

# SCR148/SR84

## Proposed

Measure Title:

REQUESTING THE PUBLIC UTILITIES COMMISSION TO ISSUE AN ORDER IN THE REQUEST FOR PROPOSAL DOCKET NO 2012-0092 TO ENSURE THAT THE POWER SUPPLY IMPROVEMENT PLAN (ORDERED IN THE HU HONUA DOCKET) AND DUE APRIL 21, 2014, ADDRESSES THE PLAN TO INTEGRATE FIFTY MEGAWATTS OF GEOTHERMAL-DERIVED ELECTRICITY ONTO THE HAWAIIAN ELECTRIC COMPANY GRID WITHIN TWO YEARS OF THE AWARDED OF THE REQUEST FOR PROPOSALS AND REQUIRES THAT HAWAIIAN ELECTRIC COMPANY RETIRE ITS FOSSIL FUEL PLANTS ON HAWAII ISLAND BY A DATE CERTAIN.

Current Referral: WTL/ENE/CPN/WAM

<a href="#">Sort by Date</a>		Status Text
3/7/2014	S	Offered.
3/13/2014	S	Referred to WTL, WAM.
3/28/2014	S	Re-Referred to WTL/ENE/CPN/WAM.
3/28/2014	S	The committee(s) on WTL/ENE/CPN/WAM has scheduled a public hearing on 04-01-14 9:35AM in conference room 211.

TESTIMONY OF HERMINA MORITA  
CHAIR, PUBLIC UTILITIES COMMISSION  
DEPARTMENT OF BUDGET AND FINANCE  
STATE OF HAWAII  
TO THE  
SENATE COMMITTEES ON  
WATER & LAND,  
ENERGY & ENVIRONMENT,  
COMMERCE & CONSUMER PROTECTION,  
AND  
WAYS & MEANS

APRIL 1, 2014  
9:35 a.m.

**MEASURE:** S.C.R. No. 148, Proposed S.D. 1/S.R. No. 84, Proposed S.D. 1

**TITLE:** Requesting the Public Utilities Commission to Issue an Order in the Request For Proposals Docket No. 2012-0092 to Ensure that the Power Supply Improvement Plan (Ordered in the Hu Honua Docket) and Due April 21, 2014, Addresses the Plan to Integrate Fifty Megawatts of Geothermal-Derived Electricity onto the Hawaiian Electric Company Grid Within Two Years of the Awarding of the Request For Proposals and Requires that Hawaiian Electric Company Retire its Fossil Fuel Plants on Hawaii Island by a Date Certain

Chair Solomon, Chair Gabbard, Chair Baker, Chair Ige, and Members of the Committees:

**DESCRIPTION:**

S.C.R. No. 148, Proposed S.D. 1/S.R. No. 84, Proposed S.D. 1 (“Resolutions”) both request the Public Utilities Commission (“Commission”) to issue an order in Docket No. 2012-0092 that ensures that the Power Supply Improvement Plan (“PSIP”) that Hawaii Electric Light Company, Inc. (“HELCO”) has been ordered in Docket No. 2012-0212<sup>1</sup> to submit include plans to:

---

<sup>1</sup>See Commission Decision and Order No. 31758, Docket No. 2012-0212 In re Hawaii Electric Light Company, Inc. Application for Approval of a Power Purchase Agreement for Renewable Dispatchable Firm Energy and Capacity, filed December 20, 2013.

1. Integrate fifty megawatts of geothermal-derived electricity onto the Hawaiian Electric Company grid within two years of the awarding of the request for proposals (“RFP”) in Docket No. 2012-0092; and
2. Require that Hawaiian Electric Company retire its fossil fuel plants on Hawaii Island by a specific, but as yet unspecified, date.

These Resolutions also request the Commission to ensure that the RFP final award is made no later than September 2014 “by Decision and Order in the event HELCO refuses to make or is incapable of making an award to one or more bidders[.]”

**POSITION:**

The Commission would like to offer the following comments for the Committees’ consideration.

