

DAVID Y. IGE
GOVERNOR



CRAIG K. HIRAI
DIRECTOR

GLORIA CHANG
DEPUTY DIRECTOR

EMPLOYEES' RETIREMENT SYSTEM
HAWAII EMPLOYER-UNION HEALTH BENEFITS TRUST FUND
OFFICE OF THE PUBLIC DEFENDER

STATE OF HAWAII
DEPARTMENT OF BUDGET AND FINANCE
P.O. BOX 150
HONOLULU, HAWAII 96810-0150

ADMINISTRATIVE AND RESEARCH OFFICE
BUDGET, PROGRAM PLANNING AND
MANAGEMENT DIVISION
FINANCIAL ADMINISTRATION DIVISION
OFFICE OF FEDERAL AWARDS MANAGEMENT (OFAM)

WRITTEN ONLY
TESTIMONY BY CRAIG K. HIRAI
DIRECTOR, DEPARTMENT OF BUDGET AND FINANCE
TO THE HOUSE COMMITTEE ON HIGHER EDUCATION & TECHNOLOGY
ON
SENATE BILL NO. 3229, S.D. 2

March 23, 2022
2:00 p.m.
Room 309 and Videoconference

RELATING TO GEOTHERMAL ROYALTIES

The Department of Budget and Finance (B&F) offers comments on this bill.

Senate Bill (S.B.) No. 3229, S.D. 2, caps the amount of royalties from geothermal resources that are paid to the State and county and establishes the University of Hawai'i Geothermal Exploration Special Fund (GESF) for the Hawai'i Groundwater and Geothermal Resources Center to further the discovery and development of geothermal resources; and pays 100% of royalties received by the State on lands under the jurisdiction of the Department of Hawaiian Home Lands (DHHL) to DHHL. This bill also requires an annual report to the Legislature.

As a matter of general policy, B&F does not support the creation of any special fund which does not meet the requirements of Section 37-52.3, HRS. Special funds should: 1) serve a need as demonstrated by the purpose, scope of work and an explanation why the program cannot be implemented successfully under the general fund appropriation process; 2) reflect a clear nexus between the benefits sought and charges made upon the users or beneficiaries or a clear link between the program and

the sources of revenue; 3) provide an appropriate means of financing for the program or activity; and 4) demonstrate the capacity to be financially self-sustaining. Regarding S.B. No. 3229, S.D. 2, it is difficult to determine whether the GESF would be self-sustaining.

Thank you for your consideration of our comments.



UNIVERSITY OF HAWAII SYSTEM

Legislative Testimony

Testimony Presented to the
House Committee on Higher Education & Technology
Wednesday, March 23, 2022 at 2:00 p.m.

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

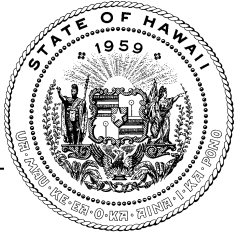
SB 3229 SD2 – RELATING TO GEOTHERMAL ROYALTIES

Chair Takayama, Vice Chair Clark, and Members of the Committee:

The University of Hawai'i (UH) supports SB 3229 SD2 which seeks to further the discovery and development of geothermal resources by establishing the University of Hawai'i Geothermal Exploration Special Fund for the Hawai'i Groundwater and Geothermal Resources Center (HGGRC).

Based in UH Mānoa's heralded School of Ocean and Earth Science and Technology, the HGGRC has the knowledge and expertise in geothermal exploration to derive another clean energy source to help the state in its efforts to become more sustainable and less dependent on imported fuels.

Thank you for the opportunity to testify in support of this measure.



HAWAII STATE ENERGY OFFICE STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

SCOTT J. GLENN
CHIEF ENERGY OFFICER

235 South Beretania Street, 5th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone:
Web:

(808) 587-3807
energy.hawaii.gov

Testimony of
SCOTT J. GLENN, Chief Energy Officer

before the
HOUSE COMMITTEE ON HIGHER EDUCATION & TECHNOLOGY

Wednesday, March 23, 2022
2:00 PM
State Capitol, Conference Room 309 & Videoconference

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

Chair Takayama, Vice Chair Clark, and Members of the Committee, the Hawai'i State Energy Office (HSEO) offers comments on SB 3229, SD2, 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, establishes the University of Hawai'i Geothermal Exploration Special Fund for the Hawai'i Groundwater and Geothermal Resources Center 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's comments are guided by its mission to promote energy efficiency, renewable energy, and clean transportation to help achieve a resilient, clean energy, decarbonized economy. HSEO believes geothermal energy can play a significant role in achieving 100% renewable energy generation statewide and supports incentives for its development. 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 agency for comment on the fiscal, administrative, and regulatory aspects of this measure.

