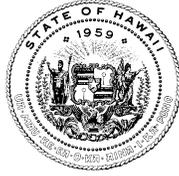


JOSH GREEN, M.D.  
GOVERNOR  
STATE OF HAWAII  
*Ke Kia'āina o ka Moku'āina 'o  
Hawai'i*

SYLVIA J. LUKE  
LT. GOVERNOR  
STATE OF HAWAII  
*Ka Hope Kia'āina o ka Moku'āina  
'o Hawai'i*



KALI WATSON  
CHAIRPERSON, HHC  
*Ka Luna Ho'okele*

KATIE L. LAMBERT  
DEPUTY TO THE CHAIR  
*Ka Hope Luna Ho'okele*

**STATE OF HAWAII**  
**DEPARTMENT OF HAWAIIAN HOME LANDS**

*Ka 'Oihana 'Āina Ho'opulapula Hawai'i*

P. O. BOX 1879  
HONOLULU, HAWAII 96805

TESTIMONY OF KALI WATSON, CHAIR  
HAWAIIAN HOMES COMMISSION  
BEFORE THE HOUSE COMMITTEE ON ENERGY  
AND ENVIRONMENTAL PROTECTION  
HEARING ON FEBRUARY 4, 2025 AT 9:00AM IN CR 325

**SB 1307, RELATING TO THE DEPARTMENT OF HAWAIIAN HOME LANDS**

February 3, 2025

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

The Department of Hawaiian Home Lands (DHHL) **strongly supports** this bill which would appropriate funds to DHHL to continue geophysical data collection, investigation, exploration, and identification of geothermal resources on Hawaiian Home Lands.

This legislative proposal was approved by the Hawaiian Homes Commission (HHC). The appropriation request is for follow-up funds to the initial funds appropriated to DHHL through Act 205, Session Laws of Hawaii 2022, which was successfully expended by DHHL. This appropriation of funds would be used for geophysical data collection, drilling of slim holes at previously examined sites, water well development, and hiring consultants to help DHHL navigate the intricacies of geothermal development.

The HHC requested that a permitted interaction group (P.I.G.) be established to study, evaluate, and recommend strategies related to geothermal exploration, feasibility, extraction, and/or use on Hawaiian Home Lands. Please see attachment. The P.I.G. continues to work with the University of Hawai'i's – Hawaii Groundwater and Geothermal Resource Center, including Dr. Nicole Lautze who also serves at the University of Hawai'i's - Hawai'i Institute of Geophysics and Planetology. The P.I.G. has participated in several listening sessions with beneficiaries and intends to host more community meetings. The P.I.G. is the most appropriate entity to represent both the beneficiaries of the Hawaiian Homes Commission Act, 1920, as amended, and Hawaiian Home Lands concerning this initiative. The P.I.G. is scheduled to have its eighteenth meeting on February 11, 2025.

Thank you for your consideration of our testimony.