**COMMENTS:**

These Resolutions discuss substantive issues and make requests for specific decisions in an ongoing Commission proceeding.<sup>2</sup> Therefore, the Commission is precluded from addressing the substantive issues raised or commenting on the requests for specific outcomes in these measures.

While the Commission appreciates receiving guidance from the Legislature, the regulatory process provided for in each and every Commission proceeding is the best forum to address issues and provide recommendations such as those included in these Resolutions. Moreover, for the public to accept that the Commission’s decision is fair and free from influence outside of the process for public proceedings, the decision must be made on the record developed by the Commission in that proceeding. Of course, members of the Legislature, as well as any of their constituents and the public, may participate in the development of this record through the regulatory process.

Thank you for the opportunity to offer comments on this measure.

---

<sup>2</sup>See Commission Order No. 30360 Opening Docket, Docket No. 2012-0092, Instituting a Proceeding Related to a Competitive Bidding Process for 50 MW of Dispatchable Renewable Geothermal Firm Capacity Generation on the Island of Hawaii, filed May 1, 2012.

**TESTIMONY BEFORE  
THE SENATE WATER & LAND COMMITTEE  
THE SENATE ENERGY & ENVIRONMENT COMMITTEE  
THE SENATE COMMERCE & CONSUMER PROTECTION COMMITTEE  
& THE SENATE WAYS AND MEANS COMMITTEE**

**ON SCR 148/SR 84, PROPOSED SD 1**

**Requesting the Public Utilities Commission to issue an order in the Request for Proposal Docket No. 2012-0092 to ensure that the Power Supply Improvement Plan (ordered in the Hu Honua Docket) and Due April 21, 2014, address the plan to integrate fifty megawatts of geothermal-derived electricity onto the Hawaiian Electric Grid within two years of the awarding of the Request for Proposals and requires that Hawaiian Electric Company retire its fossil fuel plants on Hawaii Island by a date certain.**

**April 1, 2014**

**Jay Ignacio  
President  
Hawaii Electric Light Company**

**Written Testimony Only**

Chairs Solomon, Gabbard, Baker, Ige and Members of the Committees.

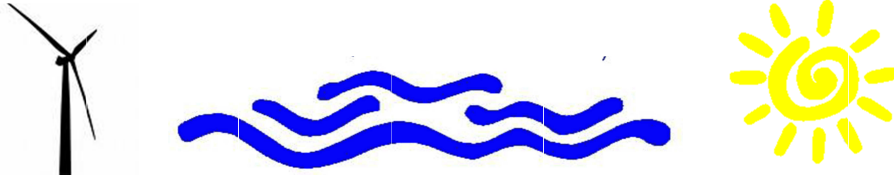
Hawaii Electric Light respectfully opposes S.C.R No. 148, Proposed S.D.1/S.R. No. 84, Proposed S.D.1 . We believe the ongoing PUC regulatory dockets, Docket No. 2012-0092 (Geothermal RFP) and Docket No. 2012-0212 (Application for Approval of a PPA for Renewable Dispatchable Firm Energy and Capacity) are the appropriate forums to consider the issues that are being raised in these resolutions, and that it is important to allow these proceedings to happen without preconceived outcomes in order to assure that customers are best served. As stated in Hawaii Electric Light's letter of March 5, 2014, to the PUC in Docket No. 2012-0092:

Pursuant to D&O No. 31758, the PSIP is required to include, among other things, a Fossil Generation Retirement Plan, Generation Flexibility Plan, Must-Run Generation Reduction Plan and Generation Commitment and Economic Dispatch Review. The Commission also stated that Hawaii Electric Light should re-examine its existing generation unit commitment and economic dispatch practices to ensure that: (1) the selected mix of firm and as-available resources will minimize energy costs; (2) non-traditional sources of ancillary services, such as energy storage and demand response, are considered and, if lower-cost, utilized to supply these services; and (3) curtailments of renewable energy resources, where necessary, are accomplished in cost-effective manner from the perspective of ratepayers.

...

