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Testimony of
MARK B. GLICK, Chief Energy Officer

before the
**SENATE COMMITTEES ON
ENERGY AND INTERGOVERNMENTAL AFFAIRS
AND
HIGHER EDUCATION**

Tuesday, February 4, 2025
3:00 PM
State Capitol, Conference Room 016 and Videoconference

In Support of
SENATE BILL NO. 993

RELATING TO GEOTHERMAL ENERGY EXPLORATION.

Chairs Wakai and Mercado Kim, Vice Chairs Chang and Kidani, and members of the Committees, HSEO supports Senate Bill No. 993, in its similarity to SB 1339, the preferred bill of the Green Administration and DBEDT. If appropriately funded, SB 993 would enable the Hawai'i State Energy Office (HSEO) to conduct a statewide environmental assessment for, and subsequently administer, a Geothermal Resources Characterization Program supported by the Hawai'i Groundwater and Geothermal Resources Center at the University of Hawai'i.

Conducting research via slim-hole test wells are a high priority of Hawai'i's updated energy strategy because of the potential to clearly identify where geothermal resources might exist on Maui, Hawai'i, and O'ahu. The ultimate goal is to stimulate private sector investment in producing safe, reliable and affordable firm renewable energy that can make Hawai'i energy self-sufficient.

HSEO strongly prefers SB 1339 over SB 993 because it identifies financial resources to conduct at least six slim-hole resource characterization research wells on three islands over a two-year period. Both SB 1339 and SB 993 would amend chapter 196 HRS to include a carbon sequestration and underground water resource

characterization program implemented by HSEO, including a statewide environmental assessment and meetings with nearby counties and communities that are crucial in local determination of how public trust resources like geothermal can be appropriately pursued. Both measures also require HSEO to submit a progress report, findings, and any proposed legislation resulting from the research findings to the legislature.

To effectively and broadly conduct this research, HSEO requests \$16,500,000 for fiscal years 2025-2026 and the same sum for fiscal years 2026-2027 to carry out this program. HSEO requests \$135,000 for fiscal year 2025-2026 and the same sum for fiscal year 2026-2027 to support one full-time equivalent permanent position to be dedicated to coordinate this program.

In 2023, HSEO analyzed market gaps in firm renewable resources and long duration storage, especially geothermal and pumped hydro, and developed policies and pursued funding opportunities to fill those gaps. Geothermal energy is heat that was generated during the planet’s formation stored in rocks and fluids and brought as steam to the earth’s surface using deep wells. The steam drives turbines to generate electricity. The slim-hole research of water resources through this measure can reveal where hot water sufficient to power electricity generation may be present in key areas throughout the state. This program will also deliver core samples that may reveal the potential for carbon sequestration.

The Center for Strategic and International Studies notes that, like solar and wind energy, modern geothermal power plants have insignificant greenhouse gas (GHG) emissions with life-cycle emissions six to twenty times lower than natural gas and four times lower than solar photovoltaic (PV) energy due to the materials used to construct the plants.

Concurrently, HSEO will engage energy stakeholders at the community level during 2024 and beyond to gain insight on how and where geothermal development can appropriately take place in ways that meaningfully benefit the affected communities.

Several obstacles have limited Hawai‘i from fully developing its geothermal potential. Geothermal exploration is commercially risky and expensive. Developers have to drill multiple exploration wells before finding a reliable geothermal resource, and sometimes they do not find one at all. Private investors usually cannot mitigate and manage this risk independently.

Given the importance of geothermal in helping Hawai‘i meet its firm renewable needs, government support to identify areas of geothermal potential is an appropriate first step towards incentivizing private sector investment and development of state-of-the-art geothermal resources. With the appropriate level of funding, SB 993 would provide that needed support.

Thank you for the opportunity to testify.



Email: communications@ulupono.com

SENATE COMMITTEES ON ENERGY AND INTERGOVERNMENTAL AFFAIRS
& HIGHER EDUCATION

Tuesday, February 4, 2025 — 3:00 p.m.

