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TO THE HOUSE COMMITTEE ON
ENERGY AND ENVIRONMENTAL PROTECTION

TWENTY-NINTH LEGISLATURE
Regular Session of 2018

Tuesday, January 30, 2018
8:30 A.M.

TESTIMONY OF DEAN NISHINA, EXECUTIVE DIRECTOR, DIVISION OF
CONSUMER ADVOCACY, DEPARTMENT OF COMMERCE AND CONSUMER
AFFAIRS, TO THE HONORABLE CHRIS LEE, CHAIR,
AND MEMBERS OF THE COMMITTEE

HOUSE BILL NO. 1837, RELATING TO THE PUBLIC UTILITIES COMMISSION.

DESCRIPTION:

This measure requires the Public Utilities Commission (“Commission”) to conduct a study regarding hydraulic fracturing and establishes limits on the amounts of fossil fuels derived from hydraulic fracturing that gas utility companies may use. This measure also requires gas utility companies that use imported fossil fuels to comply with an application and a public hearing process.

POSITION:

The Division of Consumer Advocacy (“Consumer Advocate”) offers comments on the bill.

COMMENTS:

The Consumer Advocate appreciates the concerns related to groundwater contamination and the release of methane raised by the prevalence of hydraulic fracturing in North America.

Hawaii Gas, the State's lone regulated gas utility, acquires its feedstock for the synthetic natural gas it delivers through pipelines – the portion of its business that the Commission regulates – from the Par Petroleum refinery in Campbell Industrial Park. Par Petroleum buys unrefined crude oil mostly from the South East Asian oil market, where hydraulic fracturing is rarely used for oil extraction.

Hawaii Gas has recently begun to import liquified natural gas to supplement its synthetic natural gas and to address possible feedstock concerns with Par Petroleum. Thus, this bill may only apply to that portion of Hawaii Gas's feedstock that it imports directly from North America as liquified natural gas, and then only if Hawaii Gas decides to send that portion through its regulated pipeline service, rather than its unregulated tank delivery service. Thus, the Legislature should also consider whether limiting the import of fracked fossil fuels should be applied to both regulated and unregulated gas operations.

The Consumer Advocate notes ongoing legislative efforts (e.g., H.B. 1801) to establish renewable portfolio standards for utility gas companies. The effect of a renewable portfolio standard for utility gas companies would have a very similar effect to the proposed limit of fracked fossil fuels. Thus, this committee might consider whether the administrative costs associated with the required study and additional administrative processes might be unnecessary if a renewable portfolio standard for utility gas is established.

Finally, if this measure advances, it would be useful to provide additional clarity regarding the requirement for the gas company to file an application and for the Commission to hold a public hearing. For instance, is the Legislature envisioning that the utility gas company would need to file an annual application to seek approval from the Commission to continue using fossil fuels that may have, in part or in whole, been obtained through hydraulic fracturing extraction process? Alternatively, is the Legislature envisioning that the utility gas company file an application every time it seeks Commission approval for a feedstock or supply contract? If the latter, the utility gas company is already required to file an application every time it enters into a new supply contract, but a public hearing is not required. Thus, if the Legislature seeks to allow customers an opportunity to comment on a proposed feedstock contract, that requirement could be explicitly established as part of supply contract approvals.

The Consumer Advocate defers to the Commission as to the additional costs the Commission might incur to hold public hearings for every supply contract application by the utility gas company, as well as the cost of conducting the study. However, the Consumer Advocate anticipates that, since the utility gas company provides service on each of the Hawaiian islands, interisland travel costs will increase.

Thank you for this opportunity to testify.

TESTIMONY OF RANDY IWASE
CHAIR, PUBLIC UTILITIES COMMISSION
STATE OF HAWAII
TO THE
HOUSE COMMITTEE ON
ENERGY & ENVIRONMENTAL PROTECTION

January 30, 2018
8:30 a.m.

MEASURE: H.B. No. 1837

TITLE: RELATING TO THE PUBLIC UTILITIES COMMISSION.

Chair Lee and Members of the Committee:

DESCRIPTION:

Requires the Public Utilities Commission to conduct a study regarding hydraulic fracturing and establish limits on the amounts of fossil fuels derived from hydraulic fracturing that gas utility companies may use. Requires gas utility companies that use imported fossil fuels to comply with an application and public hearing process.

POSITION:

The Public Utilities Commission ("Commission") offers the following comments for consideration.

COMMENTS:

The Commission takes no position with respect to the need for a study regarding hydraulic fracturing and the intent to establish limits on the amounts of fossil fuels derived from hydraulic fracturing that gas utility companies use throughout the state. The Commission notes that preparing a hydraulic fracturing study will require diversion of substantial time and resources from other pressing matters before the Commission. While the Commission understands the concerns raised in H.B. No. 1837, additional appropriations would be needed in the bill to enable the Commission to analyze these issues. The Commission is uncertain that it could complete an accurate and comprehensive study and report for the legislature prior to the 2019 legislative session, as required by this proposed legislation.

Thank you for the opportunity to testify on this measure.