Hawaii Electric Light anticipates that the PSIP will confirm and reinforce the fact that any new geothermal facility will need to be lower cost and able to meet the Performance Standards in order to displace energy from other existing and potential resources, achieve lower costs to customers, and maintain acceptable system reliability.

Thank you for the opportunity to testify on this measure.



# LIFE OF THE LAND

P.O. Box 37158, Honolulu, Hawai`i 96837-0158  
Phone: 927-0709; E: [henry.lifeoftheland@gmail.com](mailto:henry.lifeoftheland@gmail.com)

## COMMITTEE ON WATER AND LAND

Senator Malama Solomon, Chair  
Senator Brickwood Galuteria, Vice Chair

## COMMITTEE ON ENERGY AND ENVIRONMENT

Senator Mike Gabbard, Chair  
Senator Russell E. Ruderman, Vice Chair

## COMMITTEE ON COMMERCE AND CONSUMER PROTECTION

Senator Rosalyn H. Baker, Chair  
Senator Brian T. Taniguchi, Vice Chair

## COMMITTEE ON WAYS AND MEANS

Senator David Y. Ige, Chair  
Senator Michelle N. Kidani, Vice Chair

DATE: Tuesday, April 01, 2014

TIME: 9:35 a.m.

PLACE: Conference Room 211

RE: SCR 148 SD1 Geothermal

PLEASE HOLD

Aloha Chairs Malama Solomon, Rosalyn H. Baker, Mike Gabbard and David Y. Ige; Vice Chairs Brickwood Galuteria, Brian T. Taniguchi, Russell E. Ruderman and Michelle N. Kidani; and Senators Donovan M. Dela Cruz, Les Ihara Jr., Laura H. Thielen, Suzanne Chun Oakland, Clarence K. Nishihara, Glenn Wakai, Ronald D. Kouchi, J. Kalani English, Will Espero, Jill N. Tokuda, Gilbert Kahele, Gilbert S.C. Keith-Agaran and Sam Slom

Life of the Land is Hawai`i's own energy, environmental and community action group advocating for the people and `aina for four decades. Our mission is to preserve and protect the life of the land through sound energy and land use policies and to promote open government through research, education, advocacy and, when necessary, litigation.

Over the years Life of the Land has suggested to legislators and regulators that not all renewable energy is created equal.

There should be a thoughtful process whereby renewables are placed in a hierarchy based on cost; reliability; the ability to absorb more intermittent renewables onto the grid; environmental impacts; social impacts; geographic location; cultural impacts, indigenous vs. imported and/or greenhouse gas emissions.

This Resolution proposes that in the absence of any criteria, all geothermal resources should jump to the front of the line.

On December 20, 2013 the Public Utilities Commission (PUC) gave Hawaii Electric Light Company (HELCO) 120 days to file a "Power Supply Improvement Plan" with the PUC.

The clock is ticking.

100 days have passed.

There are 20 days left.

This Resolution seeks to have the Legislature interfere with an on-going PUC process, whereby the Legislature would determine that "All renewable energy resources are equal, but geothermal resources are more equal than others"

George Orwell wrote Animal Farm in 1945. The animals adopted Seven Commandments of Animalism. The most important one is "All animals are equal."

Years later the pigs start to resemble humans. The Seven Commandments were abridged to a single phrase: "All animals are equal, but some animals are more equal than others".

The Power Supply Improvement Plan must carefully evaluate all options.

Additional generation on the Big Island is not needed until 2035.

The Big Island has met its 40% by 2040 renewable energy goal.

If new generation can displace old generation and can improve system operations while lowering costs it should be considered.

Parker Ranch is proposing a micro-grid utilizing a combination of wind, solar and pumped storage hydro.

Hawaii Island has a very high level of intermittent energy resources. Rooftop solar installations are soaring. To handle intermittent fluctuations certain types of batteries and/or baseload energy is required.

The Big Island has 60% of its load (demand) on the west side of the island and 60% of its supply on the east side.

New Puna Geothermal may be on the wrong side of the island, it may not balance wind and solar well, it may or may not have a low cost, but apparently it should be first among equals.

