



STATE OF HAWAII
HAWAII CLIMATE CHANGE MITIGATION & ADAPTATION
COMMISSION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

Testimony of
Anukriti Hittle
Coordinator, Hawaii Climate Change Mitigation and Adaptation Commission

Before the Senate Committees on
AGRICULTURE AND ENVIRONMENT
and
ENERGY, ECONOMIC DEVELOPMENT AND TOURISM

Wednesday, February 12, 2020
1:15 PM
State Capitol, Conference Room 224

In support of
SENATE BILL 3150
RELATING TO TAXATION

Senate Bill 3150 proposes to amend the environmental response, energy and food security tax to address carbon emissions, increases the tax rate to effectively set a price of \$40 per metric ton of carbon dioxide emissions in 2021, incrementally increases the tax rate over time so that, in 2030, the tax rate shall be equivalent to a carbon price of \$80 per metric ton of carbon emissions. **On behalf of the Hawaii Climate Change Mitigation and Adaptation Commission (Commission) I support this measure and offer the following comments.**

The Hawaii Climate Change Mitigation and Adaptation Commission “recognizes the urgency of climate threats and the need to act quickly. It promotes ambitious, climate-neutral, culturally responsible strategies for climate change adaptation and mitigation in a manner that is clean, equitable and resilient.” The Commission, established by Act 32 SLH 2017 to uphold the United States’ pledges under the Paris Agreement, is the coordinating body for policies on climate change mitigation and adaptation for the state. It is a high-level multi-jurisdictional body that guides the priorities of the state’s climate response. Co-chaired by DLNR and Office of Planning, it consists of 20 members—chairs of four legislative committees, and executive department heads at the county and state levels.

The Commission believes that putting a price on carbon is the most effective single action that will achieve Hawaii’s ambitious and necessary emissions reduction goals. This is backed up by various

Co-Chairs:
Chair, DLNR
Director, Office of Planning

Commissioners:
Chair, Senate AEN
Chair, Senate WTL
Chair, House EEP
Chair, House WTH
Chairperson, HTA
Chairperson, DOA
CEO, OHA
Chairperson, DHHL
Director, DBEDT
Director, DOT
Director, DOH
Chairperson, DOE
Director, C+C DPP
Director, Maui DP
Director, Hawai'i DP
Director, Kaua'i DP
The Adjutant General
Manager, CZM

expert organizations, including the International Monetary Fund, the Inter-Governmental Panel on Climate Change, and Hawaii's *Transportation Energy Analysis* (2015).¹

This measure aims to establish a price on carbon dioxide, in order to reflect the full cost of using fuels that produce carbon dioxide, and thereby decrease these emissions.

Carbon tax and the social cost of carbon. A carbon tax directly sets a price on carbon by defining a tax rate on greenhouse gas emissions or – more commonly – on the carbon content of fossil fuels. It is different from an Emissions Trading System in that the emission reduction outcome of a carbon tax is not pre-defined, but the carbon price is.²

A good carbon pricing mechanism, therefore, sets the carbon tax at the social cost of carbon at the very least, and higher if emissions targets for under 2 degrees warming are to be achieved.

EPA's Social Cost of Carbon (SSC) is defined as “a measure, in dollars, of the long-term damage done by a ton of carbon dioxide (CO₂) emissions in a given year.”³ EPA and other federal agencies use estimates of the SSC to value the climate impacts of rulemakings. Per its 2016 Fact Sheet, EPA estimates that the average SSC in 2020 would be \$42 per MT.

The rate for Hawaii. Rounding this up, generally accounting for inflation and using the CPI based on UHERO's information, to \$45 in 2020 is a plausible starting point, and puts us at \$15 per barrel.⁴ Currently, Hawaii's barrel tax is \$1.05 per barrel, or approximately \$3.15 per MT CO₂e. SB 3150 aims to set the tax on each barrel or fractional part of a barrel of petroleum product to the amounts in the following table:

While these figures may appear high, they are actually on the low side of the World Bank's recommendations for a carbon tax range from \$40 to \$80 per MT CO₂e by 2020 and \$50-100 per ton by 2030, according to the High-Level Commission on Carbon Prices, co-chaired by Joseph Stiglitz and Lord Nicholas Stern.⁵ The EPA additionally recommends high-impact increases of \$123 by 2020 and \$152 by 2030 per MT CO₂e.

Carbon taxes in the real world. According to the US Climate Leadership Council, an escalating carbon fee offers the most cost-effective climate policy solution⁶. Some may say these estimates are theoretical. However, in reality, more than 74 nations, states, and cities have implemented carbon pricing all over the world⁷. In the US, ten states have implemented SCC carbon pricing in assessing new projects⁸. Even as far back as 2008, the Canadian province of British Columbia (BC) implemented the first comprehensive and substantial carbon tax in North America. By 2012,

¹ Hawaii Climate Change Mitigation and Adaptation Commission's statement (Nov 2018), available at: <http://climate.hawaii.gov/wp-content/uploads/2018/11/NR-Climate-Commission-Recommend-Urgent-Action-to-Combat-Emissions-Nov.-28-2018.pdf>

² See Carbon Pricing Leadership Coalition (CLPC), available at: <https://www.carbonpricingleadership.org/>

³ *EPA Fact Sheet*. Environmental Protection Agency (2016), available at: https://www.epa.gov/sites/production/files/2016-12/documents/social_cost_of_carbon_fact_sheet.pdf

⁴ “UHERO Consumer Price Index” (2020) US Department of Labor, Bureau of Labor Statistics, available at: https://data.uhero.hawaii.edu/#/series?id=147933&data_list_id=56&sa=true

⁵ “Report of the High-level Commission on Carbon Prices” (2017), Carbon Pricing Leadership Coalition, available at: <https://www.carbonpricingleadership.org/report-of-the-highlevel-commission-on-carbon-prices/>

⁶ *A Winning Trade: How Replacing the Obama-Era Climate Regulations with a Carbon Dividends Program Starting at \$40/Ton Would Yield Far Greater Emission Reductions* (2018) David Bailey, US Climate Leadership Council.

⁷ *State and Trends of Carbon Pricing 2019* (2019) World Bank Group, Open Knowledge Repository, available at: <https://www.carbonpricingleadership.org/who>

⁸ “US State Carbon Pricing Policies”. Center for Climate and Energy Solutions, available at: <https://www.c2es.org/document/us-state-carbon-pricing-policies/>

the tax had reached a level of C\$30 per MT CO₂e, and covered approximately three-quarters of all greenhouse gas emissions in the province.

On January 21st, Wisconsin Democrats introduced Bill 766 in the Assembly, which requires utilities to assess the social cost of carbon when assessing new projects.⁹ While this is not a direct price on carbon that utilities have to pay, it does set a \$50 fee per MT CO₂e that participating utilities must consider when establishing new projects, and will take into account the impacts that carbon emissions have on society. States of Washington, Minnesota, and Colorado all currently have policies similar to the proposed Wisconsin bill.

Carbon tax's effect on the economy and emissions. Jurisdictions worried about what effects carbon pricing has on their economies look again to British Columbia. According to a Nicholas Institute 2015 paper:¹⁰

- a. Empirical and simulation models suggest that the tax has reduced emissions in the province by 5–15%.
- b. At the same time, models show that the tax has had negligible effects on aggregate economic performance, though certain emissions-intensive sectors have faced challenges.
- c. Studies differ on the effects of the policy on income distribution but agree that they are relatively small.
- d. Finally, polling data show that the public initially opposed the tax but now generally supports it.

However, although one of the longest running carbon tax experiments, BC's example more recently shows that a carbon tax will have to be much higher than its intent to go as high as \$50 per MT to achieve climate goals. According to one source, "while BC's emissions are lower than they would have been without the carbon tax, the fact they have only levelled off underscores that either a higher carbon price or more aggressive complementary measures are needed to achieve the absolute reductions in emissions."¹¹

Justice/Equity issues. Additionally, I ask the Committees to draw their attention to the Commission's strong focus on equity, in its carbon pricing statement:

While the specific mechanisms behind a carbon fee program are not yet outlined, the Commission emphasized the urgent need for such a program, and supports legislation that endeavors to establish one, but also recognizes that any carbon pricing mechanism:

- Must be equitable, and appropriate for the people of Hawaii.
- Must demonstrate how this is a critical policy tool to protect the future—of

Hawaii's keiki and 'āina.

⁹ "Wisconsin Considers the Social Cost of Carbon" (2020) Carlie Clarq, ClimateXChange, available at: https://climate-xchange.org/2020/02/06/wisconsin-considers-the-social-cost-of-carbon-with-newly-filed-bill/?mc_cid=a5b60cdfa4&mc_eid=576365dee0

¹⁰ "British Columbia's Revenue-Neutral Carbon Tax: A Review of the Latest "Grand Experiment" in Environmental Policy". Murray, Brian, et al. (2015) Nicholas Institute of Environmental Policy Solutions, available at: <https://nicholasinstitute.duke.edu/climate/publications/british-columbias-revenue-neutral-carbon-tax-review-latest-grand-experiment>

¹¹ "Lessons from British Columbia's carbon tax: (July 11, 2019) Kathryn Harrison, Policy Options Politiques, available at: <https://policyoptions.irpp.org/magazines/july-2019/lessons-from-british-columbias-carbon-tax/>

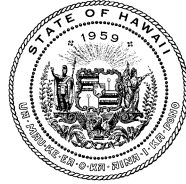
- Must be adequate to change behavior.

The Commission recommends carbon pricing mechanisms that minimize regressivity, which can be pursued through structures such as equity-based tax credits or carbon fee and dividend.

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

DAVID Y. IGE
GOVERNOR

JOSH GREEN M.D.
LT. GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TAXATION

P.O. BOX 259
HONOLULU, HAWAII 96809
PHONE NO: (808) 587-1540
FAX NO: (808) 587-1560

RONA M. SUZUKI
DIRECTOR OF TAXATION

DAMIEN A. ELEFANTE
DEPUTY DIRECTOR

To: The Honorable Mike Gabbard, Chair;
The Honorable Russell E. Ruderman, Vice Chair;
and Members of the Senate Committee on Agriculture and Environment;

The Honorable Glenn Wakai, Chair;
The Honorable Brian T. Taniguchi, Vice Chair;
and Members of the Senate Committee on Energy, Economic Development, and
Tourism

From: Rona M. Suzuki, Director
Department of Taxation

Re: **S.B. 3150, Relating to Taxation**

Date: Wednesday, February 12, 2020

Time: 1:15 P.M.

Place: Conference Room 224, State Capitol

The Department of Taxation (Department) appreciates the intent of S.B. 3150 and offers the following comments.

S.B. 3150 amends section 243-3.5, Hawaii Revised Statutes (HRS) by revamping the environmental response, energy, and food security tax to address carbon emissions. Chiefly, it raises barrel tax rates on a number of petroleum products, calls for set dollar amounts to be allocated to various funds instead of the current percentage-based structure, and dedicates taxes paid on fuel for airplanes and taxes paid for fuel for small boats to be entirely deposited into the airport revenue fund and the boating special fund, respectively. It also raises rates on the tax imposed on each one million British thermal units of fossil fuel sold by a distributor to any retail dealer or end user of fossil fuel, other than a refiner, and clarifies that although that tax will not apply to coal used to fulfill an existing power purchase agreement (PPA), the exemption will not apply to any extension of an existing PPA or to any subsequently-agreed PPA.

