

SB2940

SB2940



Submit Testimony

Measure Title: RELATING TO THE ENVIRONMENT.

Report Title: Conservation; Mining and Materials; Hydraulic Fracturing

Description: Prohibits hydraulic fracturing and the collection, storage, treatment, or discharge of wastewater from hydraulic fracturing. Provides for penalties and enforcement.

Companion: [HB2359](#)

Package: None

Current Referral: WTL/ENE, JDL

Introducer(s): RUDERMAN, Ige, Ihara, Shimabukuro, L. Thielen

Sort by Date		Status Text
1/23/2014	S	Introduced.
1/23/2014	S	Passed First Reading.
1/23/2014	S	Referred to WTL/ENE, JDL.
2/5/2014	S	The committee(s) on WTL/ENE has scheduled a public hearing on 02-12-14 1:15PM in conference room 225.

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



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

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

**Testimony of
WILLIAM J. AILA, JR.
Chairperson**

**Before the Senate Committees on
ENERGY AND ENVIRONMENT
and
WATER AND LAND**

**Wednesday, February 12, 2014
1:15 P.M.
State Capitol, Conference Room 225**

**In consideration of
SENATE BILL 2940
RELATING TO THE ENVIRONMENT**

Senate Bill 2940 proposes to prohibit hydraulic fracturing and the collection, storage, treatment, or discharge of wastewater from hydraulic fracturing, and provides for penalties and enforcement. **The Department of Land and Natural Resources (Department) opposes this measure for the following reasons:**

To date, there has not been any hydraulic fracturing conducted in the State of Hawaii. The Department is not aware of any expressed interest to conduct hydraulic fracturing.

If a developer proposes to conduct hydraulic fracturing, the Department would require a well drilling or modification permit and disclosure in the developer's Plan of Operation, both of which would require approval by the Department.

If a developer were to propose to conduct hydraulic fracturing, this action would need to be disclosed in an Environmental Impact Statement (EIS), in accordance with Chapter 343, Hawaii Revised Statutes. The Department would not issue a permit for hydraulic fracturing until completion and acceptance of a final EIS.

The Department does not wish to prohibit the use of any future tools or methods which, if used properly, could help Hawaii's energy needs, including its Clean Energy Initiative goals.

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ESTHER KIA'AINA
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

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

The Department recognizes the concern caused by the potential use of hydraulic fracturing, and if such a method were proposed, would take all necessary steps to ensure that it would adhere to all regulations to ensure public safety and the preservation of this public trust resource.

Thank you for the opportunity to testify on this measure.



**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**

NEIL ABERCROMBIE
GOVERNOR

RICHARD C. LIM
DIRECTOR

MARY ALICE EVANS
DEPUTY DIRECTOR

No. 1 Capitol District Building, 250 South Hotel Street, 5th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804
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Fax: (808) 586-2377

Statement of
RICHARD C. LIM
Director
Department of Business, Economic Development, and Tourism
before the
SENATE COMMITTEE ON WATER AND LAND
And
SENATE COMMITTEE ON ENERGY AND ENVIRONMENT
Wednesday, February 12, 2014
1:15 p.m.
State Capitol, Conference Room 225
in consideration of
SB 2940
RELATING TO THE ENVIRONMENT.

Chairs Solomon and Gabbard, Vice Chairs Galuteria and Ruderman, and Members of the Committees.

The Department of Business, Economic Development, and Tourism (DBEDT) opposes SB 2940, which would prohibit hydraulic fracturing and prohibit the handling of waste fluids from hydraulic fracturing without a permit.

While public focus on hydraulic fracturing has been specific to the fossil fuel industry, issues of oil/gas leakage, injection of highly pressurized fluids, etc. do not apply to the only relevant application in Hawaii, geothermal drilling, since fracking is used in areas with hot, dry rock with poor permeability rather than the geological formations found in Hawaii. Therefore, this measure may create false impressions of unfounded risks to geothermal production in Hawaii.

Because all geothermal drilling is subject to regulation by the Department of Land and Natural Resources (DLNR), DBEDT defers to DLNR regarding the regulation of hydraulic fracturing, should it ever be proposed. Thank you for the opportunity to offer these comments in opposition to SB 2940.

From: mailinglist@capitol.hawaii.gov
To: [WTLTestimony](#)
Cc: Luanajones777@hotmail.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Tuesday, February 11, 2014 1:11:48 AM

SB2940

Submitted on: 2/11/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Luana Jones	Kanaka Maoli 'O Puna	Support	Yes

Comments: Please pass this pono malama 'aina law!!!

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.

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Indigenous Consultants, LLC

Mililani B. Trask, Principal

P.O.Box 6377 ❖ Hilo, HI 96720

Mililani.trask@gmail.com



SB 2940 Re: Environment (Fracking)
Senate Committees: WTL/ENE, JDL
Hearing Date: February 12th, 2014
Time: 1:15 pm
Room: 225

TESTIMONY IN OPPOSITION

Date: February 5th, 2014

Aloha Legislators,

Indigenous Consultants (IC) is a Hawaii based, indigenous LLC owned and operated by Native Hawaiians. It was created to assist indigenous peoples in developing their renewable energy resources in ways that are: Culturally appropriate, environmentally green and sustainable, socially responsible and economically equitable and affordable. For several years the IC has worked with Innovations Development Group in New Zealand and indigenous Maori developing geothermal resources, which are trust assets of Maori Land Trusts. In addition, the IC has acted as a consultant to other indigenous people in Hawaii and Asia who are addressing development of their trust renewable energy resources in ways that; directly benefit their people, bring in revenues, create small business opportunities and ensure fair & affordable rates to consumers, including themselves and their communities.

IC strongly oppose this measure because it does not relate to geothermal development in Hawaii, is costly and is being proposed to generate fear & hysteria relating to a technology that simply is not being used, tested or considered for our State.

1. Hydrofracking is a technology generally used in the testing & production of oil & gas. There is no oil or gas in Hawaii.
2. No one is using hydrofracking in Hawaii & no one intends to. The proponents of this Resolution do not site any evidence of this because there is none.
3. Claims that Hawaii is currently "being assessed" as a potential site for this technology are false. Where is the evidence of this assertion in the Resolution? There is no evidence that this is occurring in Hawaii, and the possibility that this technology will be used in Hawaii are nil.
4. Claims that hydrofracking is being tested in Enhanced Geothermal Systems (EGS) and so are applicable in Hawaii are false & not substantiated by science or current research. EGS technology is not appropriate in Hawaii because Hawaii has volcanic soil that is permeable & Hawaii has significant rainfall. EGS applications are appropriate in the western continental USA

where there is little or no rain & no permeable soils.

THE FACTS RE: HYDROFRACKING & EGS ARE THE FOLLOWING:

A. The technique of hydraulic fracturing is used to increase or restore the rate at which fluids, such as petroleum, water, or natural gas can be recovered from subterranean natural reservoirs. Reservoirs are typically porous sandstones, limestone or dolomite rocks, but also include "unconventional reservoirs" such as shale rock or coal beds. Hydraulic fracturing enables the production of natural gas and oil from rock formations deep below the earth's surface (generally 5,000–20,000 feet (1,500–6,100 m)). At such depth, there may not be sufficient permeability or reservoir pressure to allow natural gas and oil to flow from the rock into the wellbore...

[See ^ "Hydraulic fracturing research study" (PDF). EPA. June 2010. EPA/600/F-10/002.Retrieved 2012-12-26.]

B. While the main industrial use of hydraulic fracturing is in arousing production from oil and gas wells, hydraulic fracturing is also applied for heat extraction to produce electricity in an enhanced geothermal systems in areas of the US with low rainfall & soils that are impermeable. This does not apply in HAWAII.

[See^ "Geothermal Technologies Program: How an Enhanced Geothermal System Works"..eere.energy.gov. 2011-02-16. Retrieved 2011-11-02 & Duchane article below.]

C. Research on the EGS applications of hydrofracking for geothermal development have already been assessed for the United States. Some States have been identified as areas for EGS however Hawaii IS NOT one of the States.

[See Duchane, Dave; Brown, Don (December 2002), "Hot Dry Rock (HDR) Geothermal Energy Research and Development at Fenton Hill, New Mexico", Geo-Heat Centre Quarterly Bulletin (Klamath Falls, Oregon: Oregon Institute of Technology) 23 (4): 13–19, ISSN 0276-1084, retrieved 2009-05-05.]

Lets stop wasting time with political games.

Please kill this measure.

Regards,



Mililani B. Trask
Indigenous Consultants, LLC

Dr. Zarrouk Civil Beat Article Attached

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County Bill 129 is Bad for Hawaii: Dispelling Myths About Fracking

By Sadiq Zarrouk | 10/28/2013

There is no shortage of information, misinformation and fears raised about hydraulic fracturing (fracking).

Some of the bad press around "fracking" has been well-earned. But the negatives surrounding its use by the oil and gas industries to improve the production of wells is threatening progress in places where there should be no anxiety about fracking.

Hawaii is one such place, judging by recent legislation attempting to preemptively exclude fracking from the urgent conversation about geothermal that is currently underway. As a scientist who works and lectures on geothermal issues and projects, I offer the following observations to help correct serious misconceptions and facilitate a more informed conversation about how to move Hawaii forward with regard to tapping its incredible geothermal resources.