Now is not the time the pass a Resolution on behalf of a single entity.

Mahalo

Henry Curtis  
Executive Director

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [WTLTestimony](#)  
**Cc:** [bill@puna.us](mailto:bill@puna.us)  
**Subject:** Submitted testimony for SCR148 on Apr 1, 2014 09:35AM  
**Date:** Monday, March 31, 2014 1:34:47 PM

---

**SCR148**

Submitted on: 3/31/2014

Testimony for WTL/ENE/CPN/WAM on Apr 1, 2014 09:35AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Bill Smith	Individual	Oppose	No

Comments: It would seem completely inappropriate to ask the Legislature to ignore recent developments in the world of energy production, attempting to advance commercial interests of would-be geothermal developers by over-riding the roles and responsibilities of the Hawai`i Island utility company and the regulatory agency that oversees it. The prudent idea that planning should precede action is contradicted by false urgency in compelling the award of a geothermal contract by September 2014.

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)



**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [WTLTestimony](#)  
**Cc:** [sairam2@hawaiiantel.net](mailto:sairam2@hawaiiantel.net)  
**Subject:** Submitted testimony for SCR148 on Apr 1, 2014 09:35AM  
**Date:** Monday, March 31, 2014 3:48:34 PM

---

**SCR148**

Submitted on: 3/31/2014

Testimony for WTL/ENE/CPN/WAM on Apr 1, 2014 09:35AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Geoffrey Lasr	Individual	Oppose	No

Comments: I strongly oppose I feel that this measure is a fairly obvious attempt to circumvent rules and regulations in place for the benefit of a private concern. Energy issues are changing rapidly and a well planned and non bias evaluation of what are the energy needs of Hawaii is needed. Helco and Heco with proper IRP planning with concerned parties in the community should not be pressured to make premature Decisions Thank you sincerely Geoffrey Last

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [WTLTestimony](#)  
**Cc:** [katc31999@gmail.com](mailto:katc31999@gmail.com)  
**Subject:** Submitted testimony for SCR148 on Apr 1, 2014 09:35AM  
**Date:** Monday, March 31, 2014 2:33:18 PM

---

**SCR148**

Submitted on: 3/31/2014

Testimony for WTL/ENE/CPN/WAM on Apr 1, 2014 09:35AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Katarina Culina	Individual	Oppose	No

Comments: Aloha, Please do not support this bill and proposed SD1 so that the resolution tells the PUC to "ensure that the [HELCO geothermal] Request for Proposals final award is made no later than September 2014, by Decision and Order in the event HELCO refuses to make or is incapable of making an award to one or more bidders..." It is an obvious attempt to advance the commercial interests of a would-be geothermal developer by over-riding the roles and responsibilities of the utility company and the regulatory agency. Mahalo, Katarina Culina PO BOX 2142 Pahoehoe, HI 96778

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

*Thomas Lee Travis*

**RR 2 Box 3317**

**Pahoa, Hi 96778**

email: [ttravis12@mac.com](mailto:ttravis12@mac.com)

mobile: (757) 639-7364

*Tuesday, April 1, 2014*

**Testimony on SCR 148 SD1 Before the Senate Committees on Water and Land, Energy and Environment, Commerce and Consumer Protection, and Ways and Means**

**Chairs, Representatives:**

I oppose SCR 148, SD 1 Proposed. Additionally, I see no reason for SCR 148 without amendments contained in SD 1.

Consider:

- Hawaiian Electric Light Company has almost sixty percent more generating capacity than needed today. Reasonable estimates indicate that less, not more, generating capacity will be needed in the future.
- The Utility has met and projects that it will meet all standards of renewable energy penetration.
- The Utility has said that it cannot justify awarding any bid for a geothermal plant because none of the proposals appear to be of any benefit to the rate payer.
- The Utility put out the Request for Proposal for a new Geothermal Plant before beginning its 2013 Integrated Resource Planning (IRP). Questions raised during the IRP process clearly have implications for geothermal power requirements. Those questions have not been resolved.
- There has been no community interaction with the Utility over the proposal for additional geothermal resources.
- Renewable penetration by the solar industry is proceeding at an unexpected rate. Considering just solar, future renewable energy goals can be met or exceeded.