Ulupono Initiative strongly supports SB 993, Relating to Geothermal Energy Exploration.

Dear Chair Wakai, Chair Kim, and Members of the Committees:

My name is Mariah Yoshizu, and I am the Government Affairs Associate at Ulupono Initiative. We are a Hawai'i-focused impact investment firm that strives to improve the quality of life throughout the islands by helping our communities become more resilient and self-sufficient through locally produced food, renewable energy and clean transportation choices, and better management of freshwater resources.

Ulupono strongly supports SB 993, which requires the Hawai'i State Energy Office to conduct a statewide environmental assessment for, and subsequently administer, a Geothermal Resources Characterization Program under the direction of the Hawai'i Groundwater and Geothermal Resources Center at the University of Hawai'i.

Hawai'i needs all viable forms of renewable energy to meet the 100% renewable portfolio standard by 2045. New data underscores the widespread support among residents for this transition. Between October 2023 and January 2024, Ulupono Initiative partnered with Anthology Research to conduct a statewide public opinion survey on energy in Hawai'i involving 1,985 surveys across all four counties. With a margin of error +/- 2.21%, this is arguably the most extensive and comprehensive study on the topic to date. The findings are compelling.

A staggering 91% of respondents expressed their support for the expansion of renewable energy resources throughout the islands. Moreover, the importance of developing Hawai'i's own energy resources was emphasized across all counties by the residents. This resounding endorsement from the community validates the strong support for continued investment and advancement in renewable energy solutions to meet our collective energy goals.

This bill is a forward-looking initiative that prioritizes scientific research and environmental stewardship. By identifying geothermal and carbon sequestration resources, this measure supports Hawai'i's broader goals of achieving energy resilience and combating climate change. Resource characterization through slim-hole bores offers a minimally invasive method for

Investing in a Sustainable Hawai'i

gathering critical data, ensuring that these activities are conducted responsibly and with minimal environmental disruption. This approach reflects a commitment to balancing energy development with environmental protection.

The bill also emphasizes robust community engagement, which is essential for building trust and ensuring that local concerns and priorities are considered throughout the program. Engaging with counties, individuals, and civic organizations allows for the incorporation of valuable insights, ensuring the program aligns with community needs and aspirations. This commitment to collaboration can foster public support, create opportunities for education about renewable energy and carbon sequestration, and pave the way for sustainable resource management. Effective community engagement has been shown to enhance the success of similar initiatives by promoting transparency and inclusivity.

Finally, the legislation's provision for progress and final reports to the legislature, as well as making findings publicly accessible, highlights its dedication to accountability and knowledge-sharing. The use of mapping software and publicly available data ensures that the information gathered will be a resource for policymakers, researchers, and the public. This transparency will strengthen public confidence in the program and provide a foundation for informed decision-making. The proposed funding and staffing allocations are essential to make certain that the program is adequately supported, enabling Hawai'i to advance its renewable energy and sustainability goals effectively for the benefit of its residents.

Thank you for the opportunity to testify.

Respectfully,

Mariah Yoshizu
Government Affairs Associate

Attachment

Beneath the Surface: Support for Geothermal Energy Emerges as Residents See Direct Benefits

For Hawai'i to provide secure, resilient and sustainable electricity for its residents and businesses, we need a diverse mix of renewable energy sources. Geothermal energy can play a greater, vital role in helping our state achieve our renewable and decarbonization goals.

Geothermal Benefits

RELIABLE

Unlike other renewables like solar and wind, geothermal provides firm power – meaning it can generate electricity consistently, day or night, regardless of weather conditions. This reliability makes it invaluable in ensuring a stable and continuous energy supply, especially since the electric grids serving each island are not interconnected.

SMALL FOOTPRINT

According to the U.S. Department of Energy, a geothermal facility is much smaller in size than a fossil-fuel coal plant or a solar farm. For a land-constrained place like Hawai'i, the footprint of a structure significantly affects its community and residents.

ENVIRONMENTAL BENEFITS

Over its lifetime, a modern geothermal plant produces among the lowest greenhouse gas emissions of any energy source and typically uses less water compared to most other power generation technologies.