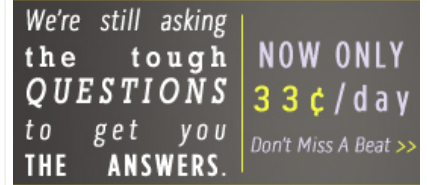
1. Fracking is normally carried out after the completion of drilling. Fracking is NOT normally used/applied in conventional geothermal, which is the case for geothermal power development in New Zealand, Hawaii and another 22 countries around the world.
2. I can say with confidence that there is not going to be any fracking in future geothermal development in Hawaii.
3. Legislation such as Bill 129 that purport to be inspired by what other regions have done to protect against fracking should be based on facts. The UK, New Zealand and Canada cited in Bill 129 have NOT banned fracking. The UK did have a moratorium which was lifted in December 2012.
4. Water is used in great quantities while drilling new wells. But it is a temporary phase of two to three months and limiting its use will only inhibit efficient start-up operations.
5. Some limited use of chemicals for cleaning, improvement of permeability and prevention of mineral deposits inside the well may be necessary. This does not constitute fracking and may be necessary for the operation of the plant.
6. It is not prudent to give an administrator without the appropriate science and geothermal engineering expertise the power to shut down operations as this bill does. In New Zealand, the drilling inspector is someone trained to perform that function and has the necessary qualifications for it. Having an administrator without the relevant experience wielding that kind of power is not conducive to good decision-making or good business. It is therefore also not good for the community.
7. It is true that some drilling equipment can be used for fracking. However, an administrator who does not have a full understanding of geothermal operations may be empowered by this bill to shut down the site because he or she sees equipment that can be used for fracking even if there is no fracking taking place or being planned.
8. All the Hawaii islands are volcanic, so there are no likely hydrocarbons (Oil, Gas, Coal etc.) to be accessed using fracking. These are the industries that use fracking; not geothermal.

In my opinion, legislation like Bill 129, while well-intentioned, has been guided by bad information and an inadequate understanding of the industry. It will not serve Hawaii well and may seriously retard the development of a renewable energy source that could replace imported oil as the firm power base for the state's energy portfolio. That need is urgent and it would be a shame to see Hawaii's path to energy independence obstructed by this kind of ill-conceived legislation.

About the author: Sadiq Zarrouk is a Geothermal Reservoir Engineer and a Member of the Board of Directors of the International Geothermal Association. He has 17 years of experience in the field and has studied Hawaii's geothermal resources. He has published extensively in refereed journals and conference proceedings and run several advanced geothermal professional training courses. He consults for clients globally, including Innovations Development Group in Hawaii, Contact Energy in New Zealand, Arrow Energy in Australia and more.

Community Voices aims to encourage broad discussion on many topics of community interest. It's kind of a cross between Letters to the Editor and op-eds. This is your space to talk about important issues or interesting people who are making a difference in our world. Columns generally run about 800 words (yes,

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About the Author

Sadiq Zarrouk

Contributor



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Bill: **SB2940**

Committees: WTL/ENE, JDL

Hearing Date: February 12th, 2014

Hearing time: 1:15 pm

Location: Room 225

Testimony in Opposition

Date: February 5th, 2014

Aloha Legislators,

The Innovations Development Group (IDG) is a Hawaii based renewable energy Development Corporation owned by Native Hawaiians. It was created to facilitate the development of renewable energy resources of native people, and in summer 2011 presented its development model to legislators of the Energy & Land Committees.

IDG strongly opposes this measure. “Fracking” is not being tested or utilized in Hawaii. Fracking is a process used in gas & oil extraction, not for geothermal development.

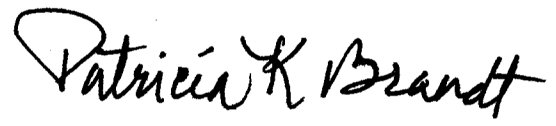
For the past several years’ opponents of geothermal development claiming that “Fracking” is being tested in Hawaii and will be used for geothermal development have generated a campaign of misinformation & fear. This is false. The goal of this misinformation effort is to stop geothermal from progressing.

If you review testimony on this bill & others like it in 2013 & 2014, you will find that none of the testimony submitted actually provides any real examples or evidence in Hawaii. Last year, Life of the Land claimed that 21 geothermal developers bidding on the HECO RFP for Hawaii island were using Fracking – however when asked to provide the names of these companies, Life of the Land was unable to comply because there was none.

Last session, the proponent of this measure, Senator Russell Ruderman, tried to get the Honolulu Civil Beat to run an article on the dangers of Fracking in Hawaii. When CB asked him to name the companies using Fracking, he was unable to identify a single company. Instead he admitted his bill was a ‘pre-emptive’ move against geothermal & that he had deliberately left out the term ‘geothermal’ because he is known to be an opponent of this bountiful renewable source of energy! See **Lawmaker Raises Alarm About Geothermal Fracking in Hawaii** By [Sophie Cocke](#), Honolulu Civil Beat 01/30/2013.

Hawaii is not the only State addressing the energy crisis. California, a State with geothermal, oil & gas is currently debating the options. Attached is an article from the Sacramento Bee, it was written by the geothermal experts at the University of California at Davis. They support geothermal development rather than gas & oil for the very reason that geothermal development does not use fracking.

Sincerely,

A handwritten signature in black ink that reads "Patricia K. Brandt". The signature is written in a cursive style with a large, looping initial "P".

Patricia K. Brandt

Sacramento Bee Article Attached

html
THE SACRAMENTO BEE sacbee.com

Viewpoints: Drill for energy? Yes, for more geothermal

Special to The Bee

Published Thursday, Aug. 01, 2013

The age of natural gas fracking is upon us, and the debate about how hydraulic fracturing will be done in California has begun. Even assuming conservative estimates of natural gas reserves in the lower 48 states, the United States could easily move from a coal-based electrical portfolio to one that is based on natural gas. So why invest in renewable energies when natural gas is so cheap and for the time being, plentiful? The answer is multifaceted, but we will focus on two reasons: cost and greenhouse gas emissions.

First, there is an indisputable need to reduce greenhouse gas emissions. That is why California is requiring 33 percent of electricity be generated by renewable energy by 2020. The Renewable Portfolio Standard also calls for an 80 percent reduction in greenhouse gases from 1990 levels by 2050. By becoming more reliant on natural gas for power generation, emissions may be saved, as natural gas burns cleaner. But natural gas is still a carbon-based and finite resource that will continue to contribute to the very issue these statutes are trying to address.

Further, the increased domestic production of natural gas will mainly go toward exports for international markets such as Europe and China, where consumers pay roughly three to five times what we do. The infrastructure for the export of liquefied natural gas, or LNG – the pipelines, treatment and conversion facilities, storage tanks, container ships – is already being put in place. Once LNG becomes a globally traded commodity, the price of domestic natural gas will inevitably rise. So we will have built the infrastructure that depends on it domestically and abroad, further increasing electricity and transportation costs.

Simply put, any finite resource that has price volatility and building infrastructure to support it leaves few options on the table when supplies run low or the price runs high, as we have seen in the transportation sector and the electrical sector with coal.

Here in California, our Renewable Portfolio Standard mandates that, by 2020, 33 percent of electrical generation from our public utilities must be from renewable energy sources, including solar, wind and geothermal – all of which have no fuel costs and all of which have close to zero carbon emissions.

Cheap natural gas is positioned in the market to fill much of the remaining 66 percent, especially as gas-fired power plants are flexible and can provide most of the electricity we need. Solar and wind could help with much of the remaining 66 percent, but we will need another source of power at a high level of penetration to offset their variability – when the sun isn't shining and the wind isn't

blowing.

Enter geothermal energy, using the natural heat within the Earth's interior for generating electrical power. In places where the temperature exceeds 375 degrees at depths of a mile or so – and we already know where a lot of these are in California – we can drill for deep fluids that have already mined the heat from the rocks they flow through. When that pressurized hot water is tapped, it flashes to steam that can power a turbine for electrical generation. Newer technology allows us to run the steam through heat exchangers, so that virtually all the fluid can be condensed and pumped back into the geothermal reservoir.

California currently leads the world in power production from geothermal energy. For many years our state has produced more geothermal power than any country. From the coastal mountains of Northern California to the Imperial Valley, geothermal power plants supply more than 2,700 megawatts of electricity, enough to power the homes of about 2.5 million Californians.

So why aren't we developing more geothermal energy to fulfill the requirements of the Renewable Portfolio Standard? The upfront costs – especially for drilling wells – for developing power production from geothermal energy are generally greater than those for other renewables. But once in operation, geothermal power plants deliver energy at a competitive rate with coal, wind and solar. They are also capable of generating electrical power for decades: The Geysers in Sonoma County recently celebrated its 50th anniversary of power production.

Moreover, the latest technology developments in geothermal power production will give us greater flexibility with the ability to ramp up and down with demand. That will help meet the growing need for energy production in California.

So let's change the debate: It shouldn't be just about whether we should be drilling – and fracking – for more natural gas. Let's ask why we aren't doing more drilling for another of California's golden resources, geothermal energy – which doesn't require fracking and doesn't have the myriad environmental consequences that come with natural gas.

Peter Schiffman is a geology professor emeritus at the University of California, Davis. William Glassley is the director of the California Geothermal Energy Collaborative at UC Davis. Elise Brown is the associate director.

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HU'ENA



POWER

SB 2940

Committees: WTL/ENE, JDL

Hearing Date: February 12th, 2014

Hearing time: 1:15 pm

Location: 225

Testimony in Opposition

Date: February 5th, 2014

Aloha Legislators,

Hu'ena Power is a Hawaii based geothermal development company majority owned by Native Hawaiians. The company was created to bring affordable electricity to the ratepayers of Hawaii Island via renewable, clean geothermal energy production utilizing an abundant, indigenous fuel source. Hu'ena Power has worked with industry experts from all over the world to assess both the transmission and generation of electricity here in Hawaii.

Hu'ena Power opposes this Bill because it is based on misrepresentations, is not supported by science & does not relate to geothermal or renewable energy in Hawaii.