HB-1837

Submitted on: 1/29/2018 6:43:01 PM

Testimony for EEP on 1/30/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Melodie Aduja	OCC Legislative Priorities	Support	No

Comments:

**PRESENTATION OF THE
OAHU COUNTY COMMITTEE ON LEGISLATIVE PRIORITIES
DEMOCRATIC PARTY OF HAWAII
TO THE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION
HOUSE OF REPRESENTATIVES
TWENTY-NINTH LEGISLATURE
REGULAR SESSION OF 2018
Tuesday, January 30, 2018
8:30 a.m.
Hawaii State Capitol, Conference Room 325**

RE: Testimony in Support of HB 1837, RELATING TO THE PUBLIC UTILITIES COMMISSION

To the Honorable Chris Lee, Chair; the Honorable Nicole E. Lowen, Vice-Chair, and Members of the Committee on Energy & Environmental Protection:

Good morning, my name is Melodie Aduja. I serve as Chair of the Oahu County Legislative Priorities Committee of the Democratic Party of Hawaii. Thank you for the opportunity to provide written testimony on House Bill No. 1837, relating to a study on hydraulic fracturing, gas utility companies and the use of fossil fuels in the State of Hawaii. The OCC Legislative Priorities Committee is in favor of House Bill No. 1837 and support its passage.

House Bill No. 1837, is in alignment with the Platform of the Democratic Party of Hawai'i ("DPH"), 2016, as it aims to preserve our natural environment. Specifically, the DPH Platform states that "[t]he Democratic Party of Hawai'i believes that the preservation and restoration of our natural environment are essential. We support a sustainable society that utilizes the earth in such a way that future generations will benefit from the practices of our generation. We support the restoration, preservation, and protection of our native ecosystems on each island. We believe in integrated approaches, practices, and support public policies that create and maintain a sustainable way of life in Hawai'i.

We believe in supporting best management practices in sustaining our environment and increased citizen involvement. We support programs that encourage sustainable clean, efficient, creative and environmentally friendly modes of transportation, recycling, and waste reduction.

The conservation, preservation, and restoration of Hawai'i's natural resources are connected to the health and welfare of our people; therefore, we support the conservation and protection of our natural environment, which includes reducing our carbon footprint for the benefit of current and future generations." (Platform of the DPH, P. 8, Lines 407-420 (2016)).

Given that House Bill No. 1837 requires the Public Utilities Commission to conduct a study regarding hydraulic fracturing and establish limits on the amounts of fossil fuels derived from hydraulic fracturing that gas utility companies may use, all of which are designed to preserve our natural environment, it is the position of the OCC Legislative Priorities Committee to support this measure.

Thank you very much for your kind consideration.

Sincerely yours,

/s/ **Melodie Aduja**

Melodie Aduja, Chair, OCC Legislative Priorities Committee

Email: legislativepriorities@gmail.com, Tel.: (808) 258-8889



Testimony to the House Committee on Energy and Environmental Protection

Tuesday, January 30, 2018 8:30 a.m.
Conference Room 325, State Capitol
RE: House Bill 1837

Chair Lee, Vice Chair Lowen and Members of the Committee on Energy and Environmental Protection

Hawaii Gas provides the following **comments** for HB1837.

HB1837 seeks to address purported environmental concerns stemming from the use of hydraulically fractured fossil fuels in the United States by limiting the use of these fuels by gas utility companies. The measure proposes to require the PUC to conduct a study regarding hydraulic fracturing to review environmental impacts and the feasibility of limiting the use of fossil fuels by gas utility companies but does not wait for any conclusions of this study from the PUC. Rather, the bill requires the PUC to: (1) establish limits on the amounts of fossil fuels derived from hydraulic fracturing that gas utility companies operating in the State may use as feedstock, and (2) requires the gas utility to submit an application to the PUC for approval and public review when utilizing gas from sources that utilize hydraulic fracturing technology. HB1837, while well intentioned, will have no substantive effect on the alleged harms that the bill's proponents seek to address and, more importantly, limiting the use of hydraulically fractured fossil fuels will have unintended negative consequences for our community in terms of the price for essential goods and services within the State.

The effects of hydraulic fracturing of fossil fuels have been well studied. The Department of Energy, the Department of the Interior, and the Environmental Protection Agency have developed a collaborative Federal interagency effort to address the challenges associated with safely and prudently developing unconventional shale gas and oil resources. Thus, HB1837's proposal that the PUC study the environmental impact of hydraulic fracturing (notwithstanding the fact that none occurs in Hawaii) would be better left to those federal agencies with experience, research, strengths, personnel, resources, and whose mission mandates fall within



this subject area.

However, if the study is to be conducted by the PUC, then we recommend that the areas of focus be expanded to include oil and oil products, in addition to natural gas, from the mainland U.S. and Canada because the hydraulic fracking process is also used in the oil industry. It is every bit as relevant to crude oil and refined oil products that originate from the mainland U.S. and Canada, as it is to natural gas. Indeed, the EIA estimates that well over 50% of all mainland U.S. oil output is produced using hydraulic fracturing technology. Moreover, much of the U.S. and Canadian fossil fuel production is “associated” – meaning oil and gas are produced from the same well. In practical terms this means that jet fuel refined on the mainland U.S. but used in Hawaii could potentially come from ‘fracked’ sources; marine bunkers refined on the West Coast and transported on ships to Hawaii could be from ‘fracked’ sources; oil blend-stocks used by industrial plants in Hawaii could be from ‘fracked sources’; specialty oils and petrochemicals could all be from ‘fracked’ sources; any domestic or Canadian crude used at our refineries could be from ‘fracked’ sources; plastics used in Hawaii could be from ‘fracked’ sources, and so on. This is by no means an issue that is just associated with natural gas. As such, gas should not be singled out, especially given the lower carbon emissions (as compared to the oil we use today for energy) and natural gas’ recognized beneficial properties when paired with renewable and distributed energy technologies. Therefore, the restrictions and limitations in the legislation regarding the use of fuels derived from hydraulic fracturing should not only apply to gas utilities, but should be broadened to all utilities, including electric utilities, and, to the extent that this is a broader societal concern, to other industries and distributors that use oil, plastics, petrochemicals and other products derived from sources using hydraulic fracturing technology.

