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Testimony of
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before the
SENATE COMMITTEE ON
WAYS AND MEANS

Monday, March 31, 2025
10:02 AM
State Capitol, Conference Room 211 and Videoconference

In Support of
HOUSE BILL NO. 1020 HD1 SD1

RELATING TO A PROGRAM TO CHARACTERIZE CARBON SEQUESTRATION POTENTIAL AND UNDERGROUND WATER RESOURCES STATEWIDE.

Chair Dela Cruz, Vice Chair Moriwaki, and members of the Committee, I am writing in support of House Bill No. 1020 HD1 SD1, a Green Administration and DBEDT Priority Bill which conducts statewide research to identify the location and temperature of underground water resources as well as the potential for carbon sequestration.

HB 1020 HD1 SD1 is a vital part of Hawai‘i’s updated energy strategy because it offers 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. Such exploratory slim-hole test wells and commercial feasibility assessments for utility-scale geothermal projects, funded through HB 1020 HD1 SD1, are a key element in advancing Hawai‘i’s geothermal energy potential. This bill ensures:

- Further geoscience exploration to refine geothermal site viability.
- Comprehensive community outreach to align development with public concerns.
- Commercial feasibility studies to attract investment and ensure sustainable implementation.

The Hawai‘i State Energy Office (HSEO) and the Department of Business, Economic Development & Tourism (DBEDT) collaborate on geothermal resource

characterization work and, with assistance from the University of Hawai‘i (UH), are committed to better understand the geothermal resource base in the state. Resource characterization consists of identifying the precise location, depth, pressure and heat content of underground water resources as a practical precursor to development. In addition to the water resource characterization, core samples can also determine other things like carbon sequestration, a secondary consideration.

To date, Governor Green has provided $5 million to the HSEO for geothermal resource characterization work, and Congress has provided nearly $1 million for outreach and community engagement under the HSEO’s Clean Energy Wayfinder Program. Funding, under HB 1020 HD1 SD1, along with the appropriate community engagement, can build transparency, trust, and perspective on the role of geothermal vis-a-vis the HSEO’s statewide energy strategy and county-level renewable energy framework for each of the six independent electricity grids in Hawai‘i, while illustrating the diverse energy projects necessary to achieve the 100% Renewable Portfolio Standard (RPS) by 2045.

The HSEO also notes the alignment of the intent of HB1020 HD1 SD1 with the ongoing collaboration between DBEDT and UH. This partnership, formalized through a Memorandum of Agreement (MOA) between the Hawai‘i Technology Development Corporation (HTDC) and UH, is actively developing a commercially viable geothermal energy framework consistent with other work to expand geothermal resources in the state conducted by the HSEO and advocated in Executive Order 25-01.

The Integrated Geothermal Development Roadmap outlines a structured, phased approach to scaling geothermal energy in Hawai‘i. This effort includes:

1. Program Management & Stakeholder Outreach – Ensuring community engagement and regulatory coordination.
2. Surface & Subsurface Exploration – Identifying viable geothermal sites through geoscience assessments.
3. Commercial Development & Investment Decision (2027-2029) – Securing funding and private-sector partnerships.
4. Construction & Commissioning – Delivering a 50-100MW geothermal power station as a stable baseload energy source.
5. Steady-State Operations & Future Expansion – Evaluating inter-island transmission and hydrogen production opportunities.

These efforts are critical in reducing Hawai‘i’s reliance on fossil fuels, ensuring firm renewable power availability, and stabilizing energy costs for consumers.

This measure also requires submission of a progress report, findings, and any proposed legislation resulting from the research findings to the legislature. To effectively and broadly conduct this research, $16,500,000 is requested for fiscal years 2025-2026 and the same sum for fiscal years 2026-2027 to carry out this program. In addition, $135,000 is requested 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, the 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, this would involve energy stakeholder engagement at the community level during 2024 and beyond to gain insight into 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. HB1020 HD1 SD1 provides that needed support.

Thank you for the opportunity to testify.