DEPARTMENT OF HAWAIIAN HOME LANDS



# ***Geothermal Development Project***

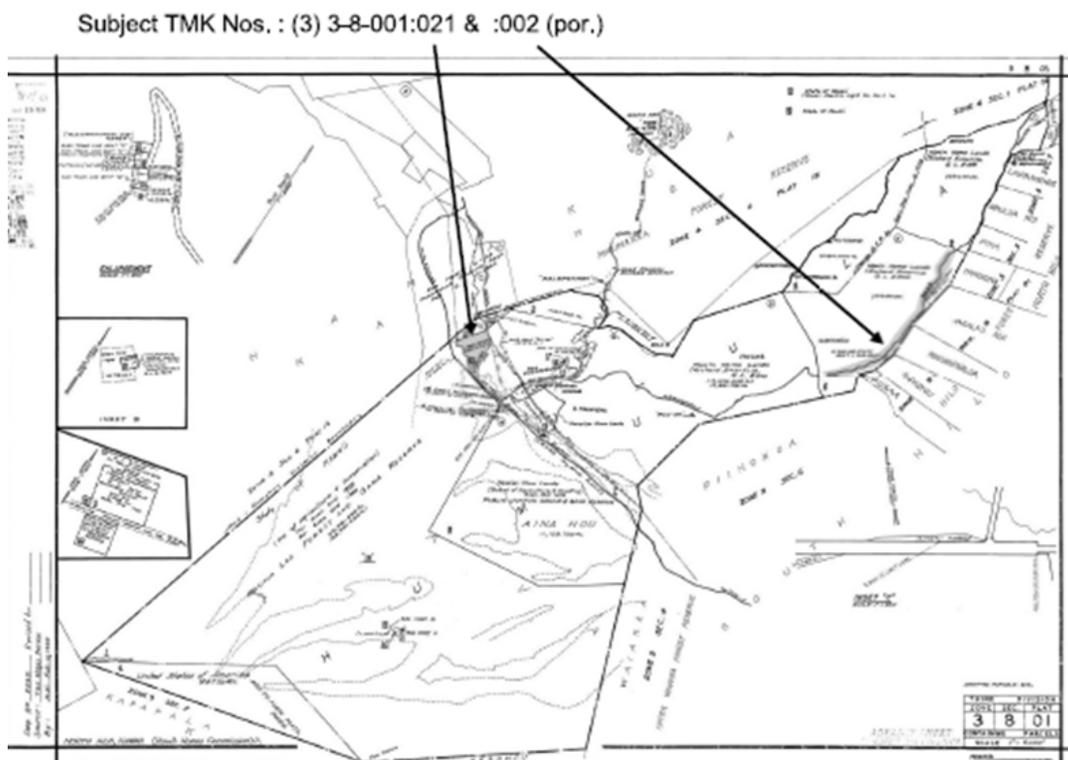
## Summary

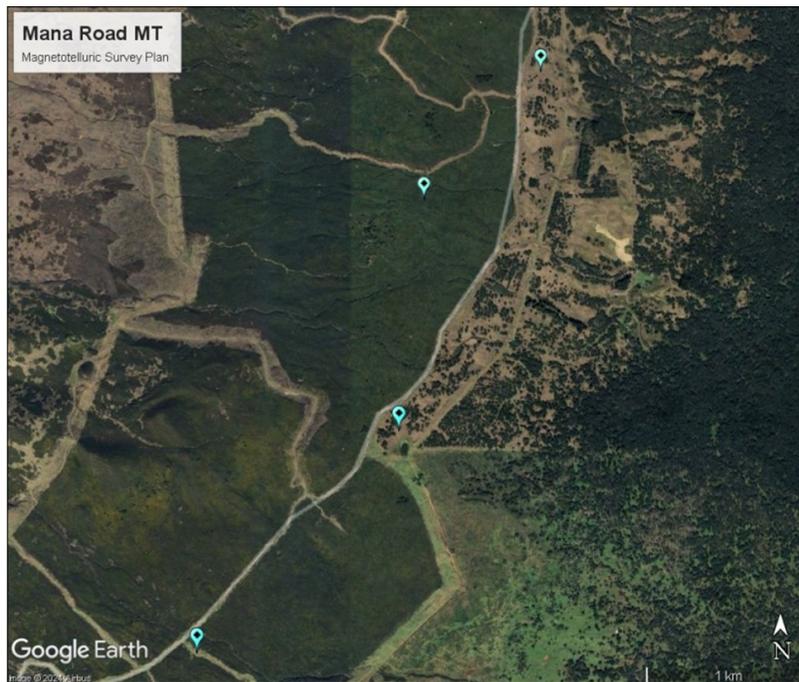
The Hawaii Department of Hawaiian Home Lands (DHHL), under the governance of the Hawaiian Homes Commission, through its Geothermal Permitted Interaction Group, continues to investigate the viability of geothermal production on Hawaiian Home Lands. The main sites under current consideration are on Hawaii Island: Humu'ula, Kawaihae, and South Point (Ka'u). Humu'ula is the preferred development site, located directly next to lands leased by the Department of Defense for the Pōhakuloa Training Area.