This Bill presumes that the gas utility’s limited use of natural gas is sourced from fields produced using hydraulic fracturing technology. In fact, there are many sources of natural gas that do not come from hydraulic fracturing, including gas from renewable sources such as wastewater treatment plants and landfills, as well as from wells using conventional production technologies. However, with respect to gas within the mainland U.S. and Canada, it is virtually impossible to differentiate between “fracked” and “unfracked” gasses, as the gas is comingled within the suppliers’ extensive gas pipeline networks. Therefore, any mandates in limiting the



amount of natural gas derived from hydraulic fracturing would not be possible, because there is no way to provide detailed accounting of the source of gas for this purpose.

Finally, Hawaii Gas notes under H.A.R. § 6-60-6 (2), “no changes in the fuel and purchased energy costs may be included in the fuel adjustment clause unless the contracts or prices for the purchase of such fuel or energy have been previously approved or filed with the commission.” Therefore, all fuel supply contracts must be approved by the commission for the fuel costs to be included in the public utility’s fuel adjustment clause. When an application for approval of a new fuel supply is submitted, the Commission examines whether the fuel supply contract is reasonable and consistent with the public interest. Thus, the Bill’s proposed change to require any gas utility company that intends to use imported fossil fuel within the State on or after January 1, 2020, to first submit an application that shall be approved or denied after a public hearing is duplicative of existing law.

Thank you for the opportunity to testify on HB 1837.

Sincerely,

Hawaii Gas



P.O. Box 37158, Honolulu, Hawai'i 96837-0158
Phone: 927-0709 henry.lifeoftheland@gmail.com

COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

Rep. Chris Lee, Chair

Rep. Nicole E. Lowen, Vice Chair

Tuesday, January 30, 2018

8:30 a.m.

Conference Room 325

HB 1837 Relating to the Public Utilities Commission

SUPPORT

Aloha Chair Lee, Vice Chair Lowen, and Members of the Committee,

Life of the Land is Hawai'i's own energy, environmental and community action group advocating for the people and `aina for 47 years. Our mission is to preserve and protect the life of the land through sound energy and land use policies and to promote open government through research, education, advocacy and, when necessary, litigation.

Life of the Land asserts that every energy project has positive and negative economic, social, cultural, environmental, geographic, greenhouse gas, taxpayer and ratepayer impacts. Life of the Land is concerned with the impacts, externalities and unintended side-effects of energy projects and programs.

Hawai'i should be concerned with the life cycle greenhouse gases directly caused by Hawai'i governmental policies. Truly accounting for greenhouse gas emissions per kilowatt-hour of electricity, produced by different energy sources, is of paramount importance. Using silo mentality to isolate some emissions while ignoring other emissions is bad for Mother Earth.

All fossil fuels produce varying amounts of greenhouse gases. The Public Utilities Commission should establish clear and transparent methodology for understanding and tracking gas emissions. This bill dealing with fossil fuel production emissions is an important first step. The Department of Health may monitor emissions, but the Commission picks which energy projects to approve.

Mahalo, Henry Curtis, Executive Director



To: The Committee on Energy & Environmental Protection (EEP)
From: Brodie Lockard, 350Hawaii.org

Dear Chair Lee, Vice Chair Lowen and Committee members--

350Hawaii.org supports HB 1837.

LNG is not safe. Fracking to obtain it contributes to all manner of calamities from breast cancer to flammable tap water to earthquakes[1]. Vermont, New York, Maryland, several European countries and Hawaii County have all banned the practice. Buying fuel collected where it causes personal and environmental harm shows no aloha to those communities.

And no matter where it is mined, LNG hurts the environment right here by worsening climate change. It leaks at drilling sites, along pipelines, at compression stations, at storage facilities and throughout the networks of piping that carry it to homes[2]. Washington, D.C. alone has 5,893 natural gas leaks[3]. And transporting LNG to Hawaii burns fuel, producing even more greenhouse gases.

The PUC is most qualified to set reasonable limits on the amount of fracked gas that Hawaii utilities may use. Ideally, no fracked gas or fracked oil should be allowed here, but realistically, it needs to be limited now, with the limit progressing toward zero on a rapid schedule.

In addition to its other flaws, natural gas has an uncertain future. **The world's best companies** at making gas turbines are starting to get out of that business. In November, Siemens laid off 7,000 workers. It had a capacity to make 400 100MW gas turbines annually but only received orders for 110 in 2017. Two weeks later, General Electric laid off 20,000 workers in its gas-related business, including turbine-making teams around the world.[4]

Any effort and expense to import LNG to Hawaii is far better put toward reaching our 2045 renewables goal. LNG imports are a direct obstacle to that goal.

Thank you for this opportunity to submit testimony in support of HB 1801.

