



UNIVERSITY OF HAWAII SYSTEM

Legislative Testimony

Testimony Presented to the
House Committee on Finance
Wednesday, April 6, 2022 at 1:30 p.m.

by

Vassilis L. Syrmos
Vice President for Research and Innovation
University of Hawai'i System

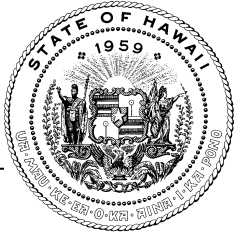
SB 3229 SD2 HD1 – RELATING TO GEOTHERMAL ROYALTIES

Chair Luke, Vice Chair Yamashita, and Members of the Committee:

The University of Hawai'i (UH) supports SB 3229 SD2 HD1 which seeks to further the discovery and development of geothermal resources in the state.

The Hawai'i Institute of Geophysics and Planetology based at UH Mānoa, with research expertise in geothermal exploration, will seek to derive another clean energy source to help the state in its efforts to become more sustainable and energy independent.

Thank you for the opportunity to testify.



HAWAII STATE ENERGY OFFICE STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

SCOTT J. GLENN
CHIEF ENERGY OFFICER

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Testimony of
SCOTT J. GLENN, Chief Energy Officer

before the
HOUSE COMMITTEE ON FINANCE

Wednesday, April 6, 2022
1:30 PM

State Capitol, Conference Room 308 & Videoconference

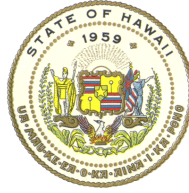
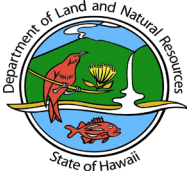
COMMENTS
SB 3229, SD2, HD1
RELATING TO GEOTHERMAL ROYALTIES.

Chair Luke, Vice Chair Yamashita, and Members of the Committee, the Hawai'i State Energy Office (HSEO) offers comments on SB 3229, SD2, HD1, which caps the amount of royalties from geothermal resources that are to be paid to the State and to the county in which the geothermal resources are located, deposits royalties into the University Innovation and Commercialization Initiative Special Fund to be expended by the Hawai'i Institute of Geophysics and Planetology to further the discovery and development of geothermal resources, and requires the entities that received geothermal royalties to submit an annual report to the Legislature.

HSEO believes geothermal energy can play a significant role in achieving 100% renewable energy generation statewide and supports incentives for its development. The modifications from SD2 to HD1 are substantial and require in depth analysis and discussion with all stakeholders involved to fully understand the impacts and long-term ramifications. Royalties from geothermal development play an important role in its regulation and the administration of state and county programs related to geothermal. HSEO defers to the appropriate agencies for comment on the fiscal, administrative, and regulatory aspects of this measure.

Thank you for the opportunity to testify.

DAVID Y. IGE
GOVERNOR OF HAWAII



**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES**

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

**Testimony of
SUZANNE D. CASE
Chairperson**

**Before the House Committee on
FINANCE**

**Wednesday, April 6, 2022
1:30 PM**

State Capitol, Conference Room 308, Via Videoconference

**In consideration of
SENATE BILL 3229, SENATE DRAFT 2, HOUSE DRAFT 1
RELATING TO GEOTHERMAL ROYALTIES**

Senate Bill 3229, Senate Draft 2, House Draft 1 proposes to: (1) Cap the amount of royalties from geothermal resources that are to be paid to the State and to the County in which the geothermal resources are located; (2) Deposit royalties into the university innovation and commercialization initiative special fund, to be expended by the Hawaii institute of geophysics and planetology, to further the discovery and development of geothermal resources; and (3) Require entities that receive geothermal royalties to submit an annual report to the Legislature. **The Department of Land and Natural Resources (Department) opposes the language in the current draft of the measure and offers amendments.**

The Department, pursuant to Chapter 182, Hawaii Revised Statutes (HRS), has an obligation to regulate the use of minerals, including geothermal resources. As such, the Department bears all costs for processing, negotiating and managing geothermal leases and regulating well drilling operations for exploration and development of the resource.

The Department is responsible to handle all of the leasing, lease management duties, and regulation of geothermal mining. In exchange, the State receives 50% of the geothermal royalties while the remaining proceeds are allocated as follows: 30% to the County of Hawaii, and 20% to the Office of Hawaiian Affairs (OHA) which represents its pro rata share of ceded land revenues. If the University of Hawaii were to receive any excess revenues, it ought to be responsible for paying the portion of OHA's pro rata share for any revenues received. The Department ought to be responsible for payment of OHA's pro rata share only for revenues deposited into the Special Land and Development Fund (SLDF).