DHHL is pursuing a multi-faceted approach to achieve its objectives, collaborating with the Hawaii State Energy Office (SEO) and the University of Hawaii's School of Ocean and Earth Science and Technology, specifically the Hawaii Institute of Geophysics and Planetology's Hawaii Groundwater and Geothermal Resources Center (HGGRC). DHHL has met with staff from the Hawaii Congressional Delegation and the U.S. Department of Energy (DOE). Additionally, the National Renewable Energy Laboratory (NREL), under contract with the US DOE's Geothermal Technologies Office, is conducting community-based listening sessions across the state, in which DHHL has been actively involved.

As this represents DHHL's initial effort to commercialize its geothermal resources, the Department continuously seeks guidance from geothermal specialists to assist in its mission. DHHL recognizes that establishing commercial energy projects is complex and capital-intensive. Therefore, the Department is exploring funding opportunities at both federal and state levels and seeking private industry partners who can facilitate third-party investments in a public-private partnership (PPP) to develop and operate the project.

Recently, DHHL collaborated with HGGRC to have magnetotelluric (MT) testing and data collection take place at multiple sites within the DHHL's lands at Humu'ula and on the East Flank of Mauna Kea (see map below). This MT testing will further confirm or disprove the respective sites' suitability for geothermal power production. If this MT testing produces positive results, DHHL will move forward to financing and conducting exploratory slim-hole drilling. This step is crucial for further establishing the viability of the chosen site(s) for commercial geothermal production. The collected data will facilitate entering into a PPP with an experienced geothermal developer/operator.





### Next Steps

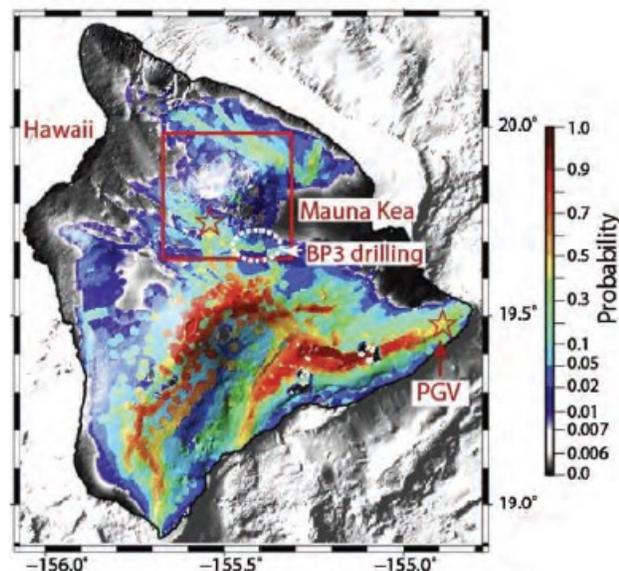
The aforementioned MT testing on DHHL’s lands commenced in October 2024. Contingent on securing funding, DHHL would like to commence slim-hole water well drilling in 2025.

### State and Federal Policy and Funding

**State:** DHHL will request \$20,000,000 in the state fiscal year 2025-2026 to develop slim-hole water wells for geophysical investigation, exploration, and identification of geothermal resources on Hawaiian home lands.

**Federal:** DHHL is considering policy proposals for submission to the Hawaii Congressional Delegation and is exploring USDOE funding opportunities to conduct MT testing and slim-hole water well drilling on various DHHL properties. In the long term, DHHL estimates that up to \$200M of non-competitive federal funding is ultimately needed: (i) to determine which DHHL site(s) provides the “best” opportunity for commercial production of geothermal power, and (ii) to position such site(s) for PPP development.