Because of these factors, legislative interference on behalf of the geothermal industry is unwarranted and unwise.

The original purpose of SCR 148 was to require fencing around all State Parks. Since every State Park has varying security needs, varying environment, and varying public use, the need for fencing should be decided in each case.

I recommend you oppose SCR 148. It appears to be nothing more than a legislative assist to the fencing industry and, with SD 1, the geothermal industry. Such crony capitalism is wrong headed and unwise.

Senate Bill 2663 restores County permitting for geothermal plants, restores contested case, and provides a ten-year moratorium on fracking.

Regardless of decisions about the need for geothermal power, the County needs a voice in locating and regulating geothermal plants. The bill provides that and it restores contested case to review of such permitting. Contested case allows citizens to have the same recourse to dispute placement of a geothermal plant as they currently have concerning placement of schools, coffee stands, or small stores.

Finally, the bill places a moratorium on hydraulic fracturing or fracking. Fracking is the process by which permeability through a rock formation is enhanced by high pressure. Although there is no oil and gas in Hawai'i, fracking to enhance development of geothermal resources is a possibility. Experts are calling on geothermal developers to more quickly embrace fracking techniques developed in the oil and gas industry, including horizontal drilling.

Experience in California—where unregulated fracking and acidizing were practiced for many years before the State established a regulatory framework—would indicate that regulation should proceed fracking, not follow it.

Lessons from the Gulf Oil Spill and from lack of regulation in California demonstrate the importance of the State getting ahead of technological processes that may be used. If the state is unwilling or unable to establish a forward-looking regulatory framework with technologically competent regulators, the state should ban the industrial process in question.

Attached is a short description, using a case study, of geothermal fracking, its opportunities and risks.

Thomas Lee Travis

# Geothermal Fracking, Hydro Shearing, and Hydraulic Fracturing

## Enhanced Geothermal Systems (EGS)

- ❖ A conventional geothermal resource requires hot rock, permeability to allow flow, and water. Conventional geothermal resource sites are difficult to find.... there is one proven site in all of the State of Hawai'i
- ❖ Enhanced Geothermal Systems make geothermal possible at many more sites. Dozens may be possible in the State of Hawai'i
- ❖ According to 2007 MIT study for the National Research Council, EGS plants could produce 15 % of the US electrical power by 2050. To take advantage of this opportunity the study encourages the federal government to invest billions in research and risk mitigation financing for geothermal companies. DOE is executing that recommendation

## EGS Technology

- ❖ Enhanced geothermal uses geothermal fracking (sometimes called hydraulic shearing or hydraulic fracturing) to break up the hot rock, or to spread pre-existing cracks, in order to increase its permeability.. After cold water cracks the hot rock, high-pressure water propagates the cracks to create a reservoir in the hot rock.
- ❖ Enhanced geothermal can provide water to the hot rock, if necessary, by bringing the water from the ocean or from nearby water wells. Thus instead of a site that combines permeability, water, and hot rock, EGS allows geothermal development at locations where only hot rock can be found.

## Is Geothermal Fracking Really Fracking? A Lawyer's Point of View

What follows is a quote from Sandra Tvarian Stevens, a Washington D.C. lawyer:

*In sum, due to the similarity of the basic fracking process utilized by both natural gas and geothermal companies, the likelihood for comparable claims and lawsuits being asserted against these industries is high, most notably with respect to claims arising out of earthquake damage and well blowouts. While both natural gas and geothermal companies alike face the potential for pollution claims, the kinds of allegations asserted may differ, at least in so far as geothermal companies reportedly rely more on saltwater injection and less on chemical additives in their fracking operations than natural gas companies. (Sandra Tvarian Stevens, August 31, 2011 | Coverage Insights)*