Hu'ena has sought & obtained the written opinion of Doctor Sadiq Zarouk an internationally recognized authority on geothermal development, on the issue of Fracking in Hawaii. His qualification include:

2013- Elected Member of the Board of Directors, International Geothermal Association,
2011-2014 Elected Member of the Board of Directors, New Zealand Geothermal Association (Head of the Education and R&D committee),
2001- 2014 Member of the Iceland Deep Drilling Project (IDDP)
2006-2009 Research Advisory Board Member for the Cooperative Research Centre for Greenhouse Gas Technologies (CO2CRC), Australia., 2011-2014 Member of the Australasian Association for Engineering Education (AAEE), 2001-2014, Member of the International Geothermal Association (IGA).

Sincerely,

A handwritten signature in black ink that reads "Roberta Cabral". The signature is fluid and cursive.

Roberta Cabral
Director, Hu'ena Power
(Attached: Civil Beat Article on Fracking)

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County Bill 129 is Bad for Hawaii: Dispelling Myths About Fracking

By Sadiq Zarrouk | 10/28/2013

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Some of the bad press around “fracking” has been well-earned. But the negatives surrounding its use by the oil and gas industries to improve the production of wells is threatening progress in places where there should be no anxiety about fracking.

Hawaii is one such place, judging by recent legislation attempting to preemptively exclude fracking from the urgent conversation about geothermal that is currently underway. As a scientist who works and lectures on geothermal issues and projects, I offer the following observations to help correct serious misconceptions and facilitate a more informed conversation about how to move Hawaii forward with regard to tapping its incredible geothermal resources.

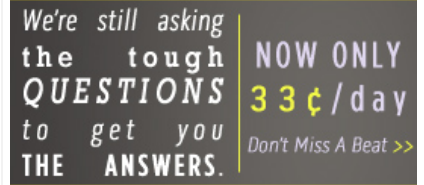
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8. All the Hawaii islands are volcanic, so there are no likely hydrocarbons (Oil, Gas, Coal etc.) to be accessed using fracking. These are the industries that use fracking; not geothermal.

In my opinion, legislation like Bill 129, while well-intentioned, has been guided by bad information and an inadequate understanding of the industry. It will not serve Hawaii well and may seriously retard the development of a renewable energy source that could replace imported oil as the firm power base for the state’s energy portfolio. That need is urgent and it would be a shame to see Hawaii’s path to energy independence obstructed by this kind of ill-conceived legislation.

About the author: Sadiq Zarrouk is a Geothermal Reservoir Engineer and a Member of the Board of Directors of the International Geothermal Association. He has 17 years of experience in the field and has studied Hawaii’s geothermal resources. He has published extensively in refereed journals and conference proceedings and run several advanced geothermal professional training courses. He consults for clients globally, including Innovations Development Group in Hawaii, Contact Energy in New Zealand, Arrow Energy in Australia and more.

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About the Author

Sadiq Zarrouk

Contributor



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SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Graham Ellis	President - Hawaii Sustainable Community Alliance	Support	No

Comments:

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.

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SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Jim Albertini	Malu 'Aina	Support	No

Comments: Our organization supports this bill to ban fracking which is proving to cause all sorts of problems to people, land, water, etc. Mahalo. Jim Albertini, president

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SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Julie Chen	Paradise Action Womens Alliance	Support	No

Comments: NO FRACKING! Geothermal is NOT clean energy! We don't want it!
Protect the health of our families, communities and 'aina!!! Mahalo!!

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TO: The Honorable Senators of the Committee on Water and Land,
The Honorable Senators of the Committee on Energy and Environment

FROM: Mike Hasselle, MoveOn.org Honolulu Council

DATE: Tuesday, February 11, 2014

RE: Senate Bill SB2940, relating to the environment

Please accept this memo as written testimony in favor of SB2940 relating to the environment, to ban Hydraulic Fracturing (fracking) in Hawaii

As a concerned citizen of Hawaii, in the past year I have personally completed over 350 hours of research on fracking, with a focus on fracking in geothermal energy extraction. This included primary research with Geologists and Geophysicists, as well as a review of secondary research and data from numerous government agencies, including the United States Geological Survey (USGS), the Environmental Protection Agency and the Advanced National Seismic System (ANSS). Secondary research on geothermal fracking was also reviewed from several reputable academic organizations, including the University of California-Santa Cruz and Duke University, Department of Earth and Ocean Sciences.

While there are very strong public opinions about fracking (both for and against the fracking technology), this testimony will provide only undisputed facts and conclusions based on those facts.

Fact One: Fracking causes earthquakes. Some will argue the induced earthquakes are usually not large enough to be felt, measuring less than 4 on the Richter Magnitude Scale, but this is not always the case. The following conclusion is from the Executive Summary in the 3rd multi-agency government study referenced below:

“Induced seismicity in geothermal projects appears to be related to both net fluid balance considerations and temperature changes produced in the subsurface. Different forms of geothermal resource development appear to have differing potential for producing felt seismic events. High-pressure hydraulic fracturing undertaken in some geothermal projects has caused seismic events that are large enough to be felt. Temperature changes associated with geothermal development of hydrothermal resources have also induced felt seismicity.”

Following are three recent studies linking Hydraulic Fracking and Earthquakes:

1. A July 12, 2013 USGS study has confirmed forcing high pressure water into the Earth via Fracking can increase the number of [induced earthquakes](#).
2. A [July 27, 2013 study](#) by the University of California – Santa Cruz confirmed the correlation between Geothermal Fracking and earthquakes.

3. A [2013 study](#) by the Committee on Induced Seismicity Potential in Energy Technologies; Committee on Earth Resources; Committee on Geological and Geotechnical Engineering; Committee on Seismology and Geodynamics; Board on Earth and Sciences and Resources; Division on Earth and Life Studies; and National Research Council concludes Geothermal drilling causes earthquakes.

Fact Two: Contamination of Hawaii water tables caused by fracking has been specifically [excluded](#) from the Safe Drinking Water Act (SDWA), creating a gap in protection from the Environmental Protection Agency (EPA). Following is an excerpt from the SDWA reflecting this exclusion, known as the "[Halliburton Loophole](#)."

*"The term 'underground injection' means the subsurface emplacement of fluids by well injection; and **excludes:***

- (i) the underground injection of natural gas for purposes of storage; and*
- (ii) the underground injection of fluids or propping agents (other than diesel fuels) pursuant to **hydraulic fracturing operations related to oil, gas, or geothermal production activities.**"*

Allowing fracking in Hawaii will expose our water tables to potential contamination without EPA protection. If geothermal fracking did not contaminate water tables, there would be no reason for this loophole in the SDWA.

Fact Three: Hawaii Island is not the only island susceptible to geothermal fracking. Without this bill, any geothermal company could fracture our land to extract energy. Ormat, who operates the Puna Geothermal Venture Plant has immediate plans for exploratory drilling in [Maui](#). In December, 2013, one [geochemist](#) at University of Hawaii-Hilo stated Oahu has two potential new geothermal drilling sites; Waianae in the Lualualei Valley and Koolau between Kapaa and the Marine Corps Base Hawaii in Kaneohe. Plans are to conduct a survey of these two new sites starting in 2015 to utilize "modern technology" to dig as deep as 20 kilometers to check for geothermal energy resources.

In summary, fracking creates earthquakes and earthquakes are not good for Hawaii. There is not sufficient evidence that fracturing the land beneath our water tables cannot or will not contaminate the water tables, which is why industry sources created a "loophole" in the EPA protection for safe drinking water. With this loophole, the known intent to expand geothermal drilling in Hawaii, and the facts set forth above concerning earthquakes, we need legislation to protect Hawaii from fracking. Industry sources that do not intend to fracture the land by injecting high pressure fluid have no legitimate reason to oppose this bill.

Thank you very much for your time and your consideration.

Attachment: Sent via separate e-mail, 1031 petition signatures of Hawaii residents who want to ban fracking in Hawaii.

From: mailinglist@capitol.hawaii.gov
To: [WTLTestimony](#)
Cc: autumnness@yahoo.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Sunday, February 09, 2014 11:18:38 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
autumn ness	Individual	Oppose	No

Comments:

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From: mailinglist@capitol.hawaii.gov
To: [WTLTestimony](#)
Cc: barb@punapono.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 11:53:45 PM
Attachments: [Fracking one pager.doc](#)

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Barb Cuttance	Individual	Support	No

Comments: Thank you for hearing SB2940. I strongly support this bill. Geothermal Fracking is simply not suitable for Hawaii's fragile environment. We must protect the aina from likely earthquakes that would happen if this technology is to be tried here. Gradient Resources CEO Craig Mataczynski said the industry needs to work on both sides of that equation, driving down the cost of drilling, but also improving the drilling success rate. "Reduce the risk, and naturally your overall costs will come down, from 20 percent in today's market to the 12 to 13 or 14 percent for the development phases for wind and solar," he said. Louis E. Capuano of Capuano Engineering said geothermal drilling was by its nature more difficult than the far-cheaper and more-common gas and oil drilling – geothermal busts through hard rock, he said, while gas and oil was like "going through a snow bank." But Capuano added that the geothermal industry could learn a thing or two from its fossil fuel brethren, especially with the use of horizontal drilling techniques that might allow a wider area of exploration with fewer holes in the ground. "The question is, if we've got a new technology, who's willing to take the risk?" Capuano asked. We've got to get more projects out there so we can try the technology." Read the full story here <http://www.earthtechling.com/2013/10/geothermal-industry-looks-to-raise-its-game/> Please protect Hawaii from being a guinea pig for this new technology and earthquakes. Please pass this bill. Barbara Cuttance 14/266 Papaya Farms Road, Pahoehoe, HI 96778

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Geothermal Fracking, Hydro Shearing, and Hydraulic Fracturing

What are enhanced geothermal systems (EGS)?

- EGS uses new technology to create a geothermal resource that has the required hot rock, permeability, and water. EGS uses geothermal fracking (sometimes called hydraulic shearing or fracturing) to break up dry, hot rock to create a one cubic kilometer reservoir miles under the ground. Then water is pumped into the reservoir from some external source.
- A 2007 MIT study for the National Research Council estimates EGS could produce 15% of the US electrical power by 2050. The DOE is spending billions in research and risk free loans and two million dollars are being spent looking at EGS on Oah'u.