*Resource probability map for Hawaii Island. Red box outlines area of geophysical surveying. Stars indicate a Saddle Drill site where high temperatures were found (north) and Hawaii’s only geothermal production site Puna Geothermal Venture (south)(Lautze et al., 2020)*



## Other Information

Findings from the December 9, 2016, geothermal investigation suggest the following:

- Information found to date at the DHHL sites investigated supports the elements required for a blind (no surface features) geothermal system to exist are present
- Further exploration is needed to determine if the elements combine sufficiently to create a viable geothermal resource at depth
- Blind, high enthalpy systems do exist in volcanic settings elsewhere globally
- Analysis of the PTA-1 core log from 1,000m showed zones of highly fractured rock & geothermal fluid-rock interaction occurred in the core
- Same core section saw a temperature increase from 40° C - 140°C (104°F - 284°F)
- Important information on 2 key control variables for the geothermal resource. Relevant for “ground-truthing” the apparent resistivity values from the Magnetotelluric (MT) survey
- Additional testing & exploration are needed to justify any exploration drilling (slim hole) at sites
- Sufficient information to warrant & justify moving forward to undertake further MT surveys to create a robust 3D subsurface model at a number of potential locations



*Hydrothermally altered ground at Kilauea. Various alteration clays, discharging steam, silica residue, sulphur vents and areas of bare ground all indicate the presence of a subsurface steam zone.*

*Image by Gary Smith*





**Hawaiian  
Electric**

**TESTIMONY BEFORE THE HOUSE COMMITTEE ON  
ENERGY & ENVIRONMENTAL PROTECTION**

**HB 1307  
Relating to the Department of Hawaiian Home Lands**

Tuesday, February 4, 2025  
9:00 AM  
State Capitol, Conference Room 325

Greg Shimokawa  
Director of Renewable Acquisition  
Hawaiian Electric

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

My name is Greg Shimokawa and I am testifying on behalf of Hawaiian Electric in support of HB 1307, which seeks to appropriate funding for the continued investigation, exploration, and identification of geothermal resources on Hawaiian home lands so these resources could potentially be used in the production of renewable energy.

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 HB 1307.



# Sustainable Energy Hawai'i

sustainableenergyhawaii.org  
info@sustainableenergyhawaii.org

---

February 2, 2025

## **SUPPORT for HB1307- RELATING TO THE DEPARTMENT OF HAWAIIAN HOMELANDS**

Dear Chair Lowen, Vice Chair Perruso, 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 HB1307**, 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.

SEH supports funding of geophysical and geothermal industry experts to sufficiently document our geothermal resource and effectively frame development efforts.

Please support this measure.

Thank you for this opportunity to testify.

Respectfully,

Keith Neal  
Policy Lead  
Sustainable Energy Hawai'i



Email: [communications@ulupono.com](mailto:communications@ulupono.com)

HOUSE COMMITTEE ON ENERGY AND ENVIRONMENTAL PROTECTIONS  
Tuesday, February 4, 2025 — 9:00 a.m.

**Ulupono Initiative supports HB 1307, Relating to the Department of Hawaiian Home Lands.**

Dear Chair Lowen and Members of the Committee:

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 supports HB 1307**, which appropriates funds to the Department of Hawaiian Home Lands (DHHL) for water well development for geophysical investigation, exploration, and identification of geothermal resources on Hawaiian home lands.

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 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.

The proposed legislation to appropriate additional funding for geothermal resource exploration and development on Hawaiian home lands represents a forward-thinking approach to renewable energy development and community empowerment. Geothermal energy, a proven and stable renewable resource, has already provided significant benefits in other regions, such as California, Nevada, and Iceland. In Hawai'i, where energy costs are among the highest in the nation and the dependence on imported fuels creates economic

*Investing in a Sustainable Hawai'i*

vulnerability, investing in geothermal energy can reduce reliance on external resources and promote energy self-sufficiency. Additionally, similar measures across the country have demonstrated that geothermal projects can catalyze local economic development, provide job opportunities, and generate sustainable revenue streams for communities.

