



**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**
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Statement of
JAMES KUNANE TOKIOKA
Director
Department of Business, Economic Development, and Tourism
before the
HOUSE COMMITTEE ON ENERGY AND ENVIRONMENTAL PROTECTION
Thursday, February 6, 2025
9:00 AM
State Capitol, Conference Room 325 and Videoconference

In support of
HB 1019
RELATING TO LONG DURATION CLEAN ENERGY STORAGE.

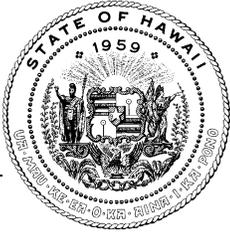
Chair Lowen, Vice Chair Perruso, and Members of the Committee.

The Department of Business, Economic Development and Tourism (DBEDT) supports its priority House Bill No. 1019, 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. HB 1019 provides that needed support.

Thank you for the opportunity to support this measure.



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MARK B. GLICK
CHIEF ENERGY OFFICER

Testimony of
MARK B. GLICK, Chief Energy Officer

before the
HOUSE COMMITTEE ON ENERGY AND ENVIRONMENTAL PROTECTION
Thursday, February 6, 2025
9:00 AM
State Capitol, Conference Room 325 and Videoconference

In Support of
HOUSE BILL NO. 1019

RELATING TO LONG DURATION CLEAN ENERGY STORAGE.

Chair Lowen, Vice Chair Perruso and members of the Committee, I am writing in support of DBEDT and Administration Priority House Bill No. 1019 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 (H₂) 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.



JOSH GREEN, M.D. GOVERNOR

SYLVIA LUKE, LT. GOVERNOR

Written Statement of

David H. Molinaro

HCATT Manager

Hawaii Center for Advanced Transportation Technologies

before the

House Committee on Energy & Environmental Protection

State Capitol, Conference Room 325

Thursday, February 6, 2025 at 9:00 AM

In consideration of

HB1019

RELATING TO LONG DURATION CLEAN ENERGY STORAGE.

Chair Lowen, Vice Chair Perruso, and Members of the Committee.

The Hawai'i Center for Advanced Transportation Technologies (HCATT) supports HB1019 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 & Environmental Protection
Thursday February 6, 2025
9:00 AM
Conference Room 325 & VIA videoconference
Hawaii State Capitol
HB 1019**

Chair Lowen, Vice Chair Perruso, and Members of the Committee:

Hawaii Gas supports HB 1019, 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.

HB-1019

Submitted on: 1/29/2025 3:23:47 PM

Testimony for EEP on 2/6/2025 9:00:00 AM

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

Comments:

Pumped storage hydropower is both the cheapest and best-proven method of storing intermittently-produced energy for later use on demand. Hawaii is uniquely suitable for the use of this simple technology, which has been in use world-wide for decades, due to our topography. It avoids the toxicity, disposal, and fire hazard problems associated with lithium batteries. Yet we continue to develop water resources and electric storage batteries without considering this obvious method to maximize the energy efficiency of our water supply, and minimize the cost and pollution of our energy storage. Therefore I enthusiastically support HB1019, although I recommend re-writing to clarify the term "long duration clean energy storage", which appears in section 2, apparently replacing the term "pumped storage hydroelectric" which appears exclusively in section 1.