Geothermal in Hawai'i

With only one geothermal energy plant on Hawai'i Island, the state's geothermal potential remains largely untapped, highlighting the need for increased exploration, funding, and communication efforts to understand this resource. In addition, investing in locally produced geothermal energy can ensure that the economic benefits of this sustainable power source remain within the state, contributing to a more resilient and self-sufficient energy future.



Public Perception of Geothermal

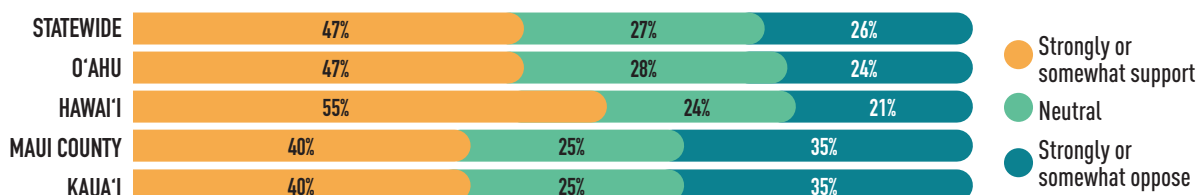


In 2023, Ulupono Initiative commissioned what is believed to be the most extensive and complete public opinion survey on the topic of energy in Hawai'i. The survey was designed to rank how residents perceive various forms of energy technologies, including geothermal.

Overall, 91% of respondents say they support the expansion of renewable energy resources in Hawai'i. Below are some highlights from the geothermal-specific survey questions.

QUESTION: *In general, how do you feel about a utility-scale geothermal power plant as a way to generate electricity on ...?*

- 47% of respondents say they strongly or somewhat support geothermal energy
- Hawai'i Island is the most supportive of utility-scale geothermal plant in their town



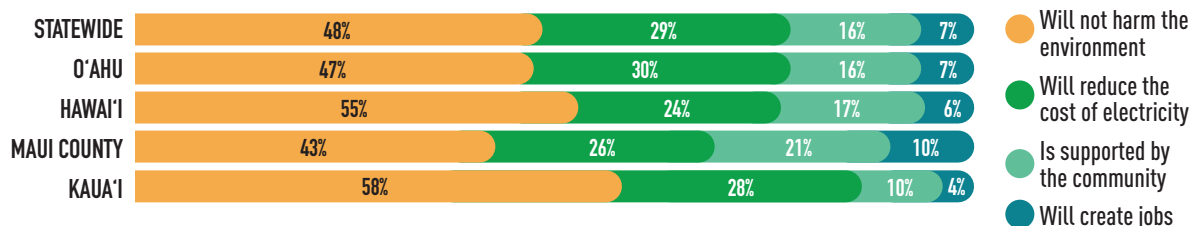
QUESTION: *How would you feel about a utility-scale geothermal power plant being built in your town/community if it meant your electricity bill would be, at least \$30/\$65/\$98 lower each month?*

- Support for geothermal rises dramatically when potential electricity bill savings increase

		SUPPORT PERCENTAGE INCREASE				
SAVINGS PER MONTH		STATEWIDE	O'AHU	HAWAI'I	MAUI COUNTY	KAUA'I
	\$30	+19%	+36%	+21%	+18%	+21%
	\$65	+30%	+29%	+32%	+30%	+31%
	\$98	+35%	+36%	+40%	+34%	+40%

QUESTION: *Which one of the following is most important to you in deciding whether to support a utility-scale geothermal plant in your town/community?*

- Environmental impact was the most important factor in support of geothermal



Resources

To learn more about Ulupono Initiative's Energy Survey and geothermal, see below:

Ulupono Initiative's Energy Survey

ulupono.com/project-list/statewide-energy-survey/

Hawai'i State Energy Office

energy.hawaii.gov/what-we-do/energy-landscape/renewable-energy-resources/

U.S. Department of Energy

www.energy.gov/eere/geothermal/geothermal-basics



Scan QR code for link to survey results online.