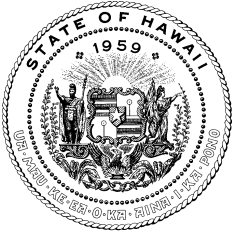
The measure increases the rates in 2021, 2024, 2027, and 2030, so that the tax rate will effectively set a price of \$40 per metric ton of carbon dioxide emissions in 2021 and increase to be equivalent to a carbon price of \$80 per metric ton in 2030. S.B. 3150 takes effect on January 1, 2021.

The Department suggests that the definition of “barrel” in subsection (j) not be deleted. This definition is still useful because “barrel” is still used in numerous places in the section.

The Department anticipates that it will be able to administer the bill by changing forms, instructions, and the computer system by the effective date. This measure will also require taxpayer education as it represents a significant change to this tax.

Finally, the Department looks forward to the completion of the carbon study being done by the University of Hawaii as it should further inform the rates proposed in this bill.

Thank you for the opportunity to provide comments.



HAWAII STATE ENERGY OFFICE STATE OF HAWAII

235 South Beretania Street, 5TH Floor, Honolulu, HI 96813 | energy.hawaii.gov

DAVID Y. IGE
GOVERNOR

SCOTT J. GLENN
CHIEF ENERGY OFFICER

(808) 587-3807

Testimony of
SCOTT J. GLENN, Chief Energy Officer

before the
**SENATE COMMITTEES ON AGRICULTURE AND ENVIRONMENT
AND
ENERGY, ECONOMIC DEVELOPMENT, AND TOURISM**

Wednesday, February 12, 2020

1:15 PM

State Capitol, Conference Room 224

in SUPPORT of
**SB 3150
RELATING TO TAXATION.**

Chairs Gabbard and Wakai, Vice Chairs Ruderman and Taniguchi, and Members of the Committees, the Hawaii State Energy Office (HSEO) supports SB 3150, which amends the environmental response, energy, and food security tax to address carbon emissions, increases the tax rate to effectively set a price of \$40 per metric ton of carbon dioxide emissions in 2021, and incrementally increases the tax rate over time so that, in 2030, the tax rate shall be equivalent to a carbon price of \$80 per metric ton of carbon emissions. HSEO defers to appropriate agencies regarding administration of the provisions contained in this bill.

HSEO notes the Hawaii Climate Change Mitigation and Adaption Commission's position that putting a price on carbon is the most effective single action that will achieve Hawaii's ambitious and necessary carbon emission reduction goals. For Hawaii to meet its target to sequester more greenhouse gases than we emit as soon as practicable but no later than 2045, measures such as a carbon tax, with mechanisms to balance and support the variety of economic, social, and environmental challenges faced by our state, must be discussed.

Pursuant to Act 122 (2019), HSEO initiated a carbon pricing study, the final results of which are anticipated by the next legislative session. Meanwhile, we are ready to assist the Legislature should it decide to move forward. We anticipate the general areas of discussion to include: how it will work; what is a necessary and sufficient level to achieve the objectives; how to mitigate anticipated impacts; how to measure effectiveness; and how to respond to and mitigate unintended consequences.

We look forward to working with the Legislature, agencies, and stakeholders to support the State's decarbonization goals.

Thank you for the opportunity to testify.

DAVID Y. IGE
GOVERNOR OF HAWAII



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

ROBERT K. MASUDA
FIRST DEPUTY

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

Testimony of
SUZANNE D. CASE
Chairperson

Before the Senate Committees on
AGRICULTURE AND THE ENVIRONMENT
and
ENERGY, ECONOMIC DEVELOPMENT, AND TOURISM

Wednesday, February 12, 2020
1:15 P.M.
State Capitol, Conference Room 224

In consideration of
SENATE BILL 3150
RELATING TO TAXATION

Senate Bill 3150 proposes to amend the Environmental Response, Energy, and Food Security Tax to address carbon emissions; and to increase the tax rate over time. **The Department of Land and Natural Resources (Department) offers the following comments in regard to the language contained on page 6, lines 12 through 14.**

The Department supports the proposal to allocate tax revenues from the sale of gasoline, diesel, or other fuel used in small boats to the Boating Special Fund, provided that Boating Special Fund revenue is not adversely affected. The Boating Special Fund is administered by the Department's Division of Boating and Ocean Recreation (DOBOR) and is currently funded by user fee collections from state small boat harbors, state boating facilities, and commercial ocean recreation activities, as well as lease rents for property under DOBOR's jurisdiction.

For all other provisions of this measure, the Department defers to the Hawai'i Climate Change Mitigation and Adaptation Commission.

Thank you for the opportunity to testify on this measure.



UNIVERSITY OF HAWAII SYSTEM

Legislative Testimony

Testimony Presented to the
Senate Committee on Agriculture and Environment and
Senate Committee on Energy, Economic Development, and Tourism
Wednesday, February 12, 2020 at 1:15 p.m.

By
Richard Rocheleau, Director
Hawai'i Natural Energy Institute
And
Michael Bruno, PhD
Vice Chancellor for Research
University of Hawai at Mānoa

SB 3150 – RELATING TO TAXATION

Chairs Gabbard and Wakai, Vice Chairs Ruderman and Taniguchi, and members of the committees:

The Hawai'i Natural Energy Institute (HNEI) supports the intent of this bill and provides the following comments.

SB 3150 would amend the environmental response, energy, and food security tax to address carbon emissions by establishing a carbon tax; effectively priced at \$40 per metric ton of carbon dioxide, increasing to \$80 by 2030.

HNEI notes that the amount of the tax proposed would be a significant increase over the current level, and could result in some unintended consequences and inequities.

HNEI also notes that few if any available energy sources are “carbon free” when full life-cycle emissions are considered. Although they have lower GHG emissions than fossil fueled generation; technologies like wind and solar especially when combined with battery storage, can have a significant GHG footprint. The entire life-cycle carbon impacts of the fully integrated energy system used to power our islands should be assessed, considered, and balanced to make informed decisions that impact our economy and climate.

Thank you for the opportunity to comment on SB 3150.

DAVID Y. IGE
Governor

JOSH GREEN
Lt. Governor



PHYLLIS SHIMABUKURO-GEISER
Chairperson, Board of Agriculture

MORRIS M. ATTA
Deputy to the Chairperson

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 South King Street
Honolulu, Hawaii 96814-2512
Phone: (808) 973-9600 FAX: (808) 973-9613

TESTIMONY OF PHYLLIS SHIMABUKURO-GEISER
CHAIRPERSON, BOARD OF AGRICULTURE

BEFORE THE SENATE COMMITTEES ON AGRICULTURE AND ENVIRONMENT
AND ENERGY, ECONOMIC DEVELOPMENT AND TOURISM

FEBRUARY 12, 2020
1:15 P.M.
CONFERENCE ROOM 224

SENATE BILL NO. 3150
RELATING TO TAXATION

Chairpersons Gabbard and Wakai and Members of the Committees:

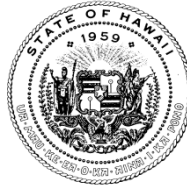
Thank you for the opportunity to present testimony on Senate Bill 3150. This bill amends the environmental response, energy, and food security tax to address carbon emissions. The Department has strong concerns regarding this measure and offers the following comments on portions of the bill that affect this Department.

The amounts deposited into the Agricultural Development and Food Security special fund has increased incrementally over the last three years. This bill revises the method of allocation from a "cents per" tax rate to a fixed dollar amount of tax revenues from imported petroleum products that is deposited annually. This may potentially reduce funding for the growing agricultural industry in the state going forward. The bill does maintain the percentage-based allocation method for the tax on imported fossil fuels. The increased tax rates proposed on imported fossil fuels may increase the amount that is deposited into the special fund. It is essential that funding increases are proportional to the growing support needs of the Agricultural Industry. Increased revenues will be utilized to fund positions and programs to purchase, protect and put agricultural lands into agricultural production, repair irrigation systems, lower the costs



of farming, and raise both the supply of and demand for local food and other initiatives to assist the agricultural industry. The Agricultural Development and Food Security Special Fund is statutorily designated to be used for agricultural production and processing in HRS 141-10(c). The Department respectfully submits that redirection or reduction of its funds for other purposes that do not pertain directly to agriculture should be drawn instead from other more appropriate sources which have been established for such purposes.

Thank you again for the opportunity to testify on this measure.



TESTIMONY BY:

JADE T. BUTAY
DIRECTOR

Deputy Directors
LYNN A.S. ARAKI-REGAN
DEREK J. CHOW
ROSS M. HIGASHI
EDWIN H. SNIFFEN

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

February 12, 2020
1:15 p.m.
State Capitol, Room 224

S.B. 3150
RELATING TO TAXATION

Senate Committees on Agriculture & Environment
and
Energy, Economic Development, and Tourism

The Department of Transportation (DOT) provides **comments** on Senate Bill 3150 that proposes to amend the environmental response, energy, and food security tax to address carbon emissions by increasing the tax to effectively set a price of \$40 per metric ton of carbon dioxide emissions in 2021 and incrementally increases the tax rate over time so that in 2030 the tax rate will be equivalent to \$80 per metric ton of carbon emissions.

The DOT, as part of the Hawaii Climate Change Mitigation and Adaptation Commission, recognizes the urgency to combat climate threats and the need to act quickly. The State's infrastructure is already impacted by sea level rise and extreme weather events and storms. The DOT also supports legislation that funds State programs to meet Hawaii's ambitious and necessary emissions reduction goals.

It is important to consider for the carbon emissions tax revenues be used in an equitable way to further transition our state to a green, sustainable future, to support those who will be most adversely affected by climate change, and to support those who may potentially bear an undue burden from the implementation of the tax. Drawing from the experiences of other countries, Canada, for example, has one of the most ambitious carbon pricing in the world, which started at \$15 per ton of carbon dioxide emission in 2019 and will rise to \$38 per ton by 2022. Most of the revenue will be refunded to Canadians in their tax bills; these refunds are estimated to offset higher energy costs for about 70 percent of the people.^{1/}

The DOT respectfully requests for more discussion, including considering the final results of the carbon pricing study currently underway pursuant to Act 122/2019 by the Hawaii State Energy Office. It may be judicious for a gradual tax schedule to allow for sufficient time for DOT to evaluate and study the economic impacts to DOT's multiple

^{1/} / The New York Times, "These Countries Have Prices on Carbon, Are They Working?", April 2, 2019.

sources of revenues, to meet current bond covenants, satisfy existing debt service obligations, and identify potential initiatives to address a carbon dioxide emissions tax over time.

Thank you for the opportunity to provide testimony.

TAX FOUNDATION OF HAWAII

126 Queen Street, Suite 304

Honolulu, Hawaii 96813 Tel. 536-4587

SUBJECT: FUEL, Barrel Tax Hike

BILL NUMBER: SB 3150; HB 2654

INTRODUCED BY: SB by K. RHOADS, S. CHANG, KEITH-AGARAN, RUDERMAN, Shimabukuro; HB by SAIKI

EXECUTIVE SUMMARY: Amends the environmental response, energy, and food security tax to address carbon emissions. Increases the tax rate to effectively set a price of \$40 per metric ton of carbon dioxide emissions in 2021. Incrementally increases the tax rate over time so that, in 2030, the tax rate shall be equivalent to a carbon price of \$80 per metric ton of carbon emissions.