Is geothermal fracking really fracking?

- Sandra Tvarian Stevens, a Washington D.C. lawyer says:
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. Coverage Insights, August 31, 2011

What are the issues with enhanced geothermal systems?

- Water Use. Fracking and filling the geothermal reservoir can use hundreds of millions or billions of gallons of water. An average home uses 400 gallons of water a day.
- Water Contamination. The fracking process can cause vertical cracking, contaminating the fresh water above the geothermal resource. Well blowouts, unlikely but common accidents, can also contaminate drinking water.
- Earthquakes. Earthquakes have shut down several geothermal projects, sometimes permanently, and damage claims from earthquakes have been paid by other projects. It takes up to several months for them to subside after the EGS project is halted.
- Social, economic, and cultural impact on the community. Issues that need to be considered include truck and other traffic on narrow or busy roads, noise impact on neighbors, clearing of land, creation of water shortages or degradation of water quality from over-use, unabated or abated release of hydrogen sulfide (a poisonous, foul smelling gas), potential steam and chemical plumes during flow testing, restricted access to public trails and paths, and the need for extensive road construction.

How would Hawai'i regulate EGS and geothermal fracking?

- EGS and geothermal fracking are poorly understood and are unregulated in Haawi'i. Following passage of Act 97 in the 2012 legislature, Hawai'i currently allows building geothermal plants in all zoned areas, including urban, residential, agricultural, and industrial including on ceded lands.
- Issues appropriate for legislative consideration before EGS is brought to the state include:
 - How to protect the environment and water resources.
 - How to estimate risks of induced seismicity and to control and regulate those risks.
 - How to locate this major industrial activity while giving the community a voice and protecting social, cultural, and economic interests.

From: mailinglist@capitol.hawaii.gov
To: [WTLTestimony](#)
Cc: beamiracle@acrosage.org
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Tuesday, February 11, 2014 11:01:34 AM

SB2940

Submitted on: 2/11/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Benjamin Marantz	Individual	Support	No

Comments:

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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

Wednesday February 12, 2014
Conference Room 225
1:15 PM

Testimony in Opposition to SB 2940

Prohibiting hydraulic fracturing in Hawaii

Submitted by:
Donald Thomas

I am a member of the research faculty at the University of Hawaii and have conducted applied and basic research on Hawaii's geology, groundwater, and geothermal systems for more than 40 years. I present the following testimony in opposition to **SB 2940**.

I oppose the passage of SB 2940 for the following reasons:

1) Public, and apparently Legislative, concerns regarding hydro-fracturing are largely based on a technology that has been applied to a geologic environment that is fundamentally different from that in Hawaii, using methods, and for purposes, that are fundamentally different from those for which it might be applied in Hawaii;

2) In much of the public discussion, the impacts allegedly associated with application of this technology in Hawaii are based on conditions and processes that are not relevant to any potential application of hydro-fracturing technology in Hawaii's geology;

3) Many, if not all, the adverse impacts of the use of hydro-fracturing can be mitigated, if not completely eliminated, through proper regulation of the time, the place, and the methods of its application;

4) The bill, as currently written, doesn't adequately characterize the technology, nor does it specify sufficient limitations, that will prevent mis-application of the law to what are now ongoing and permitted processes in Hawaii.

Protection of the public, and our natural resources, are essential to the beneficial application of any new technology. We have a regulatory structure that is charged with that responsibility. Rather than banning the use of this technology, a more appropriate approach is to direct those agencies responsible for protection of groundwater and regulating the

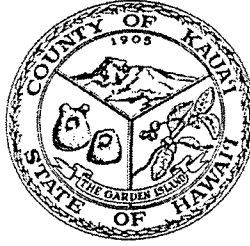
installation and use of injection wells, the DLNR and DOH, to develop administrative rules applicable to hydro-fracturing and injection of fluids into underground formations.

Thank you for this opportunity to offer testimony.

This testimony reflects my views alone and is not an official statement of the University of Hawaii.

COUNTY COUNCIL

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Tim Bynum
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Council Services Division
4396 Rice Street, Suite 209
Līhu'e, Kaua'i, Hawai'i 96766

February 11, 2014

**TESTIMONY OF GARY L. HOOSER
COUNCILMEMBER, KAUA'I COUNTY COUNCIL
ON
SB 2940, RELATING TO THE ENVIRONMENT
Committee on Water and Land
Committee on Energy and Environment
Wednesday, February 12, 2014
1:15 p.m.
Conference Room 225**

Dear Chair Solomon, Chair Gabbard and Committee Members:

Thank you for this opportunity to submit testimony in support of SB 2940, prohibiting hydraulic fracturing in the State of Hawai'i. My testimony is submitted in my capacity as the Economic Development (Sustainability / Agriculture / Food / Energy) & Intergovernmental Relations Committee Chair and Councilmember of the Kaua'i County Council.

Hydraulic fracturing, also known as "fracking," is a technique to extracting natural gases well below the earth's surface. This process is widely developing across America and involves a great amount of water, sand, and chemicals which are mixed together and pumped underground to divide rocks, releasing the natural gases.

Until there is a clear understanding of what the health and environmental impacts are, the State of Hawai'i should move forward with prohibiting hydraulic fracturing in our islands, as it is government's responsibility to protect the health and well-being of our citizens.

For the reasons stated above, I encourage this Committee to unanimously pass SB 2940. Again, thank you for this opportunity to submit testimony.

Sincerely,

GARY L. HOOSER
Councilmember, Kaua'i County Council

AB:aa

Support of SB2940
Support of HB2359
Support of HB1766/Repeal 97

Oppose HB2639/HD1
Oppose SB2663
Oppose HB1584

Helene Love 982-6433
Helene Love 982-6433

Helene Love 982-6433
Helene Love 982-6433
Helene Love 982-6422

NO TO FRACKING IN HAWAII (don't let Big \$\$ decide—this is our home; our world). When you push this paperwork around, give special numbers, sign and file, be sure you are doing what is right for our environment and don't accept corporation lies—seek the truth and keep Hawaii, Hawaii. Just because governments sign papers doesn't make any of it law to me; we all are responsible for each other and our lands on earth. We know we have plenty of sun to work with.

Are the risks worth the gains? *Fracking* has too many risks and our small land mass and weak rift zones won't handle the *fracking* impacts. *Fracking* uses more intensity, chemicals, and there's greater risks to water and land. And don't ruin the Big Island for the sake of power for other islands.

Has Big Island ever had beginning to end “Standards of Operating Procedures” with input from professionals from all fields, even when **drilling** straight down into a volcano on Zone 1, yet alone, *fracking*. Even today, after hundreds of thousands of *fracking* sites around the world, there are still unforgivable mistakes made to environments and humans and **drilling** in Hawaii will be “hits and misses” that no scientist can predict on our porous hot lands. Check Pele lately?????!!!!

All the risks with **any type** of drillings should be identified, first, with “what if plans” in place!!! What can go wrong during earthquakes, eruptions, or blowouts? Who's responsible?

The *corporate fracking industry* lies to property owners, drills more holes and closer to homes than told, drills *under* private properties, destroys the land and entire towns, rivers, lakes, fish, livestock, soils for planting, water, air, and forces generations of family-owned property owners out of town, (while having to pay for and deal with major health issues caused by *fracking*).

Corps don't care about lives being destroyed. *Fracking* in Hawaii won't be any different. Look how long Puna residents have been trying to protect their mental and physical health and their proudly-owned properties, while having no laws in place. Again, *fracking* corps. run our gov. and changed the environmental laws to suit their toxic money, even to the point of talking BLM to give up millions of acres of Federally protected lands to this, presumably, “safe renewable energy.”

When was the last time the water/aquifers and soil was checked for all contaminants at existing PGV? Do so now, before any new drilling may take place.

Who's responsible for the total “clean-up/over-sight” of the existing PGV plant—when? If PUC/HELCO insists on drilling, can the existing plant be up-graded with more MW enhancement, instead of more drill sites having to take place? **Drilling** or *fracking* in the wrong place or too close to any existing fractures may cause much bigger impacts than anybody can predict.

No *fracking* for electricity; no *fracking* or **drillings** for electricity used by other islands. Elect. for B.I. only.

The *fracking* process includes hundreds of toxic chemicals; some chemicals new and unknown to science.

Fracking won't keep Hawaii's land, water, aquifers unaffected; **no matter what type of drilling**, there are toxins involved.

Know all chemicals used and being brought into Hawaii for any type of geothermal methods.

No *fracking* or **drilling** that involves drilling underneath others properties

Drilling company finances (up-front) a fund to be used for any damages incurred to area and our roads. Safe *fracking* methods proposed by President Obama are not safe and they either lied to the public or

were being lied to while mainland drill sites were put in at an “unimaginable” alarming speed. Hawaii has no *fracking-trained* engineers/environmentalists and didn't even have their own hydrogen-sulfide meters to protect the citizens forced to live with this worry.

What pre-planning has been completed for the six geothermal contracts sitting with HELCO; shouldn't this be categorized as “Industrial,” versus residential, agriculture, and recreational? What will the drilling method be, certainly no newly disguised “proprietary” *fracking* name.

There can be no *fracking or drilling* involving the collection of any other earth elements.

City and County departments should receive monies from fracking company for water used, disposal of any environmental toxins (even tho' we know there won't be any), tearing down and cleaning site after use, payment for lawyers needed by residents if issues occur.

Drill in specific “Industrial Site” area far away from any housing areas; no more drilling in Puna (how about at the military PTA site, instead of preparing for killing wars). Better yet, contractors can pour their money and invent sun and wind energy at PTA and show a new positive direction for military use.