Thank you for the opportunity to testify.

SB-3229-SD-2

Submitted on: 3/22/2022 1:35:41 PM

Testimony for HET on 3/23/2022 2:00:00 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-SD-2

Submitted on: 3/22/2022 1:37:15 PM

Testimony for HET on 3/23/2022 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
James Kurata	DLNR	Oppose	Remotely Via Zoom

Comments:

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



Sustainable Energy Hawai'i

1143 Kukuau St., Hilo, HI 96720

March 22, 2022

SUPPORT SB3229 SD2 RELATING TO GEOTHERMAL ROYALTIES

Dear Chair Takayama, Vice-Chair Clark, and members of the Higher Education and Technology Committee,

I am Richard Ha, Chair of Sustainable Energy Hawai'i, a coalition of concerned citizens dedicated to improving the quality of life of Hawaii residents through affordable renewable energy.

Sustainable Energy Hawaii supports SB3229 SD2 as it will help fund necessary research into our geothermal energy potential. Geothermal represents a significant source of clean, renewable energy that can help us eliminate our dependency on fossil fuels and enable economic activity for Hawaii by creating energy-related exports with products like green hydrogen, ammonia, and renewable liquid fuels.

To facilitate the development of additional geothermal energy plants in a manner that is sustainable and acceptable to Hawaii residents, we need to accelerate our research efforts. SB3229 SD2 is an important step to make this happen.

Aloha, and thank you for this opportunity to testify.

A handwritten signature in black ink that reads "Richard Ha".

Richard Ha
Chair
Sustainable Energy Hawai'i
www.sustainableenergyhawaii.org

Sustainable Energy Hawaii is an all-volunteer, 501(c)3 dedicated to furthering energy self-sufficiency for Hawaii Island. For more information, visit sustainableenergyhawaii.org.

SB-3229-SD-2

Submitted on: 3/21/2022 10:16:48 PM

Testimony for HET on 3/23/2022 2:00:00 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-SD-2

Submitted on: 3/22/2022 9:50:16 AM

Testimony for HET on 3/23/2022 2:00:00 PM

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

Comments:

Dear Chair Takayama, Vice-Chair Clark, and members of the Committee,

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

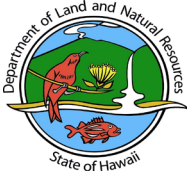
Geothermal energy offers Hawaii a pathway to affordable, abundant renewable energy. A key barrier to the increased investment in this solution is the poor support of research efforts required to identify high-potential geothermal locations beyond the Big Island's rift zone.

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 them, we will be able to expand this critical energy generation option dramatically. SB3229 SD2 will empower organizations like this to deliver the knowledge required for us to develop our geothermal resources properly.

Thank you,

Noel Morin - Hilo

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
HIGHER EDUCATION & TECHNOLOGY**

**Wednesday, March 23, 2022
2:00 PM**

State Capitol Conference Room 309 & Videoconference

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

Senate Bill 3229, Senate Draft 2 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) Establish the University of Hawaii Geothermal Exploration Special Fund for the Hawaii Groundwater and Geothermal Resources Center 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) strongly opposes the language in the current draft of the measure and offers amendments.**

Although the Department supports geothermal energy and exploration in general, the measure as written would deprive the Department of most if not all of the geothermal royalties it currently receives to carry out its statutory obligations for geothermal regulation and lease management. 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 measure as currently drafted gives the Department last priority to receive geothermal royalties. The Department believes that is unfair and unduly burdensome and creates an unfunded mandate. If the Department cannot cover its costs from the royalties it receives, it will be unable to meet its statutory obligation to ensure the safe use of this public trust resource. As an example, the formula in Senate Bill 3229, Senate Draft 2 would result in the following royalty split:

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

Gross Geothermal Royalties \$2,000,000

1. 30% or **\$600,000** to County
2. 20% or **\$400,000** to Office of Hawaiian Affairs (OHA)
3. **\$1,000,000** to University of Hawaii
4. **\$0** nothing to Department

This result is simply unacceptable to the Department that has been tasked with the complex regulatory and lease management duties and responsibilities over geothermal energy production for the State of Hawaii. As noted above, 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 OHA which represents its pro rata share of ceded land revenues. If the University of Hawaii (through its Hawaii Geothermal Exploration Special Fund) 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 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, we believe an interim annual cap of \$1,500,000¹ would be 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 2008, program costs totaled approximately \$522,740.30, increasing to \$922,427.33 in Fiscal Year 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 Fiscal Years 2008 through

¹ In the event additional mining leases are issued or the Department's staffing and workload increases, the Department may need to seek an adjustment upwards on this interim annual cap.