SYNOPSIS: Amends section 243-3.5, HRS, to rename the barrel tax the “environmental response, energy, carbon emissions, and food security tax.” Raises the tax from \$1.05 on each barrel or fractional part of a barrel of petroleum product to the following, which is said to correspond to \$40 per metric ton of CO₂ emissions in 2020, and increase to \$80 in 2030:

Product	2021	2024	2027	2030
Propane; Butane	\$10.47	\$13.96	\$17.45	\$20.94
Gasoline	\$8.22	\$13.20	\$18.18	\$23.16
Diesel	\$10.35	\$15.08	\$21.01	\$26.34
Kerosene	\$16.38	\$21.84	\$27.30	\$32.76
Aviation gas	\$14.03	\$18.71	\$23.39	\$28.07
Jet fuel	\$16.07	\$21.43	\$26.79	\$32.15
No. 6 Fuel oil	\$19.81	\$26.41	\$33.01	\$39.62
Other	\$16.00	\$21.33	\$26.66	\$32.00

For non-petroleum fossil fuels, the tax per one million BTU is increased from 19 cents to:

Product	2021	2024	2027	2030
Coal (all forms)	\$3.92	\$5.22	\$6.53	\$7.84
Natural gas (including LNG)	\$2.12	\$2.82	\$3.53	\$4.24

Replaces the existing earmarks of taxes per barrel with the following:

- (1) \$1,291,000 to the environmental response revolving fund;
- (2) \$3,872,000 to the energy security special fund;
- (3) \$2,582,000 to the energy systems development special fund;

- (4) \$3,872,000 to the agricultural development and food security special fund;
- (5) All taxes paid on gasoline or other aviation fuel sold for use in or used for airplanes to the airport revenue fund; and
- (6) All taxes paid on gasoline, diesel, or other fuel sold for use in or used for small boats to the boating special fund.

The tax is grandfathered as to coal used to fulfill an existing power purchase agreement in effect as of June 30, 2015, but grandfathering protection will not apply to a different PPA or an extension of the existing one.

Makes technical and conforming amendments.

EFFECTIVE DATE: January 1, 2021

STAFF COMMENTS: An economist from UHERO, the University of Hawaii Economic Research Organization, posted [an analysis](#) arguing that strong, decisive action such as a carbon tax is going to be needed if we are going to achieve the greenhouse gas goals. “But without any specifics as to how we are to achieve [greenhouse gas] reductions – through a carbon tax or otherwise – it is largely symbolic,” she argues.

So what is a carbon tax? It is a tax imposed on the carbon content of different fuels. Typically, it is due and payable when the fuel is either extracted and placed into commerce, or when it is imported. At present, neither the U.S. federal government nor any U.S. state has enacted a carbon tax. The city of Boulder, Colorado, enacted one by referendum in 2006; it applies at the rate of \$7 per metric ton of CO₂ and is imposed on electricity generation only. Several European Union countries, Japan, and South Africa [have carbon taxes](#).

Presently, we have a liquid fuel tax (chapter 243, HRS). Like a carbon tax, the fuel tax is imposed upon import and entry into commerce. So, PFM Group, the consultant employed by the Hawaii Tax Review Commission, in its [final report](#) thought that the systems and processes we now have in place to collect fuel tax in Hawaii can be adapted to a carbon tax, and for that reason concluded that a carbon tax would entail “[l]ittle administrative burden.” There are, however, several important differences between the two.

Both the county and state governments are given the power to impose fuel tax. This bill does not repeal the state fuel tax and does not affect the counties’ power to impose fuel tax.

The fuel tax is now earmarked for Highway Fund use, and the money in that fund is spent by the Department of Transportation. As a result, vehicles that don’t use the highways, such as tractors and other farm machinery, are exempt from fuel tax. A carbon tax applies to both on-road and off-road use of fuel, as long as the CO₂ generated from burning it gets into the atmosphere.

The potential big losers will be the electric companies, because electric generation accounted for 6.8 million metric tons of CO₂ in 2013 out of a total 18.3 million metric tons. However, the electric companies won’t simply absorb the tax, but can be expected to pass on the enhanced costs to anyone who gets an electric bill.

Perhaps it's good for lawmakers to worry about the end of the world as we know it, which perhaps will be staved off by the social change the tax encourages. But their constituents are worried not about the end of the world, but the end of next week. Will their paychecks be enough to pay the rent, keep the lights on, or feed the family? If the cost of simply driving to work from the suburbs is horrible now, just wait until the tax kicks in.

And if you think the hammer of a carbon tax will fall most heavily on huge, faceless corporations like the electric company, the airlines, or the shippers, think again. Businesses can and will pass on any enhanced costs to their consumers if they hope to continue providing their products or services. That means our already astronomical cost of living could head further up into the stratosphere. In theory, that would not happen under this bill, which is intended to be revenue neutral; but tax rates can be and are adjusted over time.

Digested 1/31/2020



ADA

HAWAII

AMERICANS FOR DEMOCRATIC ACTION

OFFICERS

John Bickel, President
Alan Burdick, Vice President
Marsha Schweitzer, Treasurer
Doug Pyle, Secretary

DIRECTORS

Melodie Aduja
Juliet Begley
Ken Farm
Stephanie Fitzpatrick
Chuck Huxel
Jan Lubin
Jenny Nomura
Dave Nagaji

MAILING ADDRESS

Stephen O'Harrow
Lyn Pyle
P.O. Box 23404
Honolulu
Hawai'i 96823

February 6 , 2017

TO: Honorable Chairs Gabbard & Wakai and Members of their AEN/EET Committees

RE: SB3150 Relating to Taxation

Support for hearing on Feb. 12

Americans for Democratic Action is an organization founded in the 1950s by leading supporters of the New Deal and led by Patsy Mink in the 1970s. We are devoted to the promotion of progressive public policies.

We support SB 3150 as it would make fossil fuels less attractive due to the gradual raising of the tax over time, and motivating conversion to more sustainable fuels and energy sources. It would be useful to raise revenues for uses that appear to be responsible.

Thank you for your consideration.

Sincerely,

John Bickel
President

SB-3150

Submitted on: 2/10/2020 9:23:34 AM

Testimony for AEN on 2/12/2020 1:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Zachary LaPrade	Testifying for Calypso Charters	Oppose	No

Comments:

The "carbon tax" is a regressive tax that will fall hardest on the people that are least able to afford to pay it. Even if it causes less burning of fossil fuel it will have zero impact on global warming or climate change because it does not address the fact that the greatest emitters of co2 into the environment are China and India who continue to increase their emissions while the United States emissions output has leveled off since the use of vehicles for transportation. It is highly unlikely that the tax will result in less co2 being emitted into the environment it will simply impose a hardship on working people that will have to pay substantially more to fill their tanks when the cost of fuel in Hawaii is already substantially more than almost anywhere else in the U.S.



Ocean Tourism Coalition

The Voice for Hawaii's Ocean Tourism Industry

1188 Bishop St., Ste. 1003

Honolulu, HI 96813

(808) 537-4308 Phone (808) 533-2739 Fax

timlyons@hawaiiantel.net

COMMITTEE ON AGRICULTURE AND ENVIRONMENT

Senator Mike Gabbard, Chair

Senator Russell E. Ruderman, Vice Chair

COMMITTEE ON ENERGY, ECONOMIC DEVELOPMENT, AND TOURISM

Senator Glenn Wakai, Chair

Senator Brian T. Taniguchi, Vice Chair

NOTICE OF HEARING

DATE: Wednesday, February 12, 2020

TIME: 1:15 p.m.

PLACE: Conference Room 224

TESTIMONY OF THE OCEAN TOURISM COALITION IN OPPOSITION TO SB3150 RELATING TO TAXATION

This James E. Coon, President of the Ocean Tourism Coalition (OTC), **speaking in Opposition to SB3150 Relating to Taxation**

The OTC represents over 300 small ocean tourism businesses state wide. All of them operate from State Boating Facilities managed by DLNR/DOBOR. Most of these are family businesses which are locally owned and operated. They are capital and labor intensive. Many of them have been in business for several decades and are an important and valued part of their respective communities.

SB3150 would significantly increase the cost of operating for almost every small ocean tourism business, its impact will also be on our employees and every resident of the State who already are paying some of the highest gas prices in the nation. We see this as just another overreach on the part of our government taking hard earned money from the people who can least afford it.

Please do not pass this bill.

Sincerely,

James E. Coon, President

Ocean Tourism Coalition



**Testimony to the Committee on Agriculture and Environment and the
Committee on Energy, Economic Development and Tourism**

Wednesday, February 12, 2020

1:15 PM

Conference Room 224, Hawaii State Capitol

Senate Bill 3150

Chair Gabbard, Chair Wakai, Vice Chair Ruderman, Vice Chair Taniguchi, and members of the committees,

Hawaii Gas **provides these comments** on SB 3150, which amends the environmental response, energy, and food security tax to address carbon emissions.

This bill wisely acknowledges the carbon pricing study currently underway, but moves forward with this legislation without the knowledge from this ongoing study that would better inform this proposal. We believe the more prudent approach would be to allow the study's completion before taking any action.

We find the measure's methodology defining the tax rates across product lines to be inconsistent and ill-defined. We urge the committees to consider the need for transparency in the methodology so that any such tax is distributed appropriately across all products.

The bill also notes that the climate change experts recommend the increase in tax amounts. However, this may impact mainland consumers and Hawaii consumers differently.

Finally, it's critically important that the impact on our ratepayers and consumers be considered, especially given the financial hardships so many of Hawaii residents currently experience. Currently, the tax on a million BTUs of fossil fuel is \$0.19 cents. This proposal takes that tax to \$2.12 in 2021 and exponentially increases it to \$4.24 in 2030. These tax increases will be passed on to consumers and ratepayers, as currently allowed in statute. Before imposing more financial burden on the people of Hawaii, it's critically important that we know the tax will have its intended impact in order to justify their additional burden and look at ways to mitigate the potentially regressive nature of the tax.

Thank you for the opportunity to testify.

SB-3150

Submitted on: 2/11/2020 12:47:10 PM

Testimony for AEN on 2/12/2020 1:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Keith Neal	Testifying for Hawaii Island Citizens' Climate Lobby chapter	Support	No

Comments:

Aloha,

I am a resident of Hawaii County and member of a Hawaii Island Citizens' Climate Lobby (CCL) chapter. Citizens' Climate Lobby is a national climate advocacy organization with chapters in every Congressional district in the nation. CCL has a strong presence in all counties of the state. We strongly believe a robust carbon fee (and dividend) policy will address the damage to our environment and heavy reliance on fossil fuels.

I strongly support the intent of SB 3150 (with an amendment), particularly as the bill addresses climate change and the need for fossil fuel producers to take financial responsibility for the societal damage caused by the emission of Green House Gasses. A carbon fee provides a motivation to producers to move some of their production to cleaner energy sources and innovate in less fossil fuel intensive processes. A carbon fee and citizen dividend policy will send a clear market signal to producers and consumers alike.

I would like the committees hearing this bill to consider amending the legislation to include a public dividend. A dividend returned to the public would mitigate the impact on low income consumers.

Sincerely,

Keith Neal

[_citizensclimatelobby.org](http://citizensclimatelobby.org)

[_community.citizensclimate.org](http://community.citizensclimate.org)

Eager for Hope? Ready for Action?