The revenues from public lands, including the geothermal royalties, are deposited into the SLDF and funds the entire annual operating budget for the Department's Land Division, the Office of Conservation and Coastal Lands, and the Dam Safety Program in addition to the Mineral Resources Programs as noted previously. These revenues also fund over 80 Department staff

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

positions, including 5 positions within the Commission on Water Resource Management, and provide funding support to the Division of State Parks and various resource protection programs administered by the Division of Forestry and Wildlife such as the protection of threatened and endangered species, removal of invasive species, wildland firefighting and lifeguard services. Revenues collected by other divisions have supported watershed protection, preservation of cultural and historical sites and public recreational resources. If geothermal royalties are not sufficient to cover the operating costs of the Mineral Resources program, then SLDF monies from other sources will subsidize geothermal regulation at the expense of other public trust resource management, protection and public health and safety programs.

If a cap of the Department’s share of geothermal royalties is necessary, the share must be in an amount necessary to cover the complex regulatory and geothermal mining lease management duties. The Department further notes that it is imperative that it retain a portion of geothermal royalties sufficient to support the Mineral Resources Program that regulate geothermal development and dispositions. Over time, the costs of administering the Mineral Resources Program have increased considerably. In Fiscal Year (FY) 2008, program costs totaled approximately \$522,740.30, increasing to \$922,427.33 in FY 2021. For the Committee’s information, the following chart shows the Department’s annual share of geothermal royalties and annual Mineral Resource Program costs for FYs 2008 through 2021. Cumulatively, the royalties have covered the Mineral Resources Program expenses by a small margin.

STATE SHARE OF GEOTHERMAL ROYALTIES vs MINERAL RESOURCES (MR) PROGRAM COSTS - FY2008 to FY2021

FY	TOTAL RECEIVED	50%	Total SLDF Support of MR activities
FY08	2,698,467.00	1,349,233.50	522,740.30
FY09	3,137,486.99	1,568,743.49	533,303.19
FY10	642,599.00	321,299.50	572,615.53
FY11	1,893,975.33	946,987.67	312,257.82
FY12	3,096,947.77	1,548,473.89	618,590.43
FY13	2,538,412.00	1,269,206.00	1,033,434.00
FY14	2,555,049.00	1,277,524.50	715,031.97
FY15	1,785,695.15	892,847.58	827,140.54
FY16	1,022,457.76	511,228.88	818,409.60
FY17	1,202,832.92	601,416.46	821,961.24
FY18	1,987,457.41	993,728.71	885,365.20
FY19	6,841.00	3,420.50	909,069.73
FY20	-	-	951,043.44
FY21	232,705.45	116,352.73	922,427.33
subtotals FY08-21		11,400,463.39	10,443,390.32

Additionally, staff costs are incurred for geothermal lease management, such as covering Land Division staff, billing, collection, annual insurance monitoring, or any of the other Department staff that will be called upon to assist a new applicant for a geothermal lease. Also, appraisal costs for special dispositions like geothermal are significant, plus substantially more if mediation and arbitration would be required under Section 171-17, HRS.

In order to ensure that the Department receives adequate funding for regulation and disposition of geothermal resources, the Department believes that it should receive royalties in an amount

sufficient to cover its expenses without an arbitrary cap of \$1 million. To ensure sufficient funding against rising costs, the Department recommends the Committee amend the measure to delete SECTION 3 and adopt the following amended SECTION 1:

"§182- University innovation and commercialization initiative special fund; geothermal royalties. (a) There shall be deposited into the university innovation and commercialization initiative special fund established by section 304A-1963 all geothermal royalties in excess of:

- (1) Geothermal royalties annually distributed pursuant to section 5(f) of the Admission Act of 1959 and the Hawaiian Homes Commission Act of 1920, as amended;
- (2) The net amount of geothermal royalties annually distributed to the department pursuant to section 182-18(a) in excess of management and personnel costs; and
- (3) Geothermal royalties annually distributed to the county in which mining operations covered under a state geothermal resource mining lease are situated pursuant to section 182-7(c).

(b) The royalties in the university innovation and commercialization initiative special fund shall be used by the Hawaii institute of geophysics and planetology at the University of Hawaii to further the discovery and development of geothermal resources.

§182- Annual report to legislature. No later than twenty days before the convening of each regular session, the board, each county in which mining operations covered under a state geothermal resource mining lease are situated, and the Hawaii institute of geophysics and planetology at the University of Hawaii shall submit an annual report to the legislature regarding the use of the distributed geothermal royalties."

Thank you for the opportunity to testify on this measure.

SB-3229-HD-1

Submitted on: 4/5/2022 10:21:20 AM

Testimony for FIN on 4/6/2022 1:30:00 PM

Submitted By	Organization	Testifier Position	Testify
Ian Hirokawa	DLNR	Oppose	Remotely Via Zoom

Comments:

I am available for questions to DLNR. Please allow me Zoom access.

SB-3229-HD-1

Submitted on: 4/5/2022 10:22:39 AM

Testimony for FIN on 4/6/2022 1:30:00 PM

Submitted By	Organization	Testifier Position	Testify
Carty Chang	DLNR	Oppose	Remotely Via Zoom

Comments:

I am available for questions to DLNR. Please allow me Zoom access.