This legislation also reaffirms a commitment to the stewardship of Hawaiian home lands by enabling DHHL to develop a natural resource that could bring long-term economic and environmental benefits to Native Hawaiian beneficiaries. These efforts reinforce the importance of community engagement and equitable benefits in geothermal projects, ensuring that local populations directly experience the advantages of locally produced clean energy. This worthy investment offers the potential to not only enhance energy security but also support the DHHL's broader mission of improving the welfare of Native Hawaiians.

Finally, the legislation is a vital step in advancing Hawai'i's renewable energy and climate goals. It supports the state's ambitious target of achieving 100% renewable energy by 2045 while maintaining sensitivity to community priorities. By allocating resources for the exploration and potential development of geothermal energy, the state ensures the diversification of its renewable energy portfolio. Through this appropriation, Hawaii positions itself as a leader in sustainable development while addressing critical environmental and economic challenges.

Thank you for the opportunity to testify.

Respectfully,

Mariah Yoshizu  
Government Affairs Associate

**HB-1307**

Submitted on: 1/29/2025 9:02:13 AM

Testimony for EEP on 2/4/2025 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Lisa Bishop	Individual	Support	Written Testimony Only

Comments:

I support geothermal as a renewable source of energy for Hawaii!

**HB-1307**

Submitted on: 1/29/2025 7:41:09 PM

Testimony for EEP on 2/4/2025 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Keoni Shizuma	Individual	Oppose	Written Testimony Only

Comments:

Aloha Committee members of the House Committee on Energy and Environmental Protection,

I am testifying in opposition to this bill.

I understand the need to find an environmentally friendly alternative to energy production, but I do not think geothermal energy is our answer. Unlike wind, solar, or wave energy generation, geothermal requires permanent damage to the environment. The drilling into the ‘āina, once done, can’t be undone.

In Hawaiian culture, the surface of the ground is sometimes seen as a body form of our goddess Papahānaumoku. To drill into the ground would be to deface/destroy parts of her, while if wind, solar, or even wave energy generation was pursued, all the structures would be temporary and merely sit on the surface (or in the ocean).

I would request that out of respect for Hawaiian cultural values and beliefs, Hawaii not pursue geothermal energy generation. We live in the perfect environment for innovations in renewable energy technology. Let Hawaii become a leader in new techniques and technologies in this field, push forth the field at University of Hawaii, and learn from international leaders of energy technology.

When the City and County of Honolulu decided to build the rail system, it was already an older technology, and when it is finally finished, it’ll be outdated and inefficient compared to similar technologies at the time. Let’s not do that with renewable energies. Let’s not invest in old technologies like geothermal and large windmills. Let’s look to future innovations that will be culturally sensitive, more efficient, less disruptive, and easily accepted by the people it may affect.

Mahalo for your consideration.

## HB1307

He Mele komo a he mele aloha no na kupuna o ke au i hala Aloha mai kakou.

Aloha,

My name is Cindy Freitas and I'm a Native Hawaiian descended of the native inhabitants of Hawai'i prior to 1778 and born and raised in Hawai'i.

I am also a practitioner who still practice the cultural traditional customary practices that was instill in me by my grandparents at a young age from mauka (MOUNTAIN TO SEA) to makai in many areas.

I'm in **OPPOSITION FOR HB1307** for the following reasons;

In all due respect for DHHL.

The appropriation of **\$20 million for geothermal exploration** on Hawaiian home lands presents an **opportunity for renewable energy growth** but also comes with **legal, cultural, and environmental challenges**.

1. **Transparent community engagement** to ensure Native Hawaiian beneficiaries have a say in the project.
2. **Strict environmental oversight** to mitigate risks associated with drilling and land use.
3. **Legal compliance** with the **Hawaiian Homes Commission Act** and **state/federal regulations**.
4. **Fair distribution of economic benefits** to ensure Native Hawaiians directly benefit from any future energy development. **FOR ALL INCOME BRACKET WHICH WILL NOT HAPPEN!!!**

### **Environmental Concerns of Geothermal Exploration on Hawaiian Home Lands**

The development of **water wells for geophysical investigation and geothermal exploration** raises several environmental concerns. While geothermal energy is often seen as a **clean and renewable resource**, the process of exploration and drilling can have **negative environmental impacts**.