- Watch a [2 min clip](#)
- Learn about [the Bipartisan Climate Solution](#)

SB-3150

Submitted on: 2/11/2020 5:21:01 PM

Testimony for AEN on 2/12/2020 1:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Mark White	Testifying for Citizens' Climate Lobby	Support	No

Comments:

Aloha,

My name is Mark White. I am a volunteer co-leader with the Maui Chapter of Citizens' Climate Lobby. We are a national climate advocacy organization, with chapters covering nearly every Congressional district in the nation. We have a strong local presence throughout Hawai'i and are entirely comprised of resident volunteers. We believe that a robust carbon fee and dividend policy is one of the most effective approaches to reducing CO2 emissions rapidly to address the severe damage and pollution to our environment due to our heavy reliance on fossil fuels.

I am in strong support of the intent of SB3150 as it will directly address climate change and help to pay the true social costs of fossil fuel use. A carbon fee will also accerlate Hawai'i's progress toward its renewable energy goals while fostering greater technological innovation and energy use efficiencies. I further strongly urge an amendment be added to this bill to reduce its financial impact to lower and middle income households, preferrably through a dividend, tax rebate or other mechanism.

Mahalo nui,

Mark White

Maui Chapter of Citizens' Climate Lobby



Testimony of Kimo Haynes,
President of the Hawaii Petroleum Marketers Association

OFFERING COMMENTS ON SENATE BILL 3150, RELATING TO TAXATION

Senate Committee on Agriculture & Environment
The Honorable Mike Gabbard, Chair
The Honorable Russell Ruderman, Vice Chair

Senate Committee on Energy, Economic Development & Tourism
The Honorable Glenn Wakai, Chair
The Honorable Brian Taniguchi, Vice Chair

Wednesday, February 12, 2020 at 1:15 p.m.
Hawaii State Capitol, Conference Room 224

Chairs Gabbard and Wakai, Vice Chairs Ruderman and Taniguchi, and members of both Committees,

I am Kimo Haynes, president of the Hawaii Petroleum Marketers Association (“HPMA”). HPMA is a non-profit trade association comprised of members who directly market liquid motor fuel products across the Hawaiian Islands. Our membership includes individuals and companies who operate as independent marketers, jobbers or distributors of petroleum products and who buy liquid motor fuel products at the wholesale level and sell or distribute products to retail customers, other wholesalers, and other bulk consumers.

Senate Bill 3150 amends the environmental response, energy, and food security tax to address carbon emissions. Increases the tax rate to effectively set a price of \$40 per metric ton of carbon dioxide emissions in 2021. Incrementally increases the tax rate over time so that, in 2030, the tax rate shall be equivalent to a carbon price of \$80 per metric ton of carbon emissions.

HPMA offers the following comments.

HPMA agrees with a recent recommendation made in December 2019 at the conclusion of the State of Hawaii Office of Planning’s **Feasibility and Implications of Establishing a Carbon Offset Program for the State of Hawaii**:

In Accordance with Act 122, Session Laws of Hawaii 2019, conduct a study on carbon pricing, including whether and how a carbon pricing policy shall be implemented in Hawaii. Any potential carbon pricing mechanism should align with the current goals of the State of Hawaii,

Comments on SB 3150, Relating to Taxation
Senate Committee on Agriculture & Environment
Senate Committee on Energy, Economic Development & Tourism
Hawaii State Capitol, Room 224
Wednesday, February 12, 2020 at 1:15 p.m.
Page 2

now that the state is on track to meet its 2020 greenhouse gas emissions reduction target and has a more ambitious Zero Emissions Clean Economy target for 2045.

We believe this study is of material importance to establishing a viable carbon emissions pricing mechanism, and the study should be conducted prior to the enactment of carbon pricing legislation.

HPMA is committed to supporting the State's goal of achieving 100% renewable energy sources by 2045. As such, we would appreciate being part of the study, planning and discussion surrounding potential carbon pricing.

Thank you for allowing HPMA the opportunity to submit written comments for the Committees' consideration.



SENATE COMMITTEE ON AGRICULTURE AND ENVIRONMENT
SENATE COMMITTEE ON ENERGY, ECONOMIC DEVELOPMENT, AND TOURISM

February 12, 2020, 1:15 P.M.
Room 224
(Testimony is 4 pages long)

TESTIMONY IN STRONG SUPPORT OF SB 3150

Aloha Chairs Gabbard and Wakai, Vice Chairs Ruderman and Taniguchi, and members of the committees:

Blue Planet Foundation **strongly supports SB 3150**, a measure establishing a price on climate-changing carbon emissions for Hawaii. We believe that such a policy is one of the single most effective actions that the state can take to reduce its contribution to climate change and demonstrate clean energy leadership.

Blue Planet Foundation appreciates that SB 3150 contemplates expanding the existing “barrel tax” as the mechanism to establish a carbon emissions tax of \$40 per metric ton in 2021, increasing incrementally to \$80 per metric ton in 2030.

Climate change will have devastating, long-term consequences on Hawaii's environment, economy, and quality of life. For these reasons and others, the State of Hawaii has committed to a decisive and irreversible transition away from fossil fuels, and a swift transition to a clean

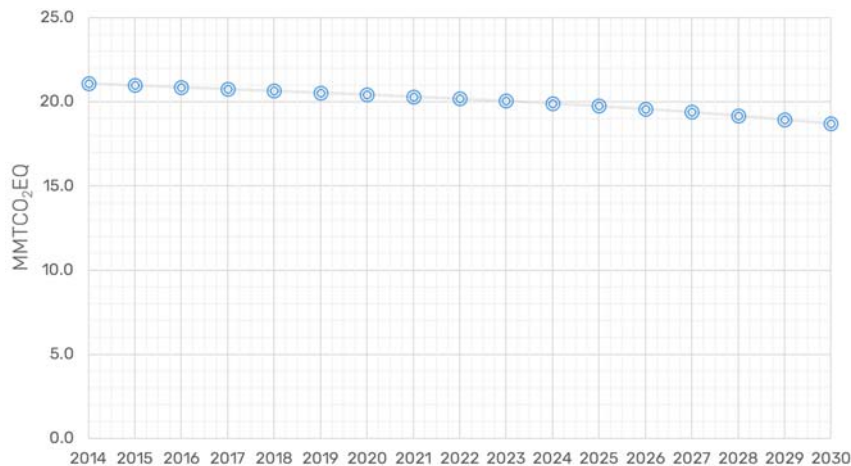


Figure 1. **Best-case** Hawaii greenhouse gas emissions trend with current state policies

energy economy powered by one hundred percent renewable energy. The legislature has passed aggressive carbon reduction goals, including the goal to be net carbon neutral by 2045 (Act 15 of 2018) and strive to achieve the objectives of the Paris Climate Agreement (Act 32 of 2017). Setting these bold targets is important, but alone it is insufficient. Despite a growing portfolio

of standards, incentives, and targets, Hawaii's current policies will not succeed in significantly reducing Hawaii's current overall carbon emissions over the next few decades.

Pricing carbon emissions via a tax on fossil fuels has emerged as a broadly supported, economically efficient, and effective policy tool to reduce climate-changing carbon emissions. Economists and leaders from across the political spectrum—including Nobel-prize winning economists, four former chairs of the U.S. Federal Reserve, and 15 former chairs of the U.S. Council of Economic Advisers—have endorsed a carbon tax as a necessary market-based solution to our climate challenge. In fact, over 3500 economists signed a statement last year in the *Wall Street Journal*—the largest public statement of economists in history—calling for a carbon tax (please see the last page of this testimony)¹. Locally, economist Paul Brewbaker was recently quoted in the *Honolulu Star-Advertiser* expressing strong support for a carbon tax:

“The optimal mix of lower atmospheric carbon-loading and higher atmospheric carbon-sequestration never will be revealed as long as carbon is costless to emit and unremunerative to sequester. For that you need an actual price, not omniscience. We need a market for atmospheric carbon in which you pay to emit (and to guide carbon taxation) and in which you get paid to sequester.”²

Currently, the prices of electricity, gasoline, and other fuels reflect little or none of the long-term costs from climate change or even the near-term health costs of burning fossil fuels. This immense “market failure” suppresses incentives to develop and deploy carbon-reducing measures such as energy efficiency, renewable energy, low-carbon fuels, and conservation-based behavior such as bicycling, recycling, and overall mindfulness toward energy consumption. Taxing fuels according to their carbon content will infuse these incentives at every link in the chain of decision and action—from individuals’ choices and uses of vehicles, appliances, and housing, to businesses’ choices of product design, capital investment, and facilities.

Other jurisdictions have successfully implemented an effective carbon tax. For example, British Columbia currently has a carbon tax of \$30 per metric ton (\$40 CAD). The BC carbon tax started in 2008 at \$7.50 per ton (\$10 CAD) and has increased a number of times to its current level. Remarkably, business community—who was initially opposed to the tax—supported expansion of the tax during the last review. According to the BC government, between 2007 and 2016, BC's real GDP grew by 19%, while net emissions declined by 3.7%³. BC also provides direct rebate checks to residents from a portion of the carbon tax revenues: the current "Climate Action Tax Credit" to \$154.50 (CAD) per adult and \$45.50 (CAD) per child. Other revenues go to clean energy programs and income tax reductions.

¹ Greenspan, A., et. al. (2019, January 16). Economists' Statement on Carbon Dividends. *The Wall Street Journal*.

² O'Connell, Maureen. (2020, February 7). Paul Brewbaker: The economist speaks plainly about challenges facing Hawaii — and how to manage them. *Honolulu Star-Advertiser*.

³ British Columbia's Carbon Tax government website: <https://www2.gov.bc.ca/gov/content/environment/climate-change/planning-and-action/carbon-tax>

Blue Planet Foundation recognizes, however, that a carbon tax—if not designed correctly—could disproportionately impact low- to moderate-income residents. Most low- to moderate-income households spend a larger percentage of their income on gasoline, other fuels, and electricity than do higher-income households. For example, in 2014, the wealthiest 20% of U.S. households spent just 2.7% of their after-tax income on gasoline; the percentage for the lowest quintile, 10.8%, was four times as high. When viewed in absolute dollar terms, however, the bulk of carbon taxes will be paid, directly or indirectly, by households and visitors of above-average means. Researchers at the University of Hawaii at Manoa have found that the carbon intensity of visitor activities is much higher than those of residents. Regardless, a variety of mechanisms exist to reduce the regressive nature of a carbon tax, including increasing the state-level match of the Earned Income Tax Credit and making the match refundable, reducing existing taxes—particularly those that are disproportionately paid by lower income residents (such as the General Excise Tax on food and medicine), or providing a direct dividend to residents. We urge the legislature to examine such mechanisms in parallel with SB 3150 to reduce the potential regressive nature of carbon emissions tax.

Blue Planet Foundation strongly supports advancing a tax on carbon emissions to reduce our contribution to catastrophic climate change.

Thank you for the opportunity to testify.

ECONOMISTS' STATEMENT ON CARBON DIVIDENDS

The Largest Public Statement of Economists in History

#

As appeared in

THE WALL STREET JOURNAL.

THURSDAY, JANUARY 17, 2019

#

Global climate change is a serious problem calling for immediate national action. Guided by sound economic principles, we are united in the following policy recommendations.