[1] <https://www.pbs.org/newshour/science/earthquakes-triggered-by-fracking>

[2] <https://fivethirtyeight.com/features/methane-is-leaking-all-over-the-place/>

[3] <http://pubs.acs.org/doi/full/10.1021/es404474x>

[4] <https://www.greenbiz.com/article/end-natural-gas-near>

Brodie Lockard
350Hawaii.org



SIERRA CLUB OF HAWAII
MĀLAMA I KA HONUA. *Cherish the Earth.*

HOUSE COMMITTEE ON ENERGY AND ENVIRONMENTAL PROTECTION

Tuesday, January 30, 2018 8:30AM Conference Room 325

In SUPPORT of HB 1837 Relating to the public utilities commission

Aloha Chair Lee, Vice Chair Lowen and members of the Committee,

On behalf of our 20,000 members and supporters, the Sierra Club of Hawai'i, a member of the Common Good Coalition, **supports HB 1837**, which would require the Public Utilities Commission (PUC) to conduct a study regarding hydraulic fracturing (fracking) and establish limits on the amounts of fossil fuels derived from fracking that gas utility companies may use. It also requires gas utility companies that use imported fossil fuels to comply with an application and public hearing process.

The PUC is certainly the most qualified to ascertain and set limits to the amount of fracked gas that gas utilities in Hawai'i may use. We offer support of this measure and also the following comments.

Ideally, very little to no fracked gas should be allowed for import to Hawai'i. The reasons are many:

1. To be clear, liquified natural gas (LNG) extracted by way of fracking is not clean. It is a fossil fuel and greenhouse gas, comprised of 85-95% methane¹. Additionally, LNG is notoriously leaky², adding to methane release into the atmosphere at the source, not to mention the additional fossil fuels burned to transport imported fracked gas to Hawaii.
2. Fracking is not safe for the communities where it occurs, having a variety of negative impacts--from links to cancer to causing earthquakes to creating flammable faucets³.

¹ [Howarth 2015](#)

² <https://fivethirtyeight.com/features/methane-is-leaking-all-over-the-place/>

³ <https://www.pbs.org/newshour/science/earthquakes-triggered-by-fracking>

3. LNG is a short-sighted solution and is not cost-effective in the long term. The cost of true renewables, such as wind and solar--in addition to battery storage--continues to decrease. Hawai'i Gas already estimates the necessary infrastructure to increase LNG imports upwards of \$200 million⁴. Allocating resources to import LNG is wasteful and should be directed to fund truly renewable energy infrastructure such as grid modernization, energy storage, and increased energy efficiency.

Two studies done by M.Z. Jacobson et al examined the feasibility of transitioning New York's (2013) and California's (2014) all-purpose energy infrastructure to one using wind, water, and sunlight⁵. They found that there is no reason to use LNG extracted by fracking as a so-called "bridge fuel" on the road to a 100% renewable energy future. In addition to Hawai'i County, Vermont, Maryland and several European countries have banned LNG. Likewise, Hawai'i's path to 100% by 2045 should focus all of its time and resources away from fossil fuels.

We supported the PUC's rejection of NextEra's intention to expand LNG in Hawai'i as "not in the public interest". We stand firm that fracked LNG has no place on our path to a renewable energy future. We trust that the PUC through a mandated study will find, once again, that LNG--especially fracked LNG--is not in the public interest, nor is it congruent with our efforts to fight climate change.

Thank you very much for this opportunity to provide testimony on this important issue.

⁴ http://www.hawaiigas.com/media/1301/hawaii-gas_report_the-facts-about-lng-for-hawaii.pdf

⁵ [MZ Jacobson et al 2013](#), [MZ Jacobson et al 2014](#)

January 29, 2018

To: The *Committee on Energy & Environmental Protection (EEP)*
From: Stewart Taggart, Kailua, 96734
Subject: HB1837

Dear Chair Lee, Vice Chair Lowen and Committee members--

I wholeheartedly support passage of HB1837.

The reason: the false economic and environmental economies of natural gas shipped to market as Liquid Natural Gas are deleterious to Hawaii's clean energy economy.

HB 1837 would require a study on hydraulic fracturing and limit the amount of 'fracked' natural gas utilities in Hawaii may use.

That's highly welcome. But natural gas, irrespective of origin or extraction method, shipped to market as LNG creates greenhouse gas emissions little better than coal.

This tends to be overlooked in most analysis. For its part, the LNG/natural gas industry shows scrupulous artfulness in dancing around this to enable specious justification of LNG.

Look anywhere, and you'll see the same phraseology used by the natural gas/LNG industry: *LNG* is desirable because *natural gas* is a clean fuel.

Partially true; wholly disingenuous.

Reason: *natural gas* does have emissions (roughly speaking) 40-60% less than that of coal. But *if* that natural gas is delivered to market as LNG, much of that emissions advantage is lost.

The chart below, from the US *Department of Energy* (thankfully written prior to the Trump Administration and happily still on the *DOE* website given the climate-washing going on), estimates life cycle emissions of natural gas delivered to market as LNG as ~600-800 kg CO₂e/MWh compared to coal at ~1,000 kg/MWh). Natural gas by itself (including extraction) generally ranges around 400 kg/MWh).