#### **A. Groundwater Depletion & Contamination**

- **Drilling geothermal wells requires large amounts of water**, which could put stress on **local aquifers**.
- If not properly managed, water extraction for drilling may lower **water table levels**, affecting drinking water supplies and agriculture.
- There is a risk of **toxic contamination**, as drilling can introduce **heavy metals, arsenic, or hydrogen sulfide** into groundwater.

#### **B. Thermal & Chemical Pollution**

- Geothermal fluids can be **hot and mineral-rich**. If released into nearby water bodies, they can cause **thermal pollution**, harming aquatic life.
- **Chemical leaching** from geothermal fluids can introduce **salts and heavy metals** into the environment.

## C. Effects on Nearby Ecosystems

- Water extraction and disposal could **disrupt local ecosystems**, especially in areas with **endemic Hawaiian species**.
- **Changes in groundwater flow** could impact nearby wetlands, streams, or coastal areas.

## 2. Seismic Activity & Land Stability

### A. Induced Seismicity (Man-Made Earthquakes)

- **Geothermal drilling has been linked to increased seismic activity** in some regions.
- Injecting water into the ground (a process used in geothermal energy extraction) **can trigger small to moderate earthquakes**.
- **Hawaii is already seismically active** due to volcanic activity, so any additional risk of induced earthquakes must be carefully studied.

### B. Land Subsidence & Sinkholes

- Removing large amounts of **geothermal fluids** can cause **land subsidence** (gradual sinking of the ground).
- In extreme cases, this could lead to **sinkholes** or structural damage to nearby homes and
- infrastructure.

## 3. Air Quality Concerns

### A. Hydrogen Sulfide (H<sub>2</sub>S) Emissions

- **Geothermal wells often release hydrogen sulfide**, a gas with a strong "rotten egg" odor.
- At **high concentrations, H<sub>2</sub>S is toxic** and can cause respiratory issues, headaches, and nausea.

### B. Carbon Dioxide (CO<sub>2</sub>) & Methane (CH<sub>4</sub>) Emissions

- While geothermal energy has lower carbon emissions than fossil fuels, **some CO<sub>2</sub> and methane can be released** during drilling.
- The extent of emissions depends on the **depth and composition of the geothermal reservoir**.

## 4. Impact on Native Hawaiian Ecosystems & Cultural Sites

### A. Disruption to Endemic Wildlife & Plants

- Hawaiian home lands may include **fragile ecosystems** with **endangered native species** like the 'ōhi'a lehua tree or native birds.
- Construction, drilling, and infrastructure development could lead to **habitat destruction and species displacement**.

### B. Potential Desecration of Sacred Lands

- Many Native Hawaiians view **volcanic activity and geothermal energy as connected to Pele**, the Hawaiian goddess of fire and volcanoes.

- Past geothermal projects in Hawaii, such as Puna Geothermal Venture (PGV), have faced strong opposition due to **cultural and spiritual beliefs**.
- If geothermal exploration takes place on lands with cultural significance, there could be **protests, legal challenges, and community backlash**.

## 5. Waste Disposal & Toxic Byproducts

### A. Geothermal Brine & Mineral Waste

- Geothermal wells produce **brine (salty water with dissolved minerals)**, which must be disposed of properly.
- If brine leaks into **soil or water sources, it can be toxic to plants and animals**.

### B. Radioactive Elements & Heavy Metals

- Some geothermal reservoirs contain **trace amounts of radioactive elements** (such as uranium and thorium).
- **Heavy metals like lead, arsenic, and mercury** may also be brought to the surface.
- Byproducts can **contaminate soil and water**, leading to **long-term environmental damage**

While **geothermal energy** has the potential to support **Hawaii's clean energy goals**, the **environmental risks must be carefully managed**. **Water depletion, seismic activity, air pollution, and cultural site disruption** are all valid concerns.