From: mailinglist@capitol.hawaii.gov
To: [WTLTestimony](#)
Cc: krhunthawaii@yahoo.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Tuesday, February 11, 2014 12:36:52 PM

SB2940

Submitted on: 2/11/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Kenneth R Hunt	Individual	Support	No

Comments: I want to go on record that I am support of this bill as it is currently written. I believe it is in the best interest of the taxpayers and the aina that we do not yield to profiteers looking for short term solution at the expense of the environment and common sense. There are major technological break throughs such as "SUN GAS" <http://www.uncommonwisdomdaily.com/reports/GRH/0123/v/?> which will totally change the perceived for just dangerous measures that have increased earthquakes, caused water pollution and the likes all over the mainland. I trust common sense with prevail and thank those who sustain my faith in them to do the right thing. Yours For Sound Action, Kenneth R. Hunt P.O. Box 492658 Keaau, Hi 96749
Community.Solutions@mail.be 808-982-8392

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Honorable Sirs and Madams,

I am writing in strong support of SB 2940 which will prohibit hydraulic fracturing and the collection, storage, treatment, or discharge of wastewater from hydraulic fracturing, as well as providing for penalties and enforcement. I am opposed to traditional fracking AND enhanced geothermal tracking because the problematic history of this technology, which demonstrates its hazardous effects on the environment and on people. In further support of why SB 2940 should be passed I offer the following brief summary of my concerns.

Earthquake damage

In another report, the USGS stated that "It has long been understood that earthquakes can be induced by impoundment of water in reservoirs, surface and underground mining, withdrawal of fluids and gas from the subsurface, and injection of fluids into underground formations."

(http://www.usgs.gov/blogs/features/usgs_top_story/man-made-earthquakes/) In another recent report the USGS present results of their analysis in showing that shortly after hydraulic fracturing began at a site in Oklahoma, "small earthquakes started occurring, and more than 50 were identified, of which 43 were large enough to be located. Most of these earthquakes occurred within a 24 hour period after hydraulic fracturing operations had ceased."

http://www2.seismosoc.org/FMPro?-db=Abstract_Submission_12&-sortfield=PresDay&-sortorder=ascending&-sortfield=Special+Session+Name+Calc&-sortorder=ascending&-sortfield=PresTimeSort&-sortorder=ascending&-op=gt&PresStatus=0&-lop=and&-token.1=ShowSession&-token.2=ShowHeading&-recid=224&-format=%2Fmeetings%2F2012%2Fabstracts%2Fsessionabstractdetail.html&-lay=MtgList&-find This was referred to as an "earthquake swarm."

Well Blowouts

One only needs to review the history of blowouts (as early as 1991) and piping failures (as late as November 2012) to see that the nature of geothermal development in Hawaii is hazardous to people and the environment. This record of problems is well-documented by organizations such as the Puna Pono Alliance (www.punapono.com).

Pollution

Again, one only need look at the health problems caused by PGV operations in Puna to understand the potential health risks associated with geothermal. The Geothermal Public Health Assessment Final Report (<http://punapono.com/docs/health/Report.pdf>) outlines these dangers.

Water Disposal

While it may be true that cold water will be drawn from the ocean for injection into wells it is also true that chemicals will likely be added to create the "proprietary" geothermal fracking fluids. Because of their proprietary nature we know nothing about their potential health effects. However, there are many examples of this danger. For

example in a recent report, the USGS announced that “After the spill of hydraulic fracturing fluid, state and federal scientists [in Arkansas] observed a significant die-off of aquatic life in Acorn Fork.”

(<http://www.usgs.gov/newsroom/article.asp?ID=3677#.UvpgD0JdWmE>) Alta Rock’s data from Oregon suggest that absurd amounts of water, on the order of hundreds of millions of gallons, will be necessary to create the reservoir size necessary for enhanced geothermal. It is inconceivable that waste water from this development can be contained and/or decontaminated effectively, especially if there is a blowout.

Reservoir Size

Cold water is injected into hot rock to propagate cracks throughout the rock to create a reservoir. Results from existing enhanced geothermal projects (e.g. AltaRock Corporation in Oregon) suggest that the necessary reservoir size is one kilometre cubed. The USGS in Hawaii has estimated that the lithosphere overlying hot magma along the East Rift Zone in Puna is only two kilometers. The high frequency of steam vents further suggests that the lithosphere thickness is irregular and may even be less than a kilometer in many places. Thus, the creation of a one kilometer reservoir by enhanced geothermal will likely result in a high probability of dangerous side-effects such as earthquakes, blowouts, and release of hazardous gasses.

Sincerely,
Kris Wilhelmsen
13-1283 Malama St.
Pahoa, HI 96778

From: mailinglist@capitol.hawaii.gov
To: [WTLTestimony](#)
Cc: nasisu@hotmail.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Tuesday, February 11, 2014 10:10:17 AM

SB2940

Submitted on: 2/11/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Nancy Kahalewai	Individual	Support	No

Comments:

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Cc: alternet05@aol.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 9:45:18 AM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Natasha	Individual	Oppose	No

Comments: There is a mounting evidence all over the world that fracking is devastating for both environment and humans.

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From: mailinglist@capitol.hawaii.gov
To: [WTLTestimony](#)
Cc: dearpauline@hotmail.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Tuesday, February 11, 2014 11:16:43 AM

SB2940

Submitted on: 2/11/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Pauline Mac Neil	Individual	Support	No

Comments: Testimony In Support of SB2940 Relating to the Environment: Conservation; Mining and Materials; Hydraulic Fracturing Hearing 2/12/14; 1:15PM Conference Room 225 Dear Senators Ruderman, Ing, Ihara, Shimabukuro and L. Thielen, Thank you for introducing a bill to prevent hydraulic fracturing and the collection, storage, treatment, or discharge of wastewater from hydraulic fracturing in Hawaii. I ask the Chairs and members of the committees on Land and Water, Energy and Environment and Judiciary and Labor to support this forward thinking legislation. While advances have been made in geothermal technology (<http://www.technologyreview.com/news/520361/fracking-for-geothermal-heat-instead-of-gas/>) we do not as yet know the geologic impact underground explosions will have on our dike systems, adequately understand the affects of interactions between chemicals used in fracking and hydrothermal gases, or if and how lost water carrying chemicals would reach our ground water. (<http://hi.water.usgs.gov/studies/GWRP/hydrogeology.html> Since the technology is still in its early stages of development it would be wise to err on the side of caution and ban geothermal fracking in the state until it can be determined with a relative degree of professional and scientific certainty that it will not result in the contamination of our limited drinking water or the destabilization of our dike systems. Please support SB2940 and vote YES to prohibit hydraulic fracturing in Hawaii. Mahalo, Pauline Mac Neil Kailua, HI 96734

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Thomas Lee Travis

RR 2 Box 3317

Pahoa, HI 96778

email: ttravis12@mac.com

mobile: (757) 639-7364

Testimony on SB 2940 for Hearing on February 12, 2014

Members of Water and Land and Energy and Environment:

This testimony is in strong support of Senate Bill 2940 to ban hydraulic fracturing, hereafter referred to as fracking.

Some have said that there needs to be no state attention to fracking because there is no oil and gas in Hawai'i. Although it is certainly true there is no oil and gas in Hawaii, fracking to enhance development of geothermal resources is a possibility. Others have said that no one in Hawaii has declared an intent to frack while developing geothermal resources. But 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.

Finally there are the lessons learned from the Gulf Oil Spill.

- Industry capability so far exceeded the capability of the regulators, the regulators had to rely on industry to know what was happening. The regulators could not understand what industry was doing.
- There was also a problem with regulatory capture. When the regulatory agency became incapable of regulating industry, the regulatory agency shouldered up to industry. Regulators became much more comfortable with those from industry than with those who raised questions about risk in industry actions.
- Regulatory incompetence and capture were exacerbated. The regulatory agency had the second task of collecting fees and taxes from industry, important money used in governmental budgets. As a consequence the regulatory agency was headed by a financial expert adept at collecting fees and taxes rather than an engineer that might have understood the industrial processes used.

Lessons from the Gulf Oil Spill and from lack of regulation in California demonstrate the importance of the State getting ahead of coming technological processes that may be used. If the state is unwilling to expand the capital and energy to establish a forward-looking regulatory framework, the state should ban the industrial process to be used.

I strongly support the ban proposed in SB 2940.

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

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 (H₂S release)
 - ❖ Potential 930 foot steam and chemical plume during flow testing
 - ❖ Access to public trails and paths
 - ❖ Road building

AltaRock's Effort in Oregon--Community Involvement

- ❖ In Oregon the community involvement included:
 - ❖ Two meetings and two locations
 - ❖ A tour of the site
 - ❖ Newspaper articles

Hawai'i Regulation of Enhanced Geothermal Fracking

❖ In 2013 an attempt to ban hydraulic fracking, Senate Bill 375, did not make it from committee. Testimony against the bill included an influential lawyer speaking for a geothermal company.

Hawai'i Legislative Issues for Consideration

❖ Before allowing EGS projects the State might consider:

❖ How to protect the environment and water resources while providing access to a substantial supply of water to form an artificial reservoir. The need for a constant supply of additional water to make up for expected constant loss of water during geothermal production must also be considered.

❖ How to estimate risks of induced seismicity and to control and regulate those risks.

❖ How to place a major industrial activity inside a framework that gives the community voice and protects social, cultural, and economic interests

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SB2940

Submitted on: 2/6/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Teresa Parsons	Individual	Support	No

Comments: Senators, While I cannot imagine why anyone would even remotely consider Fracking in Hawai'i, I applaud your efforts to halt it before anyone begins to think of it. We live on volcanic land which is subject to earthquakes and shifting. Fracking has the potential to significantly exacerbate the risks to all types of life by creating a more unstable environment and risking dangerous waste water being leached into our precious aquifers. I STRONGLY SUPPORT this measure to prohibit Fracking in Hawai'i. Mahalo for the opportunity to submit testimony.