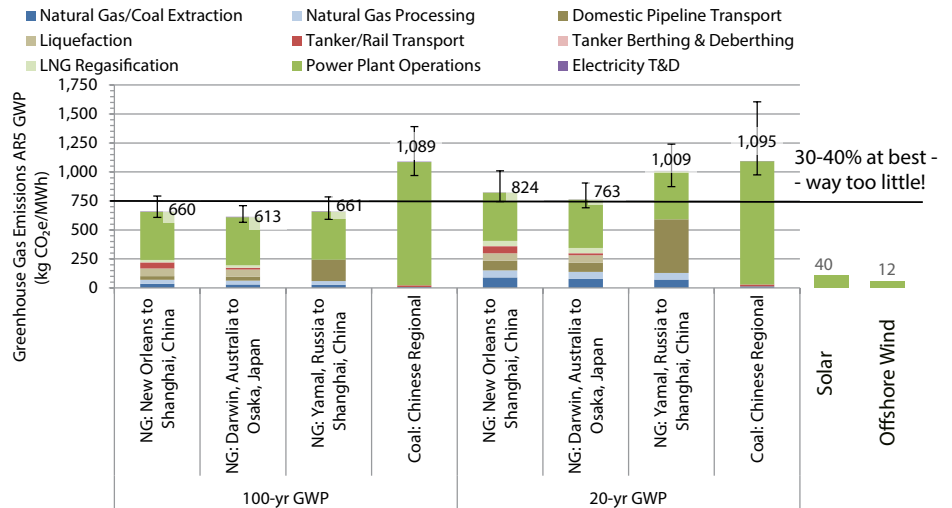


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LNG Life Cycle Greenhouse Gas Emissions

Figure 6-2: Life Cycle GHG Emissions for Natural Gas and Coal Power in Asia



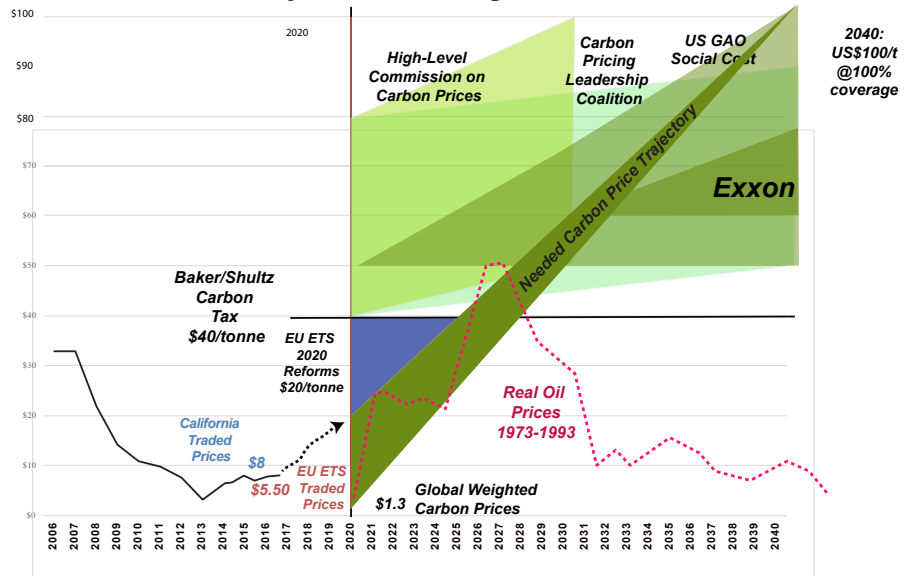
Life-Cycle carbon emissions of 600-700 kgs per MWh result from natural gas electricity delivered to market as LNG.

Source: "Life Cycle Greenhouse Gas Perspective On Exporting Liquefied Natural Gas From the United States, 2014," US Department of Energy

A second issue is the likely upward trend (possibly steep) of carbon prices in coming years. Hawaii is now considering pricing carbon for her own economy, a welcome development.

But if Hawaii is serious about pricing all carbon in its economy, the emissions above will need to be counted and ideally costed and paid if any carbon policy is to have efficacy.

Pathways to Needed Higher Carbon Prices



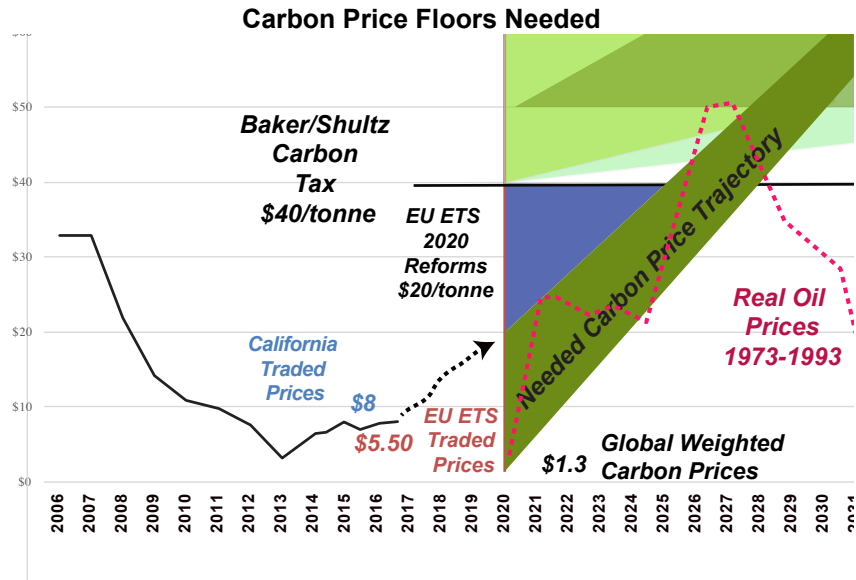
Global carbon prices of \$100+ per tonne are needed to control climate change, say prominent voices. More immediately, prominent voices call for \$20 prices. Current reforms aim for \$20 prices in 2020. Current traded prices hover around \$8. The global weighted average is around \$1.3 per tonne.

Sources: Carbon Pulse, Synapse, ICIS, US General Accounting Office, Point Carbon.