#### Sources:

[nepis.epa.gov](http://nepis.epa.gov)

[Subsurface Environmental Assessment for Four Geothermal Systems](#)

[The environmental effects to be considered are potential groundwater pollution, subsidence and induced seismic events, which in turn may affect the ecology ...](#)

[ililani.media](http://ililani.media)

[Hawai'i Geothermal Heats Up: Environmental Review & UH Thesis](#)

[August 1, 2019 — Thermal Power prepared an Environmental Impact Statement \(EIS\) in 1987 and then sold the facility to PGV. The EIS identified “effects on the ...](#)

[dlnreng.hawaii.gov](http://dlnreng.hawaii.gov)

[\[PDF\] environmental impact analysis - potential geothermal resource areas](#)

[September 14, 2010 — One of the most serious potential impacts of geothermal energy development in Hawaii is the disruption of native forest. Air pollution and groundwater ...](#)

[tandfonline.com](http://tandfonline.com)

[Native Hawaiian opposition to geothermal energy development](#)

[This article proposes that the conflict over geothermal energy development represents two belief systems holding opposing views of the environment.](#)

[files.hawaii.gov](https://files.hawaii.gov)

[\[PDF\] 2023-05-08-HA-DEIS-Puna-Geothermal-Venture-Repower-Project.pdf](#)

[May 7, 2023 — With this letter, the County of Hawai'i Planning Department hereby transmits the Draft Environmental Impact Statement \(Draft EIS\) for the Puna ...](#)

Mahalo,

\_\_\_\_\_/c/\_\_\_\_

Cindy Freitas

**HB-1307**

Submitted on: 2/1/2025 1:02:08 PM

Testimony for EEP on 2/4/2025 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
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. Under the administrative oversight of the Department of Hawaiian Home Lands, HGGRC should execute the geothermal resource characterization. Doing so will enable the State to further benefit from HGGRC's research and expertise.

**HOUSE OF REPRESENTATIVES**  
**THE THIRTY-THIRD LEGISLATURE**  
**REGULAR SESSION OF 2025**  
**Tuesday, February 4, 2025, 9:00 a.m.**  
**VIA VIDEO CONFERENCE**  
**Conference Room 325**  
**State Capitol**  
**415 South Beretania Street**

**LATE**

**Hearing on HB 1307 (Relating to The Department of Hawaiian Home Lands)**

Representative Nicole E. Lowen, Chair, Representative Amy A. Perusso, Vice Chair, COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION (EEP).

Aloha Chair Lowen, Vice Chair Perusso and respected committee members of the Committee on Energy & Environmental Protection:

Thank you for the opportunity to provide this testimony on HB 1307. My name is Mike Kaleikini, a life long Hawai'i resident and a long time resident of Hilo, Hawai'i.

I support the purpose and intent of this bill:

1. To provide follow-up funding for the next steps in the investigation, exploration, and identification of geothermal resources on Hawaiian Home Lands.
2. Funding would be utilized to:
  - a. Hire consultants to help navigate the intricacies of geothermal development.
  - b. Collect geophysical data.
  - c. Develop water wells.
  - d. Drill slim holes at sites on Hawaiian Home Lands.
3. Ultimately, a commercial grade geothermal resource located on Hawaiian Home Lands, would provide the opportunity for the Department of Hawaiian Home Lands to garner much needed firm revenue. Revenues from a geothermal development on Hawaiian Home Lands would go a long way with executing the purpose and intent of the Hawaiian Homes Act 1920, which is to get Hawaiians back to the aina.

I appreciate the continued support from our State legislators for the Native Hawaiian community and want to express my gratitude for the opportunity to provide this testimony. Mahalo a nui loa.

Respectfully,



Michael L. Kaleikini  
1134 Ainalako Road  
Hilo, Hawai'i

Please contact me at 808.936.8161 with any questions.