- I. A carbon tax offers the most cost-effective lever to reduce carbon emissions at the scale and speed that is necessary. By correcting a well-known market failure, a carbon tax will send a powerful price signal that harnesses the invisible hand of the marketplace to steer economic actors towards a low-carbon future.
- II. A carbon tax should increase every year until emissions reductions goals are met and be revenue neutral to avoid debates over the size of government. A consistently rising carbon price will encourage technological innovation and large-scale infrastructure development. It will also accelerate the diffusion of carbon-efficient goods and services.
- III. A sufficiently robust and gradually rising carbon tax will replace the need for various carbon regulations that are less efficient. Substituting a price signal for cumbersome regulations will promote economic growth and provide the regulatory certainty companies need for long-term investment in clean-energy alternatives.
- IV. To prevent carbon leakage and to protect U.S. competitiveness, a border carbon adjustment system should be established. This system would enhance the competitiveness of American firms that are more energy-efficient than their global competitors. It would also create an incentive for other nations to adopt similar carbon pricing.
- V. To maximize the fairness and political viability of a rising carbon tax, all the revenue should be returned directly to U.S. citizens through equal lump-sum rebates. The majority of American families, including the most vulnerable, will benefit financially by receiving more in “carbon dividends” than they pay in increased energy prices.

SIGNATORIES INCLUDE

- 3558** U.S. Economists
- 4** Former Chairs of the Federal Reserve (All)
- 27** Nobel Laureate Economists
- 15** Former Chairs of the Council of Economic Advisers



SB 3150, RELATING TO TAXATION

FEBRUARY 12, 2020 · SENATE AGRICULTURE AND ENVIRONMENT COMMITTEE AND SENATE ENERGY, ECONOMIC DEVELOPMENT, AND TOURISM COMMITTEE · CHAIRS SEN. MIKE GABBARD AND SEN. GLENN WAKAI

POSITION: Support.

RATIONALE: IMUAlliance supports SB 3150, relating to taxation, which amends the environmental response, energy, and food security tax to address carbon emissions; increases the tax rate to effectively set a price of \$40 per metric ton of carbon dioxide emissions in 2021; and incrementally increases the tax rate over time so that, in 2030, the tax rate shall be equivalent to a carbon price of \$80 per metric ton of carbon emissions.

According to a report produced by the Hawai'i Climate Change Mitigation and Adaptation Commission, global sea levels could rise more than three feet by 2100, with more recent projections showing this occurring as early as 2060. In turn, over the next 30 to 70 years, approximately 6,500 structures and 19,800 people statewide will be exposed to chronic flooding.

Additionally, an estimated \$19 billion in economic loss would result from chronic flooding of land and structures located in exposure areas. Finally, approximately 38 miles of coastal roads and 550 cultural sites would be chronically flooded, on top of the 13 miles of beaches that have already been lost on Kaua'i, O'ahu, and Maui to erosion fronting shoreline armoring, like seawalls.

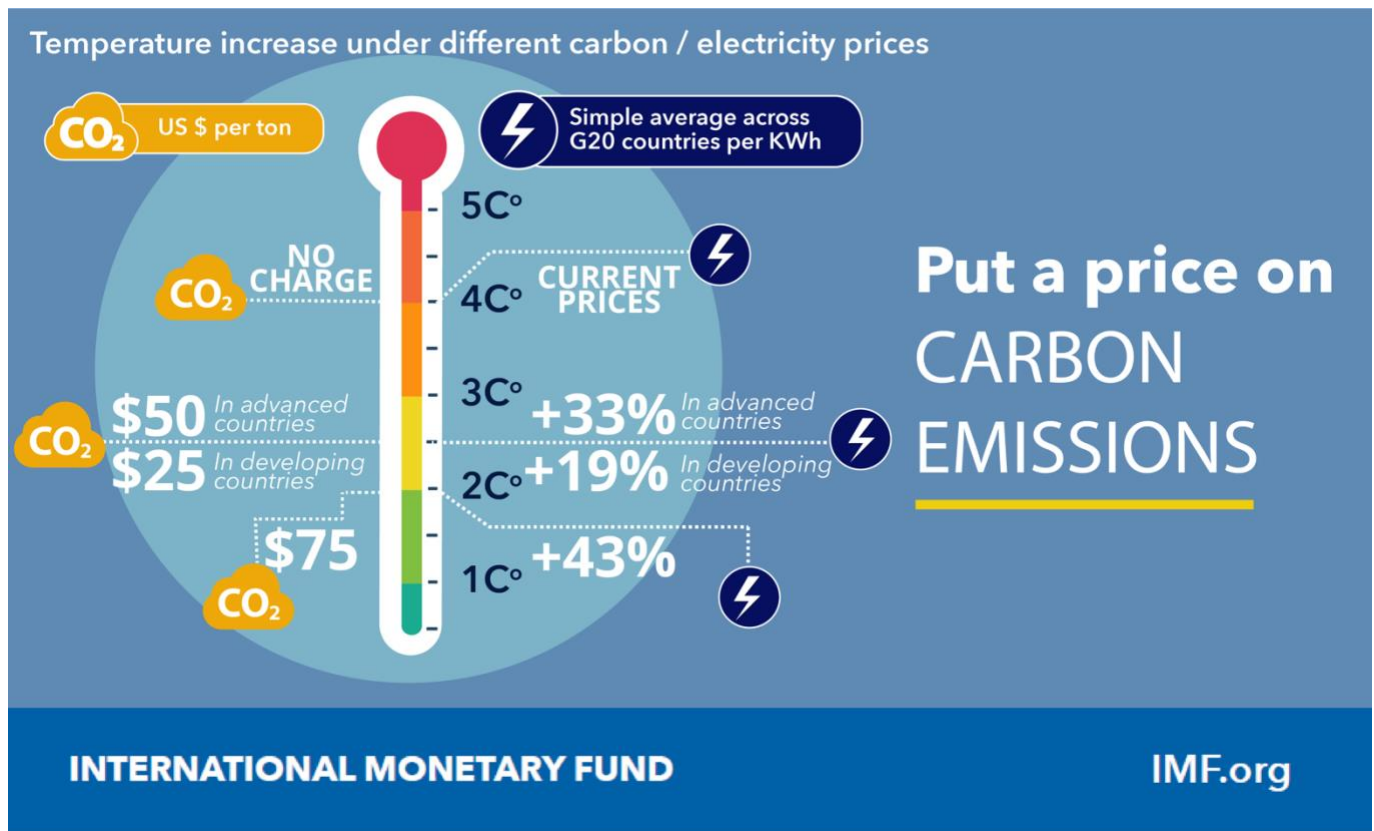
Furthermore, according to research conducted by Michael B. Gerrard from Columbia Law School, modern-day slavery tends to increase after natural disasters or conflicts where large numbers of people are displaced from their homes. In the decades to come, says Gerrard, **climate change will very likely lead to a significant increase in the number of people who are displaced and, thus vulnerable, to human trafficking.** While the Paris Climate Agreement of 2015 established objectives to limit global temperature increases and several international agreements are aimed at combating modern-day slavery, it is highly uncertain whether they will be adequate to cope with the scale of the problem that is likely to occur as a result of climate change.

As we work to reduce carbon emissions and stave off the worst consequences of climate change, we must begin preparing for the adverse impact of sea level rise on our shores. We are now quantifying the speed at which we must act. We cannot continue to develop the 25,800-acre statewide sea level rise exposure area—one-third of which is designated for urban use—without risking massive structural damage and, potentially, great loss of life.

Therefore, our state should take steps to protect Hawai'i's coastal areas, including by exploring carbon pricing options. A carbon tax is a fee imposed on the burning of carbon-based fuels (coal, oil, gas). More to the point, a carbon tax is the core policy for reducing and eventually eliminating the use of fossil fuels whose combustion is destabilizing and destroying our climate, forcing users of carbon fuels pay for the climate damage caused by releasing carbon dioxide into the atmosphere. If set high enough, a carbon tax can be a powerful monetary disincentive that motivates switches to clean energy across the economy by making it more economically rewarding to employ non-carbon fuels and energy efficiency.

Utilizing existing tax collection mechanisms, a carbon tax is paid “upstream,” i.e., at the point where fuels are extracted and inserted into the stream of commerce or imported into the U.S. Fuel suppliers and processors are free to pass along the cost of the tax to the extent that market conditions allow, with market forces simultaneously creating a monetary incentive to reduce carbon dioxide emissions and help our planet curb the climate crisis's global warming effect. Carbon that is chemically bound into manufactured products—such as plastics—are not be taxed under a carbon tax scheme. Similarly, any CO₂ from energy production that is permanently sequestered rather than released into the atmosphere wouldn't and shouldn't be taxed (or should

receive an offsetting tax credit). Finally, some carbon tax proposals include exemptions for export-dependent businesses to help them remain competitive in global markets.



Notably, a Brookings Institute report found that using 2013 emissions figures, a \$20/ton carbon tax would generate an estimated \$365 million for Hawai'i.

Table 31: Estimated Impact of Carbon Tax, State of Hawaii

Per capita energy related CO ₂ emissions in 2013	2013 Electronic Power Fossil Combustion CO ₂	2013 Industrial Fossil Fuel Combustion	Total including transport	Total potential revenue, assuming 2013 emissions and tax rate of \$20/ton CO ₂	Total carbon tax potential revenue as a share of state GDP in 2013
metric tons CO ₂ /person	MMTCO ₂	MMTCO ₂	MMTCO ₂	\$ millions	%
12.9	6.8	1.5	18.3	\$365	0.49%

Source: Brookings Institution State-Level Carbon Taxes, 2016

As we accelerate our transition to a clean energy economy and continue our fight against climate change, we cannot afford to forego this sustainability-minded method of revenue generation.



Testimony Before the Senate Committees on Agriculture and Environment, and
Energy, Economic Development, and Tourism

By David Bissell
President and Chief Executive Officer
Kauai Island Utility Cooperative
4463 Pahee Street, Suite 1, Lihue, Hawaii, 96766-2000

Wednesday, February 12, 2020; 1:15 pm
Conference Room # 224

Senate Bill 3150 – Relating to Taxation

To the Honorable Chairs Mike Gabbard and Glenn Wakai; Vice Chairs Russell E. Ruderman and Brian T. Taniguchi, and Members of the Committees:

Kauai Island Utility Cooperative (KIUC) is a not-for-profit utility providing electrical service to more than 33,000 commercial and residential members. Over the past 10 years, KIUC has made great strides in achieving the state mandate of 100% renewable generation by the year 2045. In 2019, KIUC's energy mix included roughly 55% renewable generation.

KIUC **opposes this measure** as it relates to electric utilities in Hawaii and, in particular, to KIUC.

As you know, HRS 269-92 requires electric utilities to achieve 100% renewable generation by 2045. The law also creates benchmarks to be reached by the utilities, namely: 30% by 2020, 40% by 2030 and 70% by 2040. These goals were devised so that the transition to 100% renewable could be done in a manner that "benefits the state's economy and all electric customers, maintains customer affordability, and does not induce renewable energy developers to artificially increase the price of renewable energy in Hawaii."

While this bill would create a strong incentive for entities in the State of Hawaii to reduce their usage of fossil fuels or be subject to extreme financial penalties, Hawaii's electric utilities do not need such an incentive. We are operating under the mandate prescribed by HRS 269-92, which provides for penalties for non-compliance.

The carbon tax as outlined in this bill takes effect in 2021. KIUC estimates that in 2021 we will be producing electricity that is 60% renewable: double the amount required in 2021 under HRS 269-92.

Further, the three most recent renewable projects KIUC has deployed are saving our members money: all are significantly lower priced than the current cost of diesel.

Ironically, if this bill takes effect as currently written, KIUC would be penalized for performing so well against the mandated benchmark. We are still assessing the potential cost of a carbon tax as outlined in this bill. Initial estimates reveal that the financial impact would be more than \$7 million in 2021. As a not-for-profit cooperative, this cost would need to be passed along to our member-owners. Any financial savings we are realizing by accelerating our transition to a 100% renewable grid would be effectively wiped out by this bill. KIUC's customers, who already pay some of the highest per kilowatt hour prices in the nation, would bear the brunt of this tax.