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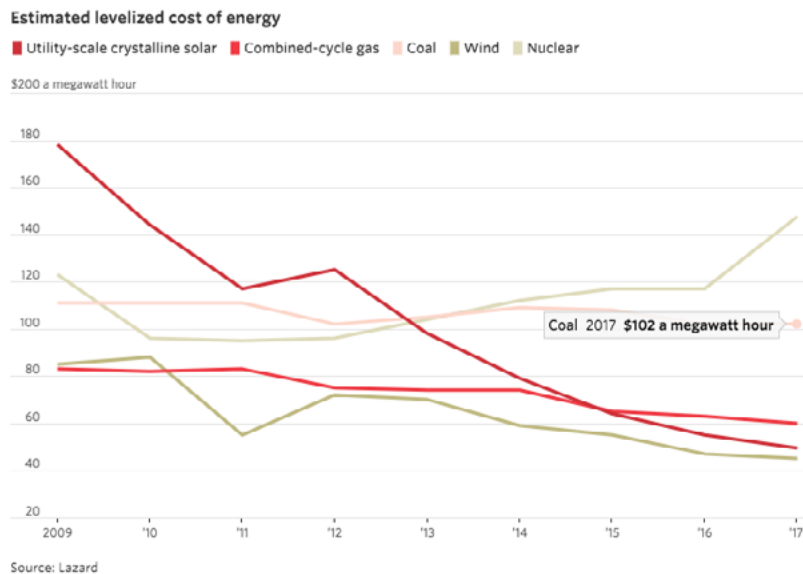
Near term reforms to the European Union Emission Trading System are aimed at driving traded prices to \$20 by 2020 in advance further doubling and tripling in subsequent decades. Global weighted average prices are around \$1.3 per tonne, and a move to \$40 would represent a price shock akin to the OPEC induced oil price rises of the 1970s.

Sources: Carbon Pulse, Synapse, ICIS, US General Accounting Office, Point Carbon.

Given the above, assume an average of 600kg/MWh from natural gas burned in Hawaii delivered as LNG. For comparison's sake, wind and solar have -- say -- 200kg/MWh (a high number).

Wind and solar are already at rough parity with combined cycle gas and falling in price while gas stays rather pricey. As the price advantage of renewables widens, it threatens to strand gas infrastructure -- and that's before considering carbon prices.

Wind, Solar, Gas -- Levelized Price Trends



The levelized cost of wind and utility-scale solar energy is already price competitive with combined cycle gas before carbon emissions are taken into account. Sources: "Lazard's Levelized Cost of Energy Analysis," Lazard, 2017



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One thing LNG does do, however (and gas as well) is provide a stable reservoir of energy. But even here, the future is nipping at its heels.

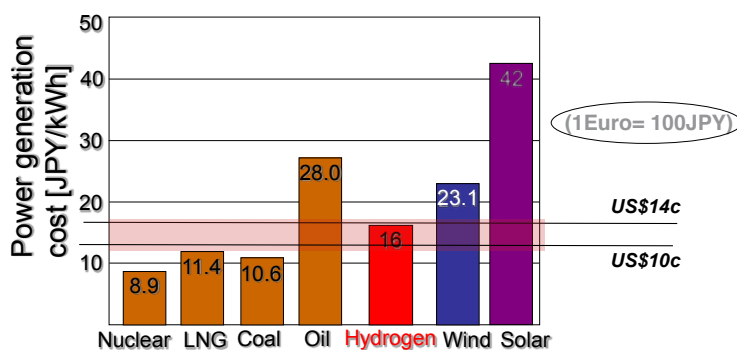
What might be better?

One very interesting idea comes from Australia. There, *Kawasaki Heavy Industries* is investing in generating hydrogen from (at least initially in order to prove the concept) carbon capture equipped coal-fired power plants in Victoria to export to Japan.

Kawasaki plans to make its first hydrogen shipments to Japan prior to the 2020 Tokyo Olympics - which Japan is dubbing the 'Hydrogen' Olympics. *Kawasaki* also claims it can do so for little more than the present costs of LNG (ie 10-14c/kwh).

Carbon Price Floors Needed Hydrogen utilization in power generation (in Japan)

If Japan can import hydrogen of 30 JPY/Nm³ (CIF), it is **More expensive than fossil fuels, but cheaper, more stable and massively available than renewable energy among CO₂ free energy**



Kawasaki Heavy Industries estimates Australian-produced hydrogen shipped to Japan can produce electricity for the domestic electricity market for US\$12-14c per kWh.

This begs the question: why not jump on the hydrogen bandwagon instead of the LNG bandwagon? It's a hypothetical question, but one that warrants consideration against the backdrop of a big decision on LNG.

With fundamental reforms to carbon markets (like the *European Union Emissions Trading Scheme*) and reforms to others (like the *Regional Greenhouse Gas Initiative* of the US Northeastern states and California's *Cap and Trade Program*) as well as the start of China's carbon markets all looming between now and 2020, only a fool would short carbon prices.

And only a fool would underestimate the retroactive damage future high carbon prices can/will do to legacy investments approved before the prices rose. In other words, Hawaii can have either LNG or credible carbon pricing,



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but not both. One will kneecap the other.

At the very least, additional study should be required, examining how rising carbon prices in coming years will affect the economics of LNG-delivered natural gas with an emission profile 60-70% that of coal. Such a study could include the opportunity cost of making the wrong decision.

A deep, honest and comprehensive analysis of this should be the bare bones requirement for considering LNG as any kind of future solution for Hawaii. Requiring a deeper look at fracking is a good first step, but it's not the only one.

Attention need also be paid to the dramatic price shifts likely in coming years that will deeply affect the value of multi decade infrastructure investments that create 'lock in' for carbon-intensive energy sources.