SB-3229-HD-1

Submitted on: 4/4/2022 8:30:16 PM

Testimony for FIN on 4/6/2022 1:30:00 PM

Submitted By	Organization	Testifier Position	Testify
L Basha	Individual	Support	Written Testimony Only

Comments:

Royalties going to the county & state is good. Royalties put back into research is better.

SB-3229-HD-1

Submitted on: 4/4/2022 10:18:36 PM

Testimony for FIN on 4/6/2022 1:30:00 PM

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

Comments:

Currently, the Kilauea East Rift Zone (KERZ) 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 is well equipped for geothermal exploration in terms of its expertise and physical assets. Through HGGRC, the State’s foremost experts in earth sciences are continually researching and generating more knowledge about Hawaii’s geothermal resources. Enabling these discoveries, HGGRC provide access to \$1 million worth of geophysical equipment and a \$3 million drill rig.

Demonstrating the geothermal resource requires a huge financial investment and multiple surveys (e.g., geophysical surveys, thermal gradient holes, full-size diameter drilling well). Each of these activities costs \$1 million or more, resulting in a \$5-to-10 million cost to demonstrate a geothermal resource. In Hawaii, drilling a well to confirm a geothermal resource alone costs over a million dollars.

Geothermal energy production benefits the people of Hawaii because geothermal energy can offer the following:

- Lower the cost of electricity
- Greatly reduce carbon emissions involved with creating energy
- Generate revenues for the betterment of Native Hawaiians
- Increase the self-sustainability of the Hawaiian islands and reduce the import of oil
- Create local professional jobs

Geothermal can provide baseload power, or the minimum amount of power that a utility company must generate for its customers. Baseload power not only ensures reliability of the electricity grid, but also reduces the cost of renewable energy. Unlike solar and wind energy, geothermal energy does not depend on favorable weather conditions and produces electricity continuously--24 hours a day, 7 days a week. Because geothermal energy is stable and predictable, it enables accurate energy planning and can meet the minimum level of demand on an electrical grid during a twenty-four-hour period.

Geothermal also holds an advantage of its capacity factor, the ratio of actual energy output to possible energy output. The capacity factor indicates how fully and reliably a unit's capacity is used. Out of all renewable energy sources, geothermal provides the highest capacity factor. Modern geothermal power plants deliver a capacity factor upwards of ninety-to-ninety-five percent.

Geothermal will also help the state of Hawaii reduce carbon emissions. Compared to fossil-fuel power plants, geothermal power plants of similar size emit 97 percent less sulfur compounds that cause acid rain and about 99 percent less carbon dioxide. Recently, the Hawaiian Electric Company announced that its climate action plan to cut carbon emissions. Hence, HECO plans to expand geothermal resources.

Historically, Hawaii has had the highest electricity price in the nation. This price currently more than doubles the national average and adds to Hawaii's high cost of living. With Hawaii's volcanism, limited landmass, and fragile natural resources, geothermal can serve as Hawaii's only cost-effective, base-load renewable energy source. Out of all power sources, geothermal uses the least amount of land and can help the state to reach its 100% renewable source mandate by 2045.

SB-3229-HD-1

Submitted on: 4/4/2022 11:18:25 PM

Testimony for FIN on 4/6/2022 1:30:00 PM

Submitted By	Organization	Testifier Position	Testify
Richard Ha	Individual	Support	Written Testimony Only

Comments:

Aloha Chair Luke and Committee members.

Sustainable Energy Hawaii supports SB3229 SD2 HD1.

Geothermal energy is something special only 1% of the world has.

It can result in stable electricity costs for 1-2 million years

It's like a giant battery that never needs charging.

It's value increases in time relative to any other fuel alternative.

It can take us to Hydrogen and Ammonia and all the manufacturing possibilities it offers us.j

It will help us become more food self sufficient.via ammonia fertilizer.

We work very closely with Dr Nicole Lautze, Director of Hawaii Groundwater and Geothermal Resource Center. (HGGRC). They own a drill rig. They know what they are doing!

Aloha

Richard Ha

President

Sustainable Energy Hawaii

SB-3229-HD-1

Submitted on: 4/5/2022 8:51:36 AM

Testimony for FIN on 4/6/2022 1:30:00 PM

Submitted By	Organization	Testifier Position	Testify
Noel Morin	Individual	Support	Written Testimony Only

Comments:

Dear Chair Luke, Vice-Chair Yamashita, and members of the Finance Committee,

I am in support of SB3229 SD2 HD1. This measure will help create sustainable funding for much-needed research and development in the geothermal energy space.

Geothermal energy offers Hawaii a pathway to affordable, abundant renewable energy. A key barrier to the increased investment in this solution is the poor support of research efforts required to identify high-potential geothermal locations beyond the Big Island's rift zone.

Groundwater research conducted by the Hawaii Groundwater and Geothermal Resources Center has suggested potential geothermal locations across the state. If we're able to leverage these resources, we will be able to expand this critical energy generation option dramatically.

SB3229 SD2 HD1 will empower organizations like this to deliver the knowledge required for us to develop our geothermal resources properly.

Thank you,

Noel Morin - Hilo