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. Furthermore, the Department believes that any revenues received by the University of Hawaii Geothermal Exploration Special Fund should not exceed \$1,000,000 annually. In the event excess royalties eligible to be paid to the fund exceeds that amount, the excess should be returned to the SLDF to further support geothermal resource regulation development and leasing.

In order to ensure that the Department receives adequate funding for regulation and disposition of geothermal resources, the Department believes that it should have first priority to receive royalties. The Department recommends the following amendment effectuating that objective by omitting SECTIONS 2 and 3 and by amending Section 182-7(c), HRS, to read as follows:

"(c) The payments to the State as fixed by the board shall be specified; provided that:

- (1) In the case of bauxite, bauxitic clay, gibbsite, diaspore, boehmite, and all ores of aluminum, the amount of royalties for each long dry ton of ore as beneficiated shall not be less than twenty-five cents or the equivalent of the price of one pound of

virgin pig aluminum, whichever is higher, nor shall it exceed the equivalent of the price of three pounds of virgin pig aluminum;

- (2) The rate of royalty for ore processed into aluminous oxide in the State shall be set at eighty per cent of the rate of royalty for ore not processed to aluminous oxide in the State; ~~and~~
- (3) The royalty shall be fixed at a rate that will tend to encourage the establishment and continuation of the mining industry in the State~~[-]~~ and
- (4) Any other law to the contrary notwithstanding, and subject to the Hawaiian Homes Commission Act of 1920, as amended, and section 5(f) of the Admission Act of 1959, all royalties received by the State from geothermal resources shall be distributed in the following priority:
 - (A) Fifty per cent of royalties up to an amount not to exceed \$1,500,000 annually shall be paid into the special land and development fund, pursuant to section 171-19;
 - (B) Thirty per cent of royalties up to an amount not to exceed \$600,000 annually shall be paid to the county in which mining operations covered under a state geothermal mining lease are situated;
 - (C) Any excess royalties shall be deposited in the Hawaii geothermal exploration special fund according to section § , as amended, up to an amount not to

exceed \$1,000,000 annually, and provided that any royalties exceeding that amount shall be deposited into the special land and development fund; and

(D) Provided that if the geothermal resources are located on lands under the jurisdiction of the department of Hawaiian home lands, one hundred per cent of royalties received by the State shall be paid to the department of Hawaiian home lands.

The prices of virgin pig aluminum for the purpose of determining the royalties under this section shall be the basic price on the mainland United States market for virgin pig, not refined, f.o.b. factory. The royalties shall be in lieu of any severance or other similar tax on the extracting, producing, winning, beneficiating, handling, storing, treating, or transporting of the mineral or any product into which it may be processed in the State, and shall not be subject to reopening or renegotiating for and during the first twenty years of the lease term.

If the lessee desires to mine other minerals, the lessee, before mining the minerals, shall notify the board in writing, and the board and the lessee shall negotiate and fix the royalties for the minerals.

~~[Any other law to the contrary notwithstanding, thirty per cent of all royalties received by the State from geothermal resources shall be paid to the county in which mining operations covered under a state geothermal resource mining lease are situated;~~

~~provided that if the geothermal resources are located on lands under the jurisdiction of the department of Hawaiian home lands, one hundred per cent of royalties received by the State shall be paid to the department of Hawaiian home lands.] "~~

The Department believes this proposed language accomplishes the same goals of this measure.

Also, with regards to SECTION 1 of this measure, the Department recommends that in lieu of creating a new section of law requiring annual reports to the Legislature, Section 182-18(c), HRS, should be amended to read as follows:

"(c) The board shall submit a written report of all geothermal royalty dispositions to the legislature in accordance with section 171-29. Additionally, each county in which mining operations covered under a state geothermal resource mining lease are situated shall submit an annual report to the legislature regarding the use of the distributed geothermal royalties no later than twenty days prior to the convening of each regular session."

Finally, the Department notes that SECTION 1 of this measure proposes to create the Hawaii Geothermal Exploration Special Fund which would not be under the control of the Board of Land and Natural Resources. Accordingly, the Department suggests the creation of this special fund, and its reporting requirements to the Legislature, be established under Title 18, Chapter 304A, HRS, which is the appropriate body of law for the University of Hawaii System. Additionally, the purpose of the bill under SECTION 1 is to "further the discovery and development of geothermal resources." The Department notes that term "discovery" is not defined in Section 182-1, HRS.

Thank you for the opportunity to testify on this measure.