At the very least, this might include doing 'stress tests' on LNG in Hawaii under various various carbon price rise scenarios (like those above) instead of just 'waving through' LNG without adequately costing potential outcomes.

We've already *seen* that movie. It's called the *Honolulu Area Rapid Transit*.



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Hawai`i Interfaith Power and Light

A religious response to global warming



To: The Committee on Energy & Environmental Protection (EEP)

From: Hawaii Interfaith Power & Light (HIPL),

Steve Lohse, HIPL Legislative Liaison, 808-499-5406, lohse@hawaii.edu

Date: Tuesday, January 30, 2018

Time: 8:30 a.m.

Place: Conference Room 325, State Capitol, 415 South Beretania Street

Re: Support for HB1837, Relating to the Public Utilities Commission.

Aloha e Rep. Chris Lee, Chair; Rep. Nicole Lowen, Vice Chair; and Members of the Committee on Energy & Environmental Protection,

My name is Steve Lohse, I'm an environmental scientist and Legislative Liaison for Hawaii Interfaith Power & Light (HIPL). HIPL's interfaith community affirms and promotes responsible policy and effective action on energy and climate change. On behalf of HIPL, thank you for this opportunity to submit **Testimony in Support of HB1837.**

(1) Hawaii commits by law to recognize the need to reduce reliance on fossil fuels, to consider levels and effects of greenhouse gas emissions, and to transition away from imported fuels and toward renewable local resources that provide secure and affordable energy. **Please, do everything in your power at every opportunity to curb Hawaii's use of fossil fuels and to eliminate Hawaii's release of greenhouse gases into the global atmosphere.**

(2) An increasing proportion of the fossil fuels that Hawaii's gas utility companies import derives from hydraulic fracturing (fracking), known to contaminate groundwater and release large amounts of greenhouse gases. Hawaii needs to reverse this trend. **Please, hold the PUC fully accountable for conducting research, holding public hearings, and limiting Hawaii's gas utility companies' use of LNG and of fossil fuels derived from fracking.**

With a sense of urgency, we rely on you to hold the PUC and Hawaii's gas utility companies accountable for their public responsibility to help achieve 100% clean renewable energy in Hawaii. **Please, support HB1837.** As always, thank you for all that you do!

Aloha no,
Hawaii Interfaith Power & Light (HIPL)

HIPL embraces the following goals:

- *raise awareness of the deeply spiritual nature of energy and climate challenges;*
- *advocate energy policies that promote conservation, efficiency, and renewables;*
- *provide inspiration, resources, leadership, and education for effective interfaith action and community building.*

HB-1837

Submitted on: 1/27/2018 1:45:30 PM

Testimony for EEP on 1/30/2018 8:30:00 AM

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

Comments:

HB-1837

Submitted on: 1/28/2018 1:26:45 AM

Testimony for EEP on 1/30/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Janet Pappas		Support	No

Comments:

Dear Legislators,

I am asking that the PUC be required to conduct a study on fracking, and also that the PUC establish limits on fossil fuels derived from fracking that gas utilities in Hawaii may use. In many instances these fossil fuels may contribute greatly to climate change, and should therefore not be allowed if our (Hawaii's) goal is 100% renewable energy.

Thank you for your consideration.

Jan Pappas

Aiea, Hawaii

HB-1837

Submitted on: 1/28/2018 5:30:21 AM

Testimony for EEP on 1/30/2018 8:30:00 AM

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

Comments:

HB-1837

Submitted on: 1/28/2018 11:33:39 AM

Testimony for EEP on 1/30/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Nanea Lo		Support	No

Comments:

Dear EEP Chair Lee and Vice Chair Lowen--

I urge you to provide a hearing for the four bills Representative Thielen has introduced to limit importation of LNG to Hawaii: HB1836-HB1839. LNG is not clean, cost-effective, or necessary to diversify Hawaii's fuel mix. As a "bridge fuel" it only stands in the way of our 2045 clean energy goals.

Please provide a hearing for these important bills. Thank you for your consideration.

Nanea Lo

HB-1837

Submitted on: 1/28/2018 1:59:26 PM

Testimony for EEP on 1/30/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Taurie Kinoshita		Support	No

Comments:

I support HB 1837 and that the PUC should conduct a study regarding fracking and establish limits on fossil fuels derived from fracking that gas utilities may use. Thank you for your consideration.

HB-1837

Submitted on: 1/28/2018 4:16:31 PM

Testimony for EEP on 1/30/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Joseph Kohn MD	We Are One, Inc. - www.WeAreOne.cc - WAO	Support	No

Comments:

HB-1837

Submitted on: 1/28/2018 7:11:49 PM

Testimony for EEP on 1/30/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
tlaloc tokuda	n/a	Support	No

Comments:

Dear Madam/Sir,

I support HB1837 for the following reasons and i am a member of 350 HI.

* LNG is not safe. Fracking to obtain it contributes to all manner of calamities from breast cancer to flammable tap water to earthquakes[6]. It's no wonder that Vermont, New York, Maryland, several European countries and Hawaii County have all banned the practice.

* Buying fuel collected where it causes personal and environmental harm shows no aloha to those communities.

* The PUC is most qualified to find and set reasonable limits on the amount of fracked gas that gas utilities in Hawaii may use. Ideally, no fracked gas or fracked oil should be allowed, but realistically, it needs to be limited now, with the limit progressing toward zero on a rapid schedule.