Sustainable Energy Hawai'i

sustainableenergyhawaii.org
info@sustainableenergyhawaii.org

February 2, 2025

SUPPORT for SB993 - RELATING TO GEOTHERMAL ENERGY EXPLORATION

Dear Chairs Wakai and Kim, Vice Chairs Chang and Kidani, and Committee members.

I'm testifying on behalf of **Sustainable Energy Hawai'i (SEH)**, a 501(c)3 non-profit dedicated to improving the quality of life for Hawaii Island residents. Our mission is to enable an economic, social, and environmental revival in Hawaii through a just transition to sustainable, 100% locally-sourced renewable energy and the creation of a thriving clean hydrogen economy.

SEH supports SB993, which "Appropriates funds to the Department of Hawaiian Home Lands for water well development for geophysical investigation, exploration, and identification of geothermal resources on Hawaiian home lands.

There are only two renewable energy technologies that provide firm baseload power: Geothermal and nuclear.

Hawaii has geothermal resources available statewide, yet the subsurface geology is poorly studied. It is necessary to obtain sufficient subsurface geology data to de-risk development of the resource. This bill is critical to the work needed to develop our abundant, local, clean energy resource.

Please support this measure.

Thank you for this opportunity to testify.

Respectfully,

Keith Neal
Policy Lead
Sustainable Energy Hawai'i

SB-993

Submitted on: 1/31/2025 7:28:25 PM

Testimony for EIG on 2/4/2025 3:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Jacob Wiencek	Individual	Support	Written Testimony Only

Comments:

Aloha Committee Members,

Our state is struggling to meet its renewable energy benchmarks. Our clean energy transition is at risk of derailment. Hawaii must use every tool in its arsenal to achieve both a clean energy transition that meets our socioeconomic needs and energy independence to reduce our reliance on imports. Further developing our geothermal resources is crucial in this regard.

I strongly urge this Committee to SUPPORT this bill!

SB-993

Submitted on: 2/1/2025 11:54:39 AM

Testimony for EIG on 2/4/2025 3:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Alice Kim	Individual	Support	Written Testimony Only

Comments:

Currently, the Kilauea East Rift Zone on Hawaii Island is the only geothermal system in the Hawaiian archipelago from which geothermal electric power is being produced. Preliminary research by the Hawaii Groundwater and Geothermal Resources Center (HGGRC) at the University of Hawaii at Manoa shows that all of the major Hawaiian Islands hold geothermal potential and that much of Hawaii's geothermal resources is unknown. HGGRC should execute the geothermal resource characterization under the administrative oversight of the Hawaii State Energy Office. Doing so will enable the State to further benefit from HGGRC's research and expertise.



**Hawaiian
Electric**

**TESTIMONY BEFORE THE SENATE COMMITTEE ON
ENERGY AND INTERGOVERNMENTAL AFFAIRS
AND COMMITTEE ON HIGHER EDUCATION**

S.B. 993

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Relating to Geothermal Energy Exploration

Tuesday, February 4, 2025
3:00 PM

State Capitol, Conference Room 016

Greg Shimokawa
Director of Renewable Acquisition
Hawaiian Electric

Dear Chairs Wakai and Kim, Vice Chairs Chang and Kidani, and Members of the Committees,

My name is Greg Shimokawa and I am testifying on behalf of Hawaiian Electric in support of S.B. 993, Relating to Geothermal Energy Exploration, which appropriates funds for the Hawaii State Energy Office to conduct a statewide environmental assessment and administer a Geothermal Resources Characterization Program.

Hawaiian Electric supports the exploration of geothermal resources as a means to help accelerate the development of renewable energy projects, achieve the State's Renewable Portfolio Standards requirements, reduce reliance on imported fossil fuels, help stabilize customers' bills, and reduce greenhouse gas emissions.

Hawaiian Electric supports the intent of identifying and developing the State's geothermal resources and renewable energy potential, but defers to policy makers on the appropriateness of funding allocations stipulated in the bill.

Thank you for this opportunity to testify in support of S.B. 993.