KIUC, through its strategic planning process, has created a roadmap to 100% renewable that will allow us to comply with HRS 269-92 and likely meet the mandate's benchmarks well ahead of schedule. We anticipate we will be able to do this while simultaneously stabilizing – and possibly even lowering - rates for members. This bill would require us to rethink current strategies in order to avoid a severe short-term financial penalty, which we do not believe is in the long-term interest of our customers.

Mahalo for your consideration.



Chamber of Commerce HAWAII

The Voice of Business

**Testimony to the Senate Committees on Agriculture and Environment, and
Energy, Economic Development, and Tourism
Wednesday, February 12, 2020 at 1:15 P.M.
Conference Room 224, State Capitol**

RE: SB 3150, RELATING TO TAXATION

Chairs Gabbard and Wakai, Vice Chairs Ruderman and Taniguchi, and Members of the Committees:

The Chamber of Commerce Hawaii ("The Chamber") **opposes** SB 3150, which amends the environmental response, energy, and food security tax to address carbon emissions. This bill would also increase the tax rate to effectively set a price of \$40 per metric ton of carbon dioxide emissions in 2021. Finally, this bill would also incrementally increase the tax rate over time so that, in 2030, the tax rate shall be equivalent to a carbon price of \$80 per metric ton of carbon emissions.

The Chamber is Hawaii's leading statewide business advocacy organization, representing 2,000+ businesses. Approximately 80% of our members are small businesses with less than 20 employees. As the "Voice of Business" in Hawaii, the organization works on behalf of members and the entire business community to improve the state's economic climate and to foster positive action on issues of common concern.

Hawaii continues to play a leading role in protecting our environment and increasing energy efficiency. We believe in the benefits of a sustainable future, but we must ensure that solutions that would affect the business community do not impede or create unintended burdens on entrepreneurs. Policies need to be shaped to create common ground, especially so that businesses can have the flexibility to develop and create practical, reasonable and rational solutions to address these important issues. Furthermore, rather than mandates, we encourage innovation and technology to finding solutions.

Additionally, the Chamber would note that Act 122, which was signed into law last year by Governor Ige established the Hawaii State Energy Office and included a provision for the office to conduct a study of carbon pricing. This study would help to determine "whether and how a carbon pricing policy shall be implemented in Hawaii." We feel that until this study has been completed, this bill would be premature. This study will help to provide lawmakers with valuable data for future policies and ensure that there are no unintended consequences to businesses and consumers across the state.

Thank you for this opportunity to provide testimony on SB 3150.



Airlines for America®

We Connect the World

LATE

February 11, 2020

Hon. Mike Gabbard, Chair, Senate Agriculture and Environment Committee
Hon. Russell Ruderman, Vice Chair, Senate Agriculture and Environment Committee
Hon. Glen Wakai, Chair, Senate Energy, Economic Development, and Tourism Committee
Hon. Brian T. Taniguchi, Senate Energy, Economic Development, and Tourism Committee
State Capitol
415 South Beretania St
Honolulu, HI 96813

Re: Federal preemption issues in HB 2653 and SB 3150

Dear Chairs Gabbard and Waikai and Vice Chairs Ruderman and Taniguchi:

As your Committee continues the important task of considering legislative responses to the challenges posed by emissions contributing to climate change, we want to take this opportunity to highlight the U.S. airlines' strong record in this regard. Further, while states are precluded from imposing carbon taxes, emissions trading systems and other emissions measures on aircraft fuel and aircraft, we note that additional carbon regulation of the airlines and their fuel is unnecessary given our industry's commitments to climate action and federal law and international agreements already addressing aircraft greenhouse gas (GHG) emissions.

Airlines for America® (A4A) is the principal trade and service organization of the U.S. airline industry.¹ As the record of the A4A carriers demonstrates, we take our role in GHG emissions very seriously. Indeed, the U.S. airlines have a tremendous fuel and GHG emissions record, accounting for only 2 percent of the nation's GHG emissions inventory while driving 5 percent of its GDP, over 10 million U.S. jobs and \$1.5 trillion in economic activity. In fact, between 1978 and year-end 2018, the U.S. airlines improved their fuel efficiency by more than 130 percent, saving nearly 5 billion metric tons of carbon dioxide (CO₂) – equivalent to taking more than 26 million cars off the road on average in each of those years. Further, data from the Bureau of Transportation Statistics confirms that U.S. airlines carried 42 percent more passengers and cargo in 2018 than in 2000, while emitting only 3 percent more CO₂.

These numbers are not happenstance. As an industry, we have achieved this record by driving and deploying technology, operations and infrastructure advances to provide safe and vital air transport as efficiently as possible within the constraints of our air traffic management system. Indeed, for the past several decades, airlines have dramatically improved fuel efficiency and reduced CO₂ emissions by investing billions in fuel-saving aircraft and engines, innovative technologies like winglets (which improve aerodynamics), and cutting-edge route-optimization software. But, despite our strong record to date, A4A and our member airlines are not stopping there.

¹ The members of the association are Alaska Airlines, Inc.; American Airlines Group, Inc.; Atlas Air, Inc.; Delta Air Lines, Inc.; Federal Express Corporation; Hawaiian Airlines; JetBlue Airways Corp.; Southwest Airlines Co.; United Airlines Holdings, Inc.; and United Parcel Service Co. Air Canada is an associate member.

Since 2009, A4A and our members have been active participants in a global aviation coalition that committed to 1.5 percent annual average fuel efficiency improvements through 2020 and to achieving carbon neutral growth from 2020 onward, subject to critical aviation infrastructure, technology, operations and sustainable fuels advances by government and industry. Further, over the long term, we have committed to achieving a 50 percent net reduction in CO₂ emissions in 2050, relative to 2005 levels.

The initiatives the U.S. airlines are undertaking to further reduce their GHG emissions are designed to responsibly and effectively limit their fuel consumption, GHG contribution and potential climate change impacts while allowing commercial aviation to continue to serve as a key contributor to the U.S. economy. A4A and our members are keenly focused on these initiatives. Our primary focus is on getting further fuel efficiency² and emissions savings through new aircraft technology, operations and infrastructure improvements and sustainable alternative jet fuel (referred to as “sustainable aviation fuel,” or “SAF”). In addition, A4A and our member airlines have supported two significant international fuel efficiency and GHG savings agreements adopted in 2016 under the auspices of the United Nations body that sets standards and recommended practices for international aviation, the International Civil Aviation Organization (ICAO).

The two ICAO agreements have been embraced by the U.S. federal government and their implementation is underway. The first, which established a fuel efficiency and CO₂ certification standard for new aircraft, will go into effect for large, new-type design aircraft at the end of this year and then will apply to newly manufactured airplanes of existing types starting in 2023. The second agreement established an international carbon offsetting system (the “Carbon Offsetting and Reduction Scheme for onal Aviation” or “CORSIA”) to help the industry work towards achieving carbon neutral growth in international aviation from 2020. The CORSIA agreement has two parts. First, beginning on January 1, 2019, it required that all aircraft operators with international flights emitting more than 10,000 metric tons of CO₂ monitor and report their emissions under a common set of rules. (Although US aircraft operators have reported fuel burn and emissions to the US government for many years, the ICAO agreement made such reporting a global requirement). Second, CORSIA includes a carbon offsetting obligation, which will commence in 2021 and continue through 2035. This obligation will ensure that should international aviation emissions rise over 2020 levels, those increases will be offset by investment in emissions reductions achieved elsewhere.

Because commercial aircraft cross state (and national) borders and, therefore, cannot be subject to overlapping or conflicting state and local requirements, federal law preempts state and local government regulation of aircraft emissions and the content of and emissions related to jet fuel.³ Thus, the State of Hawaii would be precluded from adopting legislation along these lines. However, as your Committee considers legislation in the coming days, we urge you to keep the

² Indeed, with fuel being one of the highest and most volatile cost centers for airlines – and every penny of increased fuel price equating to an additional \$200 million fuel bill per year – the U.S. airlines’ environmental and economic interests in saving fuel and reducing emissions align.

³ Federal preemption is established both under the federal Clean Air Act (CAA) and federal aviation law. For example, Section 233 of the CAA explicitly preempts states and their political subdivisions from “adopt[ing] or attempt[ing] to enforce any standard respecting emissions of any air pollution from any aircraft or engine thereof unless such standard is identical to a standard” established by the EPA. 42 U.S.C. § 7573. Further, courts have long held that the Federal Aviation Act of 1958 creates a “uniform and exclusive system of federal regulation” of aircraft that preempts state and local regulation. *Burbank v. Lockheed Air Terminal, Inc.*, 411 U.S. 624, 639 (1973); see also *American Airlines v. Department of Transp.*, 202 F.3d 788, 801 (5th Cir. 2000) (aviation regulation is an area where “[f]ederal control is intensive and exclusive”) (quoting *Northwest Airlines, Inc. v. Minnesota*, 322 U.S. 292, 3030 (1944)). This pervasive federal regulatory scheme extends not only to aircraft in flight, but also to aircraft-related operations on the ground. In addition, the Airline Deregulation Act (ADA) precludes states from “enact[ing] or enforce[ing] a law, regulation, or other provision having the force and effect of law related to a price, route or service.” 49 U.S.C. § 41713(b)(1).

federal provisions addressing aviation GHG emissions, our industry's continual drive for greater fuel efficiency, and our commitments for further GHG emissions reduction in mind.

Thank you for your consideration.

Sincerely,

A handwritten signature in blue ink, appearing to read 'S Williams', with a stylized flourish at the end.

Sean Williams
VP. State and Local Government Affairs
swilliams@airlines.org

SB-3150

Submitted on: 1/30/2020 9:24:31 PM

Testimony for AEN on 2/12/2020 1:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Benton Kealii Pang, Ph.D.	Individual	Support	No

Comments:

SB-3150

Submitted on: 2/10/2020 5:15:05 PM

Testimony for AEN on 2/12/2020 1:15:00 PM

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

Comments:

Dear Honorable Committee Members:

Please support SB3150. Carbon tax measures have been enacted from Germany to China to Zimbabwe and across the US. The tax increases revenue without significantly altering the economy and promotes a proactive climate change policy in the process.

Climate change is already occurring, and Hawaii coastlines are eroding due to rising sea levels which, at 3mm/year, is unprecedented in the geologic record.

Thank you for the opportunity to present my testimony.

Sincerely,

Andrea Quinn

Kihei, Maui

SB-3150

Submitted on: 2/11/2020 11:50:30 AM

Testimony for AEN on 2/12/2020 1:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Virginia Tincher	Individual	Support	No

Comments:

My name is Virginia Tincher. I am a resident of Honolulu and a climate advocate volunteer with Citizens' Climate Lobby here in Hawaii. We are a national climate advocacy organization, with chapters covering every Congressional district in the nation. We have a strong presence here on all Islands. We believe a robust carbon fee (and dividend) policy is one healthy way to address the damage to our environment due to our heavy reliance on fossil fuels as an energy source.

I am in STRONG SUPPORT of the intent of SB 3150 (with an amendment), especially as the bill addresses climate change and the need for fossil fuel producers to take financial responsibility for the actual costs to society for the damage caused by the emission of GHGs. A carbon fee also has the benefit of causing producers to perhaps move some of their production to cleaner energy sources. And it may spur consumers to consider changing their fossil fuel consumption habits.