* Using money for short-term LNG infrastructure wastes resources that could fund grid modernization, energy storage, renewable infrastructure, more energy efficiency, and other improvements.

* Can we not supplant the greed of the fossil fuel industry with some compassion for the countless species (including humans) that will suffer in the near and far future?

* LNG is not clean. It is a fossil fuel and greenhouse gas. LNG is 85 to 95% methane[1], a global warming gas 84 times as potent as CO2 over a 20-year period[2]. About 25% of the manmade global warming we're experiencing today is caused by methane emissions. And the largest source of industrial methane emissions is the oil and gas industry[2].

* No matter where it is mined, LNG hurts the environment right here by worsening climate change. It leaks at drilling sites, along pipelines, at compression stations, at storage facilities and throughout the networks of piping that carry it to

homes[3]. Washington, D.C. alone has 5,893 natural gas leaks[4]. And transporting LNG to Hawaii burns fuel, producing even more greenhouse gases.

* LNG is not cost-effective over the long term. The price of renewables like wind and solar, and battery storage, continues to plummet. The necessary infrastructure to increase LNG imports would cost \$200 million by Hawaii Gas's own estimate[5], and they've already applied for a rate hike.

* We should not spend another penny on fossil fuel infrastructure. The long-term cost of delaying full use of renewable energy—i.e., more rapid climate change—is already clear in our state: more and stronger hurricanes, beach loss, dying coral reefs, higher average temperatures, decreased trade winds, periods of drought and heavy rain with flooding. Soon to come are damage to tourism, our largest source of income; more disease; endangered fisheries; declining crop production; stressed native animals and plants; and increased spread of invasive species.

* LNG is not needed to diversify Hawaii's fuel supply. We have wind, solar, geothermal, hydroelectric, deep sea water chilling, and biomass, with ocean thermal and wave energy on the way. All we need are batteries and resolve.

* Renewable technologies are developing so fast and are cheaper than coal and oil (without all the risk) so focus on solar, wind and storage.

Mahalo for your consideration.

HB-1837

Submitted on: 1/28/2018 10:57:25 PM

Testimony for EEP on 1/30/2018 8:30:00 AM

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

Comments:

I strongly support HB1837, Relating to the Public Utilities Commission.

An increasing proportion of the fossil fuels that Hawaii's gas utility companies import comes from hydraulic fracturing (fracking), known to contaminate groundwater and release large amounts of greenhouse gases. Hawaii needs to reverse this trend. HB1837 holds the PUC fully accountable for conducting research, holding public hearings, and establishing limits on fossil fuels derived from fracking.

Climate change is happening. Greenhouse gas emissions are the primary cause. Everyone needs to play their part in reducing these emissions, particularly Hawaii, as we have much to lose with sea levels rising. Please hold the PUC accountable for their responsibility to do their part in helping us achieve our 100% clean energy goals. Support HB1837.

Thank you for the opportunity to comment on this very important bill.

HB-1837

Submitted on: 1/29/2018 7:23:05 AM

Testimony for EEP on 1/30/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Mary Lacques		Support	No

Comments:

HB-1837

Submitted on: 1/29/2018 8:18:16 AM

Testimony for EEP on 1/30/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Lana Brodziak	Self	Support	No

Comments:

I support HB1837.

As a professional Soil Scientist working in the Environmental Remediation field for more than 25 years, extracting natural gas by fracturing bedrock with chemicals is not wise and has been demonstrated to impact human health and the environment in several known ways. "Fracking" is only possible due to exemptions made to the Clean Water Act that only the Oil & Gas Industry is allowed to utilize. They are allowed to inject otherwise illegal chemical discharges into subsurface environments that then impact surrounding aquifers and therefore potential drinking water sources. The States of Vermont, Maryland and New York have outlawed "Fracking" due to evidence supporting the above statement.

We need to keep focused on our Clean Energy goals and not waste time and money on interim "solutions". Mahalo for considering my concerns.

HB-1837

Submitted on: 1/29/2018 8:21:05 AM

Testimony for EEP on 1/30/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Joan Gannon	West Hawaii CHC	Support	No

Comments:

I support HB 1837

HB-1837

Submitted on: 1/29/2018 8:45:50 PM

Testimony for EEP on 1/30/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Severine Busquet		Support	No

Comments:

Hi:

LNG is not safe. Fracking to obtain it contributes to all manner of calamities from breast cancer to flammable tap water to earthquakes. Buying fuel collected where it causes personal and environmental harm shows no aloha to those communities.

LNG is not clean. It is a fossil fuel and greenhouse gas. Using money for short-term LNG infrastructure wastes resources that could fund grid modernization, energy storage, renewable infrastructure, more energy efficiency, and other improvements.

The PUC is most qualified to find and set reasonable limits on the amount of fracked gas that gas utilities in Hawaii may use. Ideally, no fracked gas or fracked oil should be allowed, but realistically, it needs to be limited now, with the limit progressing toward zero on a rapid schedule.

Mahalo for your consideration

Severine

HB-1837

Submitted on: 1/30/2018 5:22:02 AM

Testimony for EEP on 1/30/2018 8:30:00 AM

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

Comments:

Esteemed committee members,

Mahalo for the opportunity to submit testimony in support of this measure. The best way to limit supplies of damaging products is to reduce demand. Fracking is detrimental to the environment in so many ways, I cannot fathom why anyone with conscience would engage in this destructive practice.

With Hawai'i commitment to a sustainable future, purchasing fossil fuels defined from fracking is not appropriate. While this may present a challenge, it is the right thing to do. I hope you will support this measure.