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SB2940

Submitted on: 2/5/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Lyn Howe	Individual	Support	No

Comments: We cannot afford to contaminate our groundwater and the ocean fisheries habitat. Thank you for presenting this bill. I fully support it.

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SB2940

Submitted on: 2/6/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Paul Kuykendall	Individual	Support	No

Comments: I support a ban on geothermal fracking in the State of Hawaii. State regulators have proven inept at regulation of the geothermal industry to date and the additional risks from enhanced geothermal systems (EGS) fracking create risk without promise of gain. Fracking has at least three important impacts on communities: • Geothermal fracking requires large quantities of water. Nuisance of transport of the needed water, danger to quality of fresh water by usage of large amounts of water, and competition for other uses of water are consequences. • The fracking process can break up formations allowing contamination of fresh water aquifers. • The fracking process causes earthquakes. There is evidence that fracking can trigger earthquakes along faults and under some circumstances the induced earthquakes can be destructive. Creation of geothermal resources through the use of EGS requires technical expertise in an emerging field. In such a situation, State and Federal Regulators have typically fallen behind in both the talent of the regulators and the quality of the regulations. This was a contributing factor to the BP oil spill and has contributed to many of the issues. Hawaii has proven itself incapable of effectively and professionally regulating the geothermal industry to date: • The Department of Health monitors H2S at Puna Geothermal Venture using three sites administered by industry and one site administered by the State. Driving the decision to use this inadequate scheme has been lack of funding. The Big Island position in the DOH has been vacant for much of the past few years. • The Department of Land and Natural Resources has not had expertise to understand drilling of geothermal injection and production wells at PGV over the last several years, as evidenced by hiring actions initiated as late as the summer of 2013. • The Adler Report found many aspects of State regulation wanting. Please support this bill and protect the health and safety of the people of Hawaii and the Aina.

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SB2940

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Submitted By	Organization	Testifier Position	Present at Hearing
Javier Mendez-Alvarez	Individual	Support	No

Comments:

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SB2940

Submitted on: 2/7/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
joy cash	Individual	Support	No

Comments: Kindly protect our water and reefs by passing this bill.

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SB2940

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Submitted By	Organization	Testifier Position	Present at Hearing
Katarina Culina	Individual	Support	No

Comments: Aloha Committee Chair, Vice Chair and Members, Please support SB 2940 relating to Fracking. Experience of mainland communities that are having their land fracked has shown: dangers of well water/aquifer contamination, triggered seismicity, enormous amounts of water use and failure of government agencies to regulate the industry that uses fracking, to name a few. Please be proactive in protecting public's health and safety, as well as our environment's. Mahalo! Katarina Culina P.O. box 2142 Paho, HI 96778

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SB2940

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Submitted By	Organization	Testifier Position	Present at Hearing
Mary Regina Miller	Individual	Support	No

Comments:

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SB2940

Submitted on: 2/7/2014

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Submitted By	Organization	Testifier Position	Present at Hearing
Shannon Rudolph	Individual	Support	No

Comments: STRONGLY SUPPORT. The further one lives from geothermal activities, the more appealing it is. I support a fracking ban in Hawai'i, you'd have to be deaf and dumb to not know the dangers to the surrounding communities by now. Please learn from others mistakes. Please Support this bill for a healthful Hawai'i.

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SB2940

Submitted on: 2/7/2014

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Submitted By	Organization	Testifier Position	Present at Hearing
Brad Parsons	Individual	Support	No

Comments: We don't need fracking of any kind in Hawaii.

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SB2940

Submitted on: 2/7/2014

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Submitted By	Organization	Testifier Position	Present at Hearing
David Dinner	Individual	Support	No

Comments: The side effects of tracking demand that we find other alternatives for our energy needs.

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SB2940

Submitted on: 2/7/2014

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Submitted By	Organization	Testifier Position	Present at Hearing
Caroline Kong	Individual	Support	No

Comments: Some MAJOR points to consider: DANGER OF WELL/AQUIFER CONTAMINATION, TRIGGERED EARTHQUAKES, ENORMOUS AMOUNTS OF WATER USE, GOV'T AGENCIES' FAILURE IN REGULATING THE INDUSTRIES THAT USE FRACKING. ***** The further one lives from geothermal activities, the more appealing it is. I support a fracking ban in Hawai'i. (geothermal hydraulic fracturing - NOT just in Puna folks!) Please educate yourself about the EXTREME dangers to the surrounding communities caused by fracking (sinkholes are another: there is a MASSIVE one in Louisiana, you can Google it!). Please learn from others mistakes. Mahalo for your keen attention to this important issue facing our communities, Caroline Kong Please Support these bills for a healthful Hawai'i.

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SB2940

Submitted on: 2/7/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Andrea Rosanoff	Individual	Support	No

Comments: I truly hope and trust you will support this important bill for Hawaii, SB2940 - the anti-fracking bill. Fracking is VERY water intensive, and in fact the magazine publication of the American Chemical Society spelled out in a recent comprehensive article that worldwide fracking activities will indeed run in to conflict with the coming water shortage for human existence. We don't need that kind of pressure in Hawaii. Let's just not even start it. You don't want to have to make future decisions on a large fracking operation vs. real water needs of your constituents. Hawaii does not need fracking now, and probably never will. Let's not go there. Thank you for considering this sane and "preventive" legislation. A. Rosanoff, Ph.D. 13-1255 Malama St. Pahoia, HI 96778 808-965-7061

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SB2940

Submitted on: 2/7/2014

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Submitted By	Organization	Testifier Position	Present at Hearing
Barbara Barry	Individual	Support	No

Comments: Do NOT allow geo fracking in Hawaii or the waters around Hawaii. This is a poisonous and dangerous activity and will poison the water,land, air and ocean. It will also hurt the people and destroy tourism. It is noisy, ugly and does not protect the 'aina which is ours to preserve for the next 100 generations. What would the ancestors say? Absolutely support this ban please. Aloha, Barbara Barry

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SB2940

Submitted on: 2/7/2014

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Submitted By	Organization	Testifier Position	Present at Hearing
Paul A. komara, Jr.	Individual	Support	No

Comments: The disaster that has been created by hydraulic fracturing of the earth cannot be denied. The West Virginia case of water contamination by the chemicals alone is enough evidence...and in Texas and other states, people have actual flammable water coming out of the potable water. This is insane. It just may be another Agenda 21 activity to force people into control centers...No FRACKING ON or near the Islands of Hawaii.

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SB2940

Submitted on: 2/7/2014

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Submitted By	Organization	Testifier Position	Present at Hearing
denise woods	Individual	Support	No

Comments: Please Ban fracking in Hawaii. We have so many other resources that do not pose the environmental and health risks that fracking does. Protect the environment and pass this bill.

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SB2940

Submitted on: 2/7/2014

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Submitted By	Organization	Testifier Position	Present at Hearing
Jack Weber	Individual	Support	No

Comments: I am a physician here in Hawai'i and I strongly support no fracking anywhere in the state. Mahalo

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SB2940

Submitted on: 2/8/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Susan Douglas	Individual	Support	No

Comments:

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SB2940

Submitted on: 2/8/2014

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Submitted By	Organization	Testifier Position	Present at Hearing
William Navran	Individual	Support	No

Comments:

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SB2940

Submitted on: 2/8/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Christopher Biltoft	Individual	Support	No

Comments: The onus should be on proponents of hydraulic fracturing to prove that their proposed actions are safe and environmentally responsible.

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Submitted on: 2/8/2014

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Submitted By	Organization	Testifier Position	Present at Hearing
Bill Smith	Individual	Support	No

Comments: I strongly support a prohibition of geothermal fracking in Hawai`i. A January 2013 Civil Beat report said, "Susan Petty, president of Seattle-based AltraRock Energy, says that geothermal fracking ... involves a technology called hydro-shearing ... water is pumped down wells into the reservoir to expand existing cracks ... She said her company considered bidding on a project in Hawaii, but likely won't because it doesn't own the land needed to conduct an operation." Alta Rock, the world's #1 geothermal fracking company, said they could have a bid in the HELCO geothermal RFP if they had the land. Don Thomas has referred to geothermal fracking as a worthy technology and is doing research that seems related to it, as noted in the same article: "He is currently leading a team of university researchers and scientists from the Lawrence Berkeley Lab, to study whether there are lower-intensity geothermal resources that can be tapped throughout the state.... Thomas said he doesn't understand why [Senator Russell] Ruderman would want to try to close off geothermal development that could help power Hawaii's energy needs before there are any proposals." Just Google geothermal fracking to find numerous reasons why it should be prohibited (induced seismicity, water consumption, etc.)

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SB2940

Submitted on: 2/9/2014

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Submitted By	Organization	Testifier Position	Present at Hearing
Patricia Blair	Individual	Support	No

Comments: Ban fracking in Hawaii!

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SB2940

Submitted on: 2/9/2014

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Submitted By	Organization	Testifier Position	Present at Hearing
Sunny Savage-Luskin	Individual	Support	No

Comments:

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Cc: tomspring@juno.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 7:57:39 AM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Thomas Spring	Individual	Comments Only	No

Comments: I support SB2940.