I would like the committees hearing this bill to consider amending the legislation to include a dividend. A dividend returned to the public would help ease the impact on low income consumers for the likely rise in gasoline costs or an increase in their home energy bills.

Thank you.

Virginia Tincher

SB-3150

Submitted on: 2/11/2020 12:38:50 PM

Testimony for AEN on 2/12/2020 1:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Noel Morin	Individual	Support	No

Comments:

Aloha Senators Rhoads, Chang, Keith-Agaran, Ruderman, and Shimabukuro,

I'm in strong support of this SB3150, with an amendment.

I'm a resident of Hawaii Island and a leader in a number of organizations dedicated to the decarbonization of our economy and effecting climate action. I co-lead the Hawaii Island Chapter of the Citizens' Climate Lobby, a national climate advocacy group, with chapters across the nation. We believe that a fee on carbon will create as strong market signal that will translate into a more aggressive and just transition away from fossil fuels. The fee will help to demonstrate to consumers and business the true cost of fossil fuels and will incentivize a shift to less carbon intensive, or carbon-free products. This is especially critical for Hawaii, a state that is uber-dependent on fossil fuel for energy and transportation.

SB3150 will enable us to address a root cause of our climate crisis, will help Hawaii achieve energy independence, and enable us to reach or exceed our 2045 RPS goal.

I ask that we **consider amending this bill to include a dividend** that would allow revenues to be distributed to our residents. This would allow our residents to absorb inevitable increases in the cost of fossil fuel intensive products, e.g., gasoline and electricity, and consumables that are dependent on transport. While the expected impact is for lower carbon footprint products to take foothold, the transition will likely be gradual as industries and consumers will take time to respond. During this period, a dividend will minimize or eliminate the impact, particularly for our low-income residents.

Sincerely,

Noel Morin

Co-Lead, Hawaii Island Chapter Citizens' Climate Lobby

SB-3150

Submitted on: 2/11/2020 4:05:50 PM

Testimony for AEN on 2/12/2020 1:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Ron Reilly	Individual	Support	No

Comments:

Dear Senator Rhoads,

I am in full support of pricing carbon pollution as outlined in SB3150.

I agree whole heartedly with the opening statements in SB3150 that climate change is the most critical issue confronting the State of Hawaii. The concensus of climate scientists is our wake up call.

There is also overwhelming consensus by economists, across the political spectrum, that putting a price on carbon pollution is the most effectice way to curb carbon emissions and limit global warming and climate chaos.

If we don't act now, we're nearing a point of no return when it comes to the environment, our health and our economy. We cannot be the generation to become a runaway train. We've got to put on the brakes, which the legislation will start to do.

SB3150 uses the revenues to fund a number of worthy State initiatives. However, this is a regressive tax that put the burden disporportionally on to low income Hawaii residents.

SB3150 would be greatly improved by returning all, or a major portion, of the collected revenue to individuals and households in Hawaii in the form of a universal, equal per capita, amount on a monthly basis. This dividend would disporportionally benefit low income people who typically have a lower carbon footprint and would thus receive more in dividend than they will pay out in increased prices ralted to the SB3150 tax on fossil fuels.

Thank you for introducing SB3150 and for the opportunity to testify.

Sincerely, Ron Reilly

PO Box 458

Volcano Village, Hawaii 96785

(808) 967-8603

SB-3150

Submitted on: 2/11/2020 3:05:53 PM

Testimony for AEN on 2/12/2020 1:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Chris Brosius	Individual	Support	No

Comments:

Thank you for having the political will to address this critical issue. We need to support this legislation to progress on the challenges of climate change.

SB-3150

Submitted on: 2/12/2020 10:10:19 AM

Testimony for AEN on 2/12/2020 1:15:00 PM

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

Comments:

SB-3150

Submitted on: 2/12/2020 11:16:14 AM

Testimony for AEN on 2/12/2020 1:15:00 PM

LATE

Submitted By	Organization	Testifier Position	Present at Hearing
Zoe Whitney	Individual	Support	No

Comments:

Aloha, I was born and raised on Maui and am now attending UH Hilo to earn an Environmental Science degree. I support SB 3150 because it corrects for a market failure in which the price of greenhouse emissions does not reflect the true, long-term cost to health and society. What I like about SB 3150 is that it empowers producers and consumers to make the most environmental choice and most economic choice simultaneously. There is also a great body of research suggesting that this type of legislation would spur sustainable innovation, create long-term jobs, and benefit vulnerable populations. I hope this bill is amended with a tax credit to ensure low-income people come out ahead during this transition to a greener economy.

SB-3150

Submitted on: 2/12/2020 12:04:41 PM

Testimony for AEN on 2/12/2020 1:15:00 PM

LATE

Submitted By	Organization	Testifier Position	Present at Hearing
Susan Gorman-Chang	Individual	Support	No

Comments:

I am in favor of SB 3150 because it makes sense economically and environmentally. Economically I turn to Economist Milton Freedman, who when questioned in an interview about what to do about pollution stated, *"But the question is what's the best way to do it? The way to do it is to impose a tax on the cost of the pollutants emitted by a car and make an incentive for car manufacturers and for consumers to keep down the amount of pollution."* Elaborating on this, another Economist stated, *"What's happening when we turn on the lights, when the power is derived from a coal plant, or when we drive our car, is that carbon dioxide is emitted into the air, and that's sprinkling around damages in Bangladesh, London, Houston,"* said [Michael Greenstone](#), the Milton Friedman Professor of Economics at the University of Chicago and the director of the Energy Policy Institute of Chicago. *And those costs are real, and they're not being reflected in the costs of that electricity or the tank of gas. Emitting carbon dioxide into the atmosphere does allow you to produce electricity more cheaply, but there's a whole other set of people who are being punished or penalized. It's a poor idea of economics."* Clearly, a tax on carbon is economically efficient and in keeping with capitalism and sound economic policy. Second, it is environmentally sound since it produces incentive for the consumer to choose solar, wind, battery and other forms of renewable energy over fossil fuels and this will help mitigate the global climate change we are already facing. I would also add that I am in favor of some sort of tax credit for the economically disadvantaged, so that this tax does not become regressive in nature.

My name is Doug Hagan. I am a resident of Paia, Hawaii and a climate advocate volunteer with Citizens' Climate Lobby here in Hawaii. We are a national climate advocacy organization, with chapters covering every Congressional district in the nation. And we a strong presence here on all Islands. We believe a robust carbon fee (and dividend) policy is one healthy way to address the damage to our environment due to our heavy reliance on fossil fuels as an energy source.

I am in STRONG SUPPORT of the intent of SB 3150 (with an amendment), especially as the bill addresses climate change and the need for fossil fuel producers to take financial responsibility for the actual costs to society for the damage caused by the emission of GHGs. A carbon fee also has the benefit of causing producers to perhaps move some of their production to cleaner energy sources. And it may spur consumers to consider changing their fossil fuel consumption habits.

- Please consider the voluminous research which has been done on carbon dividend as an effective solution for combatting climate change - including a recent study [Columbia University](#) and some of the benefits of a carbon dividend approach found [here](#).
- Please consider amending the legislation to include a dividend such as SB 3149. A dividend returned to the public would help ease the impact on low-income consumers for the likely rise in gasoline costs or an increase in their home energy bills. Projections in the attached document show that low income may benefit from a dividend approach.

Thank you

--Doug

LATE



Citizens' Climate Lobby

Financial Impact on Households of Carbon Fee and Dividend Local Impacts in Hawaii

Introduction

This study on the impact to households of Carbon Fee and Dividend was funded to respond to concerns expressed by members of Congress that constituents in their state would not benefit under our proposal. Key to the concerns expressed was not only understanding how the average constituent did, but how different groups of constituents fared. Concern for low-income constituents, for instance, is common for members of both parties.

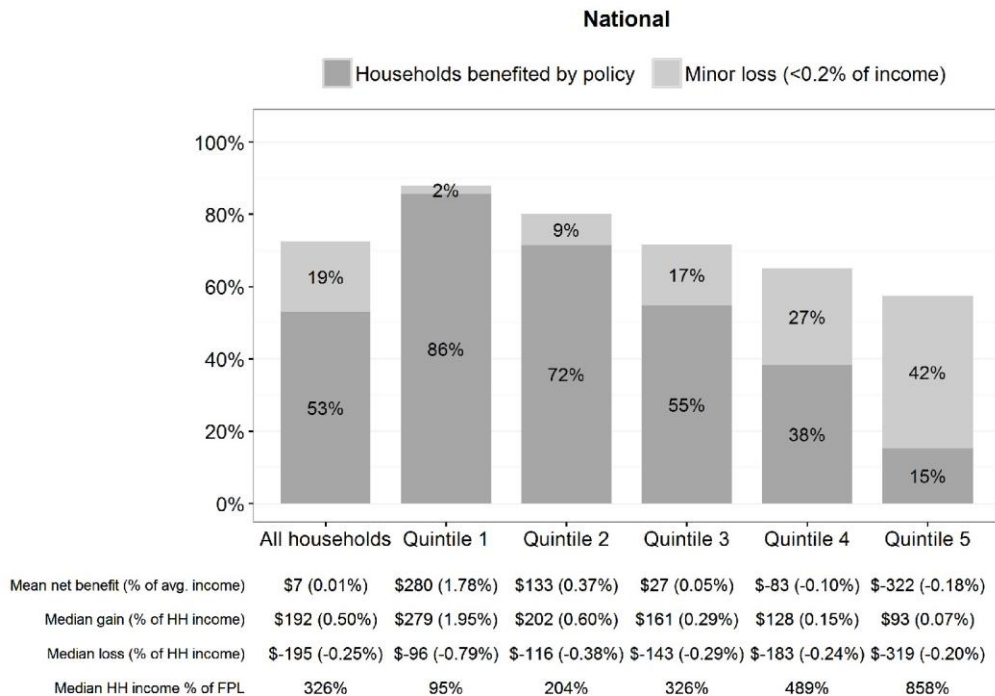


Figure 1: National Averages by Economic Quintile. Note that the three lowest-income quintiles show a benefit for the mean (average) household. The average net benefit for the lowest-income quintile is 1.78% of income, whereas households in the top quintile experience, on average, net losses that are a much smaller percentage of their total income, at just 0.18%.

All data is from the 2016 working paper, “Impact of CCL’s proposed carbon fee and dividend policy: A high-resolution analysis of the financial effect on U.S. households” by Kevin Ummel, Research Scholar, Energy Program, International Institute for Applied Systems Analysis (IIASA).

