared to fossil fuels over the term of PPA.

HSEO points out that O'ahu has the potential for pumped hydro at Lake Wilson, where previous studies had estimated a potential capacity of 40 MW from Wahiawā, Nu‘uanu, and Maunawili reservoirs (USDOE and DBEDT 1981).

The measure, as written, provides sufficient flexibility to pursue a portfolio of long duration technologies such as 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.



**DEPARTMENT OF BUSINESS,  
ECONOMIC DEVELOPMENT & TOURISM**  
KA 'OIHANA HO'OMOHALA PĀ'OIHANA, 'IMI WAIWAI  
A HO'OMĀKA'IKA'I

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Statement of  
**JAMES KUNANE TOKIOKA**  
**Director**  
Department of Business, Economic Development, and Tourism  
before the  
**SENATE COMMITTEE ON ENERGY AND INTERGOVERNMENTAL AFFAIRS**  
&  
**SENATE COMMITTEE ON ECONOMIC DEVELOPMENT AND TOURISM**

Tuesday, February 11, 2025  
3:10 PM  
State Capitol, Conference Room 016 and Videoconference

In support of  
**SB 1338**  
**RELATING TO LONG DURATION CLEAN ENERGY STORAGE.**

Chairs Wakai and DeCoite, Vice Chairs Chang and Wakai, and Members of the Committees:

The Department of Business, Economic Development and Tourism (DBEDT) supports its priority Senate Bill 1338, a Governor Green Administration Package Bill. This bill requires high quality resource characterization of pumped storage hydropower location, or other long duration clean energy storage technologies, and promotes their development.

This measure serves to make renewable energy more available in times of need and to increase firm and dispatchable renewable energy capacity. The measure, as written, provides sufficient flexibility to pursue a portfolio of long duration technologies such as 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.

Understanding that longer duration storage technologies allow for improvements in the availability of renewable energy and can serve as firm or dispatchable renewable energy, DBEDT believes government support for a long duration clean energy storage investment capital special fund is an appropriate first step toward incentivizing private sector and federal investment in long duration storage research, development, testing, and implementation. SB1338 provides that needed support.

Thank you for the opportunity to support this measure.



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**Written Statement of**

**David H. Molinaro**

HCATT Manager

Hawaii Center for Advanced Transportation Technologies

before the

**Senate Committee on Energy and Intergovernmental Affairs**

**Senate Committee on Economic Development and Tourism**

State Capitol, Conference Room 016

Tuesday, February 11, 3:10 PM

In consideration of

**LATE**

**SB1338**

**Relating to Long Duration Clean Energy Storage**

Chair Wakai, Vice Chair Chang; Chair DeCoite, Vice Chair Wakai and Members of the  
Committees.

The Hawai'i Center for Advanced Transportation Technologies (HCATT) supports SB1338 to identify pumped storage hydropower locations or sites for other long duration clean energy storage technologies. Further HCATT supports amending Hawaii Revised Statute HRS 196-10 to include "Hawaii renewable hydrogen and long duration clean energy storage programs" as well as amending HRS 206-63 to reflect a "hydrogen and long duration clean energy storage investment and capital special fund."

From providing backup power during natural disasters to facilitating Hawai'i's crucial need to bring more renewable energy online, long duration energy storage (LDES) technologies can make the utility grids more flexible and resilient. Currently, Hawai'i's energy storage technologies are insufficient to meet fluctuating energy demands throughout the day. LDES, whether hydrogen, battery energy storage, stored hydropower, or other technologies, is a cost-effective option to increase grid reliability and resilience so that reliable, affordable electricity is available. It also supports the decarbonization of the utilities as well.

Further, LDES planning is critical in ensuring the maximum potential for stored energy is realized in deference to Hawai'i's unique topography; potential competing land use needs; location of population vs renewable energy generation sites (i.e. potential geothermal production on Outer Islands); and with respect to Hawai'i's culture and history.

Mahalo for the opportunity to provide this testimony



**Testimony to the Committee on Energy & Intergovernmental Affairs and Economic  
Development & Tourism**

**Tuesday February 11, 2025**

**3:10 PM**

**Conference Room 016 & VIA videoconference**

**Hawaii State Capitol**

**SB 1338**

**LATE**

**Chair Wakai, Vice Chair Chong, Chair DeCoite, Vice Chair Wakai and Members of the  
Committee:**

Hawaii Gas supports SB 1338, which seeks to enhance energy security and reliability through the identification and development of long-duration clean energy storage solutions, including pumped storage hydropower and hydrogen technologies.

Hawaii Gas recognizes the critical need for energy resilience as extreme weather events, exacerbated by climate change, continue to impact the supply and availability of both imported and locally produced energy resources. The proposed legislation will help ensure that Hawaii has a robust and reliable energy infrastructure capable of withstanding these disruptions.

Hydrogen has great potential to complement renewable energy production by providing a flexible and efficient storage medium.

Thank you for the opportunity to testify in strong support of this important measure.