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Cc: davinci5@mac.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Sunday, February 09, 2014 8:07:21 AM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Scott Stoddard	Individual	Support	No

Comments:

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From: mailinglist@capitol.hawaii.gov
To: [WTLTestimony](#)
Cc: kris@kimnkris.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 8:18:44 AM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Kris wilhelmsen	Individual	Support	No

Comments: Honorable Sirs and Madams, I am writing to urge your strong support of SB 2940 which prohibits hydraulic fracturing and the collection, storage, treatment, or discharge of wastewater from hydraulic fracturing. The Hawaiian landscape is a dynamic volcanic terrain. People who live in Hawaii do so with the knowledge that their homes and their livelihood may be destroyed at any time by volcanic eruptions, lava flows, earthquakes and tsunamis. These potentially catastrophic natural events are inevitable, yet people accept this risk to enjoy the island lifestyle and the unique Hawaiian traditions. Human alterations of the landscape, however, especially ones that hasten species demise or that increase the probability of property loss or loss of health, are things that can and should be regulated. These are risks that should be mitigated by the State of Hawaii in order to protect the health and welfare of its inhabitants. If our legislators are truly representing the people, and protecting the people, they should vote to minimize the potential risks of such human/corporate endeavours. The Puna District stands out as a prime example of where this is NOT happening. Geothermal development and expansion continues along the East Rift Zone in spite of the fact that: * operations occur within densely populated communities * future operations are slated for densely populated communities and prime agricultural lands * this is the fastest growing district in population * this is the most tectonically unstable region * blowouts have occurred in the past, releasing toxic gases * the industry has a poor record of managing and reporting incidents * the people of the Puna District are strongly opposed to tracking and geothermal. Thus, I strongly urge you to vote in favor of SB 2940. Respectfully, Kris Wilhelmsen
13-1283 Malama St, Paho, HI 93778

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Cc: begoniabarry@gmail.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 8:36:02 AM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Barbara Barry	Individual	Support	No

Comments: I support a total ban on fracking now and forever. Why frack these Sacred Islands? Fracking is known to poison the soil, air, water and land with the toxic chemicals they inject into the earth. There are many better ways to create energy. The wind and the sun come to mind. Protect the 'aina and keep the people safe. The ancestors cared for the land for you and it's your job to protect it for the next 100 generations. Send the Fracking Corporations Packing! Thank you, Barbara Barry

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Cc: hourandahalf@icloud.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Sunday, February 09, 2014 9:38:50 AM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Rosemarie Patronette	Individual	Support	No

Comments:

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Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Sunday, February 09, 2014 9:44:29 AM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Susan Douglas	Individual	Support	No

Comments:

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SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Susan Douglas	Individual	Support	No

Comments:

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Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 10:13:14 AM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Josiah Jurich	Individual	Support	No

Comments: I have experienced the consequences of fracking first hand while visiting family on the mainland. Please help defend the land and the health of the people, support SB2940. Mahalo Nui Loa.

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Cc: ricketyr@sbcglobal.net
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 10:46:36 AM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Marie Fontana	Individual	Support	No

Comments: We have plenty of sustainable, clean energy sources. No need to further poison our land and its people.

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To: [WTLTestimony](#)
Cc: sustainablesakala@gmail.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Sunday, February 09, 2014 1:24:59 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Steve Sakala	Individual	Support	No

Comments:

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Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Sunday, February 09, 2014 2:38:46 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Dana G. Moss	Individual	Support	No

Comments:

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Cc: sherrianwitt@aol.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 3:09:36 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
sherrian witt	Individual	Support	No

Comments: NO FRACKING....Research shows that fracking causes earthquakes and ruins the water in the table water... I support this measure against Fracking.

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Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Sunday, February 09, 2014 3:26:54 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Brad Parsons	Individual	Support	No

Comments:

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Cc: ja@malu-aina.org
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 4:00:32 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Jim Albertini	Malu 'Aina	Support	No

Comments: Our organization supports this bill to ban fracking which is proving to cause all sorts of problems to people, land, water, etc. Mahalo. Jim Albertini, president

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To: [WTLTestimony](#)
Cc: rogerstrong1@gmail.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 4:04:58 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
roger strong	Individual	Support	No

Comments: Protect Hawaii's fresh water.

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Cc: rogerstrong1@gmail.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 4:05:06 PM

SB2940

Submitted on: 2/9/2014

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Submitted By	Organization	Testifier Position	Present at Hearing
roger strong	Individual	Support	No

Comments: Protect Hawaii's fresh water.

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Cc: jemray@hawaii.rr.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 4:45:30 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Jan Murray	Individual	Support	No

Comments: I support SB2940. Mahalo.

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Cc: cjinhi@yahoo.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 4:48:01 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Carol Janezic	Individual	Support	No

Comments: Fracturing and geothermal fracturing are too dangerous and can leave our population vulnerable to increased earthquakes, unstable rock and spoiled water supplies. We have cleaner, safer means to obtain energy, and we should be using those -- not fracturing or geothermal fracturing.

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Cc: mmcardle19@aol.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 5:52:36 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Peggy McArdle	Individual	Support	No

Comments: Hydraulic Fracking uses copious amounts of water combined with toxic chemicals that contaminate the ground water supply. Fracking is not compatible with the health of Hawaii's Fragile Ecosystem. Mahalo.

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Cc: ahuntemer@aol.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 6:01:20 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Angela Huntemer	Individual	Support	No

Comments: I support SB2940. There is noway we can take risks with our water table. Our aquifers are fragile and already threatened by other factors - No fracking in Hawaii.

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Cc: lucialyou@gmail.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Sunday, February 09, 2014 6:25:26 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Lucia You	Individual	Support	No

Comments:

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Date: Sunday, February 09, 2014 6:46:32 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Susan Bambara	Individual	Support	No

Comments: I support this bill PROTECTING the aina from fracturing. Mahalo.

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Cc: oceanspiritvacation@gmail.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Sunday, February 09, 2014 7:02:10 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Randall Shipp	Individual	Support	No

Comments:

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Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Sunday, February 09, 2014 8:36:19 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
claudia rice	Individual	Support	No

Comments:

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Cc: ashinasunshina@gmail.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 8:42:16 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Ashina Ashina	Individual	Support	No

Comments: Hawaii has an abundance of sun, wind and biofuel opportunity, and these are truly clean, environmentally friendly, renewable energy solutions.

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SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Alex Karp	Individual	Support	No

Comments: I strongly support this bill

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SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
joy cash	Individual	Support	No

Comments:

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SB2940

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Submitted By	Organization	Testifier Position	Present at Hearing
fred hofer	Individual	Support	No

Comments:

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Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 9:05:42 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Avi Okin	Individual	Support	No

Comments: Fracking is a dangerous practice which can and probably will corrupt water and nearby oceans for generations to come. It should never be allowed. It is already showing up causing large health problems where it is used now.

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Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 9:20:56 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Theodore Banta	Individual	Support	No

Comments: I am in strong support of SB2940 (Ban Fracking)

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Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Sunday, February 09, 2014 9:35:01 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
janice palma-glenie	Individual	Support	No

Comments:

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Cc: lesliewingate7@gmail.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Sunday, February 09, 2014 9:49:04 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Leslie Wingate	Individual	Support	No

Comments:

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Cc: veganmom@gmail.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 9:52:29 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Dena Smith	Individual	Support	No

Comments: I ask that you please support SB2940. Mahalo!

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Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Sunday, February 09, 2014 9:55:53 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
alicia morrier	Individual	Support	No

Comments:

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Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Sunday, February 09, 2014 10:03:27 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
James Hedgecock	Individual	Support	No

Comments:

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Cc: tia.pearson@gmail.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Sunday, February 09, 2014 10:54:48 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
tia pearson	Individual	Support	No

Comments: We already have a water shortage and fracking will make it worse since it uses a lot of fresh water. Not only that, fracking will dump over 5000 toxic chemicals onto our fragile environment. More evidence is showing as well that fracking creates earthquakes.

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Cc: kauaihale@gmail.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Sunday, February 09, 2014 11:03:04 PM

SB2940

Submitted on: 2/9/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Louisa Wooton	Individual	Support	No

Comments:

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Cc: yorkcarlton@gmail.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Monday, February 10, 2014 4:09:11 AM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Carlton York	Individual	Support	No

Comments:

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Cc: acandjc@hawaiiintel.net
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 9:42:33 AM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Adam Carlson	Individual	Support	No

Comments: I support bills SB2940 and HB2359 to ban fracking in Hawaii.

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From: [ENETestimony](#)
To: [WTLTestimony](#)
Subject: FW: BAN FRACKING IN HAWAII
Date: Monday, February 10, 2014 9:46:45 AM
Importance: High

From: Katharine Owen [mailto:RNKOWEN@gmail.com]

Sent: Sunday, February 09, 2014 11:51 AM

To: ENETestimony; All Senators; All Reps

Subject: BAN FRACKING IN HAWAII

Importance: High

I support bills SB2940 and HB2359 to ban fracking in Hawaii

- 1) There are numerous recent government studies that conclude fracking induces earthquakes, including geothermal fracking.
- 2) The Geothermal plant in Puna has not reduced Hawaii County energy costs, despite the promise to Hawaii residents.
- 3) Some (particularly those financially connected to the industry) will try to distance geothermal from fracking, however if pumping high pressure fluid into the earth fractures the rock, it is not good for Hawaii, period.
- 4) If those same industry sources do not plan on fracturing the land, then they should not be concerned with this bill.
- 5) Hawaii has an abundance of sun, wind and biofuel opportunity, and these are truly clean, environmentally friendly, renewable energy solutions. WE SHOULD BE CONCENTRATING ON THESE SOLUTIONS.

So far there does not seem to be a SAFE way to do fracking; so it is definitely NOT something that Hawaii should be doing.

Mahalo for your consideration,
Katharine Owen

From: mailinglist@capitol.hawaii.gov
To: [WTLTestimony](#)
Cc: alternet05@aol.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 9:50:51 AM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Natasha	Individual	Support	No

Comments: Fracking is DEVASTATING for the environment!! I strongly support this bill.