## **A Case Study to Identify Issues with EGS**

- ❖ Currently, a premiere EGS project is one at the Newberry Volcano National Monument (NVNM) near Bend, Oregon
- ❖ At this site EGS methods are being used to reinvigorate an existing geothermal resource so that it can make greater power.
- ❖ AltaRock (an EGS company that is exploring opportunities in the State of Hawai'i) will use geothermal fracking to increase the permeability of the resource
- ❖ What follows concerning challenges to geothermal fracking is based on the NVNM project's environmental assessment

## **What Are the Differences Between Oil/gas and Geothermal Fracking? (Based on the NVNM Project)**

- ❖ Most advocates claim geothermal uses fewer and less toxic chemicals, but:
  - ❖ Oil and gas companies use chemicals that are proprietary
  - ❖ AltaRock uses chemicals that are proprietary
- ❖ Some have said that geothermal companies will use salt water rather than fresh water
  - ❖ AltaRock is using normal well water
- ❖ In geothermal fracking, cracking of rock is done by cold water against hot rock, but
  - ❖ Alta Rock uses water at an over pressure of ~ 2000 psi to propagate the cracks throughout the rock. The exact pressure is determined by in-well testing that finds what pressure is needed.

## **AltaRock's Effort in Oregon--Water Use (Based on the NVNM Project)**

- ❖ AltaRock anticipates the fracking effort will use 24,000,000 million gallons of high pressure water over three weeks (24,000,000 gallons) (240 trips of the largest tanker trucks)(a home uses 400 gallons a day)
- ❖ AltaRock anticipates using 124,000,000 gallons of water to support the experimental project over two years (124,000,000 gallons) (1,240 tankers)

## **AltaRock's Effort in Oregon--Water Contamination (Based on the NVNM Project)**

- ❖ Direction of cracks
  - ❖ A network of seismometers is supposed to determine which way and how far the hydraulically induced cracks propagate.
  - ❖ If the cracks propagate toward the fresh water layer risking contamination, it is assumed operations can be stopped with adequate buffer for safety.
- ❖ Blowouts

- ❖ Wells to insert the fracking water are similar to injection wells at Puna Geothermal Venture (PGV), but overpressure will be higher than PGV's by ~1500 psi.
- ❖ PGV had a piping failure on an injection well in November 2012. The well pressure at the time of the PGV failure was considerably less than the pressure that will be used for fracking by AltaRock.

## **AltaRock's Efforts--History of Earthquakes**

- ❖ An effort in Basel, Switzerland, was terminated when earthquakes caused \$9M damage. A NY Times investigative report questioned whether AltaRock was forthcoming with data.
- ❖ Germany stopped development on several geothermal plants over concerns with earthquakes
- ❖ A fracking effort at Geysers in California was terminated shortly after problems with Basel became public.
- ❖ Near Middleton, California, a committee mediation process has settled 19 damage claims from small earthquakes.

## **AltaRock's Effort in Oregon Earthquakes (Based on the NVNM Project)**

- ❖ In Oregon, AltaRock will monitor cracks in a nearby dam to ensure they do not worsen as a result of induced earthquakes.
- ❖ In case improbable, but possible earthquakes start to occur around the NVNM site, AltaRock plans to depressurize the geothermal reservoir by dumping water over a period of days. First the water would be dumped to empty storage tanks specified for that purpose and, if that were insufficient, then there is a contingency to dump the water to the ground

## **AltaRock's Efforts--Environment and Lifestyle Considerations**

- ❖ Other issues that need to be considered include:
  - ❖ Truck and other traffic on narrow roads
  - ❖ Noise to neighbors
  - ❖ Environmental issues with clearing of land for plant development and for water transport
    - ❖ Local water shortages or degradation of water quality from "over-use"
    - ❖ Unabated or abated release of steam during flow testing (H<sub>2</sub>S release)
    - ❖ Potential 930 foot steam and chemical plume during flow testing
    - ❖ Access to public trails and paths
    - ❖ Road building

## **Hawai'i Legislative Issues for Consideration**

- ❖ Before allowing EGS projects the State should consider:
  - ❖ How to protect the environment and water resources

- ❖ How to estimate, control, and regulate risks of induced seismicity