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Cc: aloha@ecohostelhawaii.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 9:52:38 AM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
derek brewer	Eco Hostel Hawaii	Support	No

Comments: Aloha, The Big Island of Hawaii previously passed bills banning fracking on our island. There has been numerous accidents and problems associated with fracking. Several countries have banned the process. The amount of water required is in the millions of gallons and is a complete mismanagement of our resources. Hawaii has been in a drought for over 5 years and it would be impudent to waste our valuable and limited water resources. Please pass this bill thanks you

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Cc: mendezj@hawaii.edu
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Monday, February 10, 2014 10:00:03 AM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Javier Mendez-Alvarez	Individual	Support	No

Comments:

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Cc: deborah@imaginariums.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
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SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Deborah Davis	Individual	Support	No

Comments:

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Cc: norris@aktivix.org
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 11:17:46 AM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Norris Thomlinson	Individual	Support	No

Comments: We have so many examples around the world of the devastation fracking wreaks on local landbases, from poisoned water tables to increased seismic activity to the clearing of fracking sites. The minimal potential benefit to Hawaii residents is drastically outweighed by the risks; we don't need to become another bad example of fracking impacts. We need to be proactive about protecting ourselves from outside corporate interests who don't care about sacrificing our land and our health for their own profit. Please pass this bill!

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Cc: kmrbmort@aol.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 11:28:34 AM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Robert ortman	Individual	Support	No

Comments: I support SB 2940. The people of Hawaii and Kauai have already banned fracking which has done nothing but destroy the aina throughout the U.S.

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Cc: caridder2@netzero.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Monday, February 10, 2014 12:16:30 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Catherine Ridder	Individual	Support	No

Comments:

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Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Monday, February 10, 2014 12:18:05 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Margaret Maupin	Individual	Support	No

Comments:

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Cc: paul@punapono.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 1:01:10 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Paul Kuykendall	Individual	Support	No

Comments: I strongly support this bill which will ban Fracking in Hawaii. Geothermal Fracking has the following issues: • Water Use. Fracking and filling the geothermal reservoir can use hundreds of millions or billions of gallons of water. Geothermal fracking uses over many times the water of oil gas/well fracking. (An oil or gas well uses 3 to 8 million gallons in its lifetime, one geothermal well in Oregon will use 122 million gallons in two years) • Water Contamination. The fracking process can cause vertical cracking, contaminating the fresh water above the geothermal resource. Well blowouts, unlikely but common accidents, can also contaminate drinking water. • Earthquakes. Earthquakes have shut down several geothermal projects, sometimes permanently, and damage claims from earthquakes have been paid by other projects. It takes up to several months for earthquakes to subside after halting the EGS project. • Social, economic, and cultural impact on the community. Issues include truck and other traffic on narrow or busy roads, noise impact, creation of water shortages or degradation of water quality from over-use, unabated or abated release of hydrogen sulfide (a poisonous, foul smelling gas), potential steam and chemical plumes during flow testing, restricted access to public trails and paths, and the need for extensive road construction. For these reasons, I ask you to oppose Fracking and support this bill.

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Cc: steve_hirakami@notes.k12.hi.us
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 1:12:32 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Steve Hirakami	Individual	Support	No

Comments: It makes no sense to allow "fracking" or hydraulic fracturing to occur in a State that is already subjected to seismic activity and relies on groundwater for drinking. All one has to do is be informed of the many negative incidents that have happened around the world to make a favorable attempt to support this bill.

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Cc: lynhowe1946@yahoo.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Monday, February 10, 2014 2:07:33 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Lyn Howe	Individual	Support	No

Comments:

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To: [WTLTestimony](#)
Cc: rkayelny@gmail.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Monday, February 10, 2014 2:25:59 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Robin Kaye	Individual	Support	No

Comments:

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Cc: jgelert@yahoo.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 3:01:25 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
John Gelert	Individual	Support	No

Comments: Please ban fracking in Hawaii! Even if there is no oil in Hawaii, ban this toxic type of mining for anything!

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Date: Monday, February 10, 2014 3:08:14 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Vicki Vierra	Individual	Support	No

Comments: I strongly support SB2940. Hydraulic fracturing is deleterious to the environment in so many ways. Using this poorly conceived technology on a live volcano is a very bad and foolish idea. The only people to benefit from fracking are the owners of the well - everyone else will suffer from it sooner or later.

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Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 3:25:57 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Allan Reaves	Individual	Support	No

Comments: NO FRACKING!

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Cc: hello_karen@rocketmail.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Monday, February 10, 2014 3:40:08 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Karen Martinez	Individual	Support	No

Comments:

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Cc: islandeyesvideo@yahoo.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 3:49:31 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Mary Marvin Porter	Individual	Support	No

Comments: Fracking can cause earthquakes and pollute the water. I strongly support SB2940

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Date: Monday, February 10, 2014 4:49:39 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Michelle Matson	Individual	Support	Yes

Comments: I strongly support SB 2940. Hawai'i cannot risk seismic instability nor can we afford toxins injected into our water table. Please pass this bill in the interest of the public safety, health and welfare.

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Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 4:55:04 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Gina Franchini	Individual	Support	No

Comments: I strongly support this bill

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Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 6:14:03 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Nicki Conti	Individual	Support	No

Comments: Please pass this bill , it is obvious to anyone living in the vicinity or fracking or the possibility of fracking taking place that there is just not enough information and studies to conclude that it is safe. Thank you

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Cc: sonia.wallman@gmail.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Tuesday, February 11, 2014 8:44:40 AM

SB2940

Submitted on: 2/11/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Sonia Wallman	Individual	Support	No

Comments:

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Cc: pualehuafarm@hotmail.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Tuesday, February 11, 2014 7:17:32 AM

SB2940

Submitted on: 2/11/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Pua Kamaoa	Individual	Support	No

Comments:

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Cc: ggexcavations@hotmail.com
Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Tuesday, February 11, 2014 7:11:47 AM

SB2940

Submitted on: 2/11/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Lisa Kirbin	Individual	Support	No

Comments:

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Cc: tjsimms2000@hotmail.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Tuesday, February 11, 2014 7:11:05 AM

SB2940

Submitted on: 2/11/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
tj simms	Individual	Support	No

Comments: Ban Fracking

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Subject: *Submitted testimony for SB2940 on Feb 12, 2014 13:15PM*
Date: Tuesday, February 11, 2014 7:05:36 AM

SB2940

Submitted on: 2/11/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
penny s	Individual	Support	No

Comments:

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Cc: paularozman@hotmail.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 10:48:28 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Paula	Individual	Support	No

Comments: Please for the love of God, the Aina and the future of our entire planet and it's inhabitants do not frack this garden!!!

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.

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From: mailinglist@capitol.hawaii.gov
To: [WTLTestimony](#)
Cc: davidsher@juno.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 9:09:19 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Sherry Pollack	Individual	Support	No

Comments: Aloha I strongly support SB2940 prohibiting hydraulic fracturing and the collection, storage, treatment, or discharge of waste water from hydraulic fracturing, and urge you to pass this bill. Hydraulic Fracturing, known as 'fracking' threatens the air we breathe, the water we drink, and the communities we live in. Experience has shown from other communities subjected to fracking that it's not a matter of 'if' it's a matter of 'when' an accident will occur. There have been more than 1,000 documented cases of water contamination near fracking drilling sites around the country. Communities currently near drilling sites with fracking operations have ended up with a multitude of adverse impacts to their environment and health, including depletion of local water supplies, contamination issues, adverse impacts from discharge of hazardous waste water that contains radioactive substances and other toxic chemicals, increased seismic activity, as well as air and noise pollution issues. Not surprising, people who live in areas where fracking occurs also experience reduced property values. Please protect the health and safety of the people of Hawaii and support this bill! Respectfully, Sherry Pollack

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From: mailinglist@capitol.hawaii.gov
To: [WTLTestimony](#)
Cc: suzanne@punapono.com
Subject: Submitted testimony for SB2940 on Feb 12, 2014 13:15PM
Date: Monday, February 10, 2014 6:48:18 PM

SB2940

Submitted on: 2/10/2014

Testimony for WTL/ENE on Feb 12, 2014 13:15PM in Conference Room 225

Submitted By	Organization	Testifier Position	Present at Hearing
Suzanne Wakelin	Individual	Support	No

Comments: STRONG SUPPORT There are many cases of induced seismic events associated with the use of hydraulic fracturing technologies and specifically projects that are considered "enhanced geothermal" which use the same principles as hydraulic fracturing in the oil and natural gas industry. The National Academy of Sciences published a report in 2013 Induced Seismicity Potential in Energy Technologies which documents a number of cases worldwide in which enhanced geothermal projects have had to be shut down because of the induced earthquakes and concludes: "...Although induced seismic events associated with these energy technologies have not resulted in loss of life or significant damage in the United States, some effects have been felt by local residents and have raised concern about additional seismic activity and its consequences in areas where energy development is ongoing or planned. While scientists understand the general mechanisms that induce seismic events, they are unable to accurately predict the magnitude or occurrence of these earthquakes due to insufficient information about the natural rock systems and a lack of validated predictive models at specific energy development sites." The issue of induced seismicity is clearly of great concern in Hawai'i due to the unique geology of the islands and the associated risks of volcanic activity In addition, there are significant risks to pollution of the water table with the use of fracturing technologies and EGS in Hawai'i. There exist no protections to ensure that these new and experimental technologies do not cause irreparable harm to the 'aina and the people of Hawai'i. The debacle of HGP-A, the experimental Hawai'i Geothermal Project that was initiated by the UH and the USGS in Puna shows us that experimental technologies can cause significant harm. Please see the Final Report of the Geothermal Public Health Assessment commissioned by Mayor Kenoi which specifically expresses serious concerns about the problems associated with those experiments. None of the publications that are promoting EGS in Hawai'i include proper assessment of the potential dangers of these technologies, they simply focus on the potential benefits and the economics. PICHTR Hawaii Geothermal Assessment and Roadmap published in 2013 includes statements about the potential for getting Federal money for EGS experiments as well as loosening the regulatory system. Hawaii Renewable Energy Development Venture Technology Assessment Engineered Geothermal Systems concludes that it "...might be a good investment for Hawaii...". No mention is made of the potential devastation that may

occur from these experiments. The risks of hydraulic fracturing to the unique geologic, geographic, and aquatic environment of Hawai'i are too great to leave this issue to chance.

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