Current working paper and summary available at <http://citizensclimatelobby.org/household-impact/>

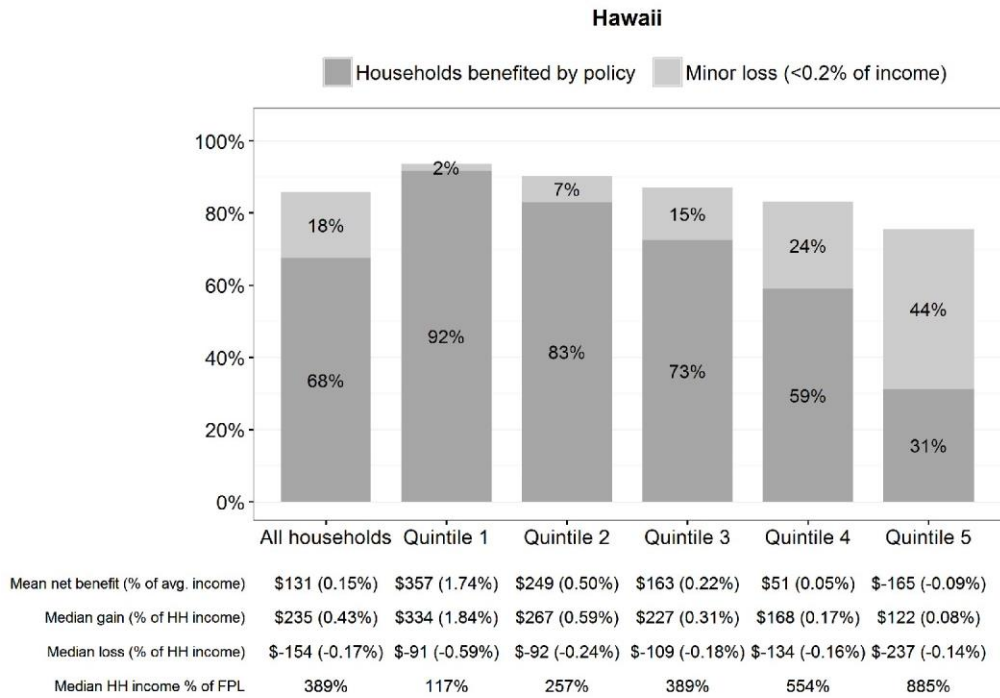


Figure 2: Impact by Quintile for Hawaii. Looking at the categories on the bottom of this graph, only the numbers for “Mean Net Benefit” and “Median HH income % of FPL” include all households in a given quintile (FPL = Federal Poverty Line). Only those households who receive a financial gain are included in calculating the “Median Gain” figures, and likewise, only those households which experience a loss are included in calculating the “Median Loss” figures.

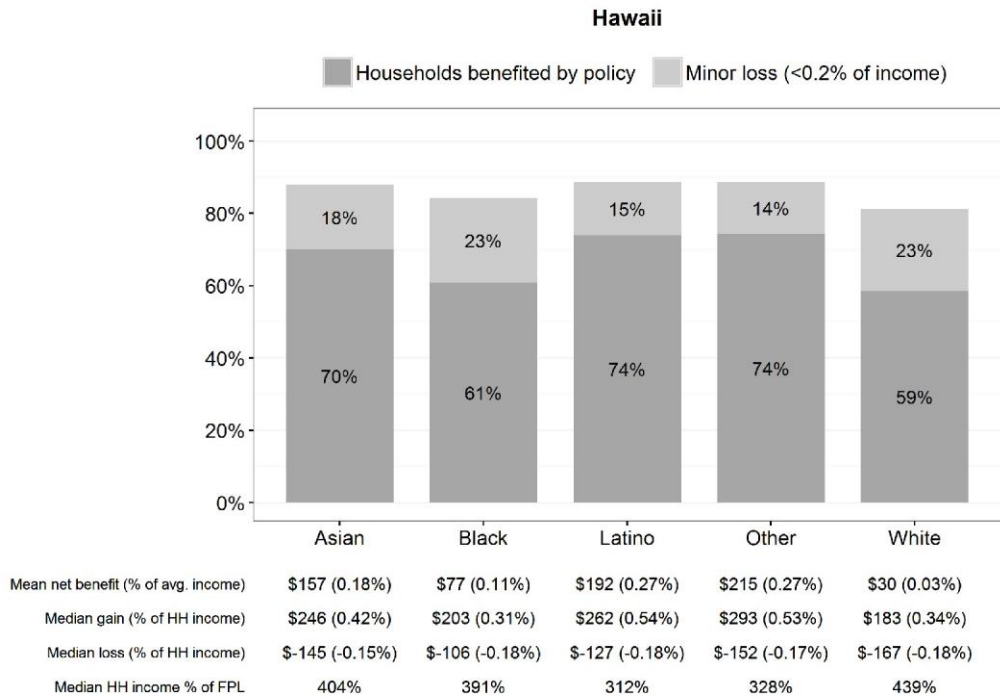


Figure 3: Impact by Race for Hawaii. Minority households tend to do better than white households as a result of lower average incomes (associated with lower carbon footprint) and/or more people per household (larger pre-tax dividend).

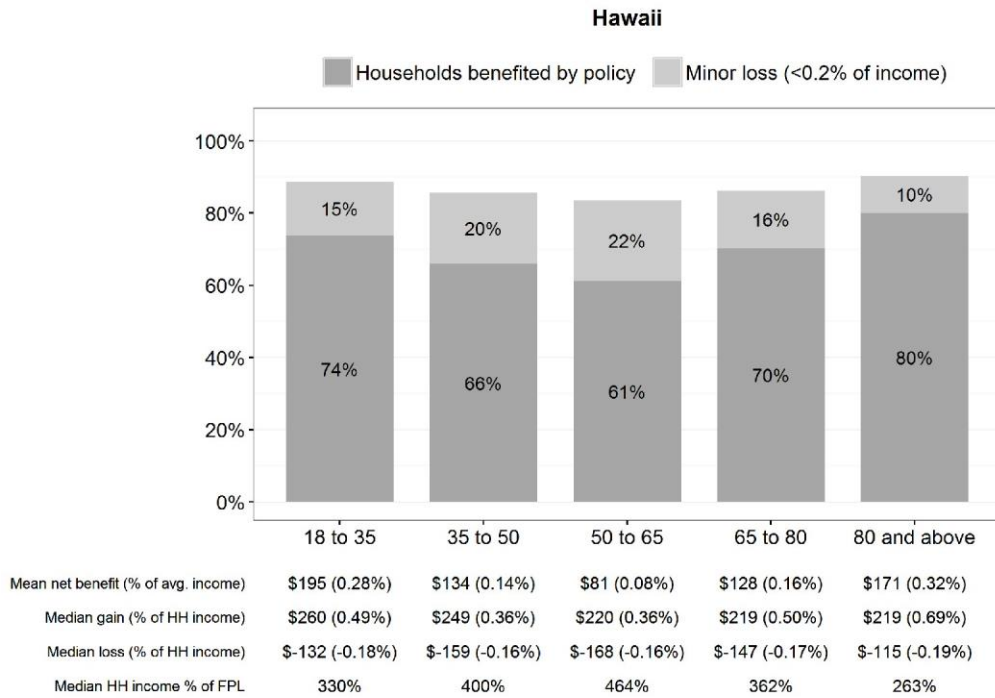


Figure 4: Impact by Age Group for Hawaii. The pattern of benefits across age groups makes sense given the impact of age on both carbon footprints and dividend received. Older households tend to have smaller footprints, reflecting reduced mobility and less consumption as a result of low fixed incomes. Younger households tend to be larger – and therefore benefited by the dividend formula – in addition to less income/consumption in early career.

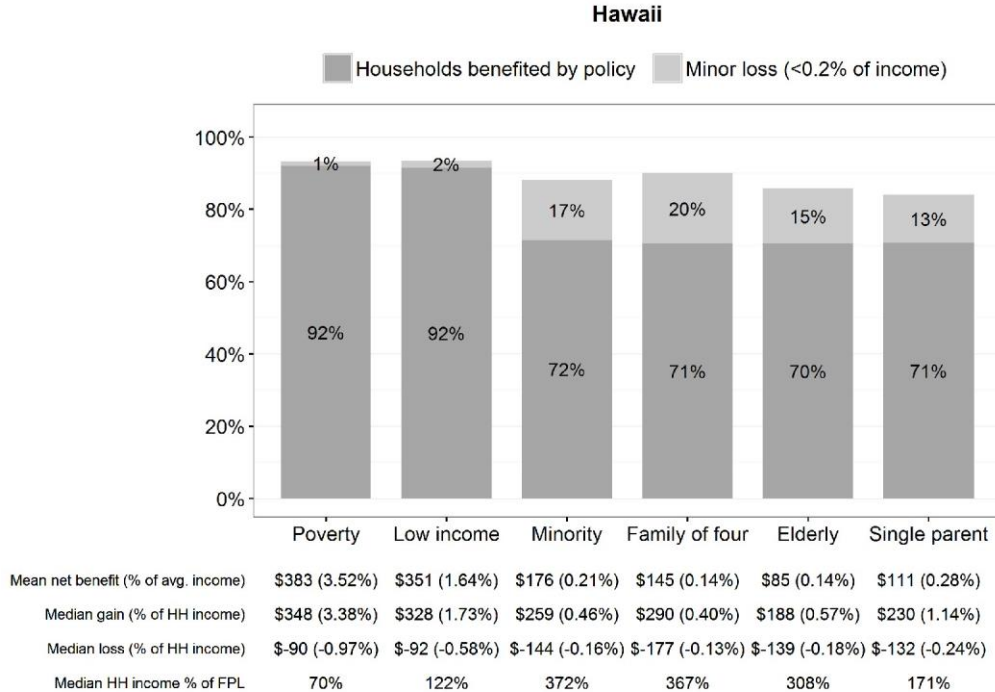


Figure 5: Impact by Household Type for Hawaii. This graph reports data for demographic groups of particular interest to many legislators. “Elderly” households are defined as having a household head age 65 or older, no more than two adults, and no children present. “Poverty” and “Low income” refer to households with income below 100% and 200% of FPL, respectively.

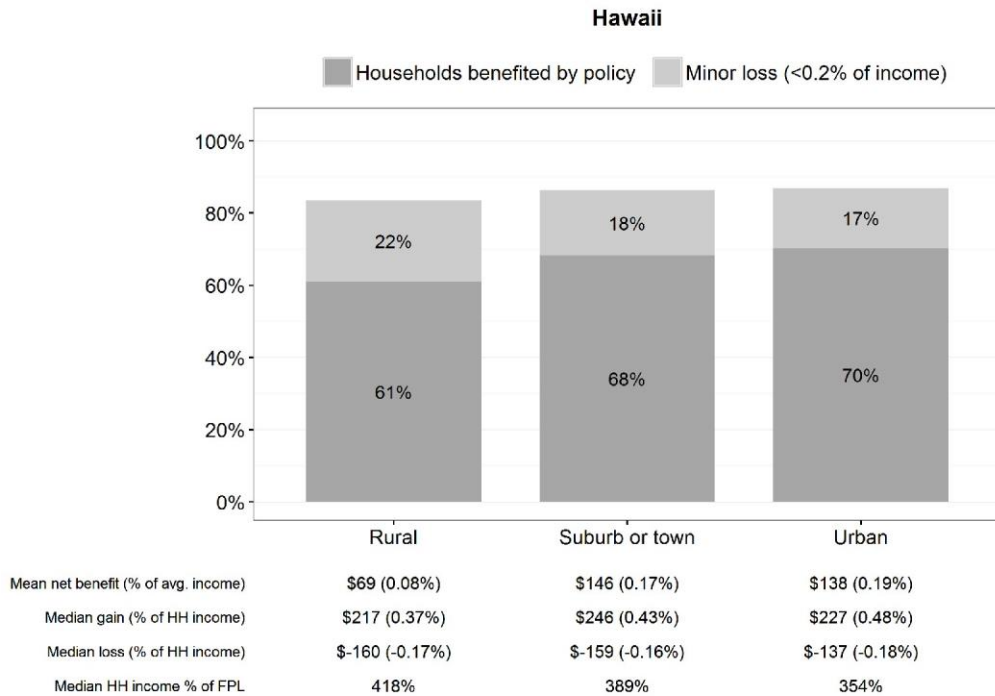


Figure 6: Impact by Community for Hawaii. This graph breaks down data by “community type” – Rural, Suburb or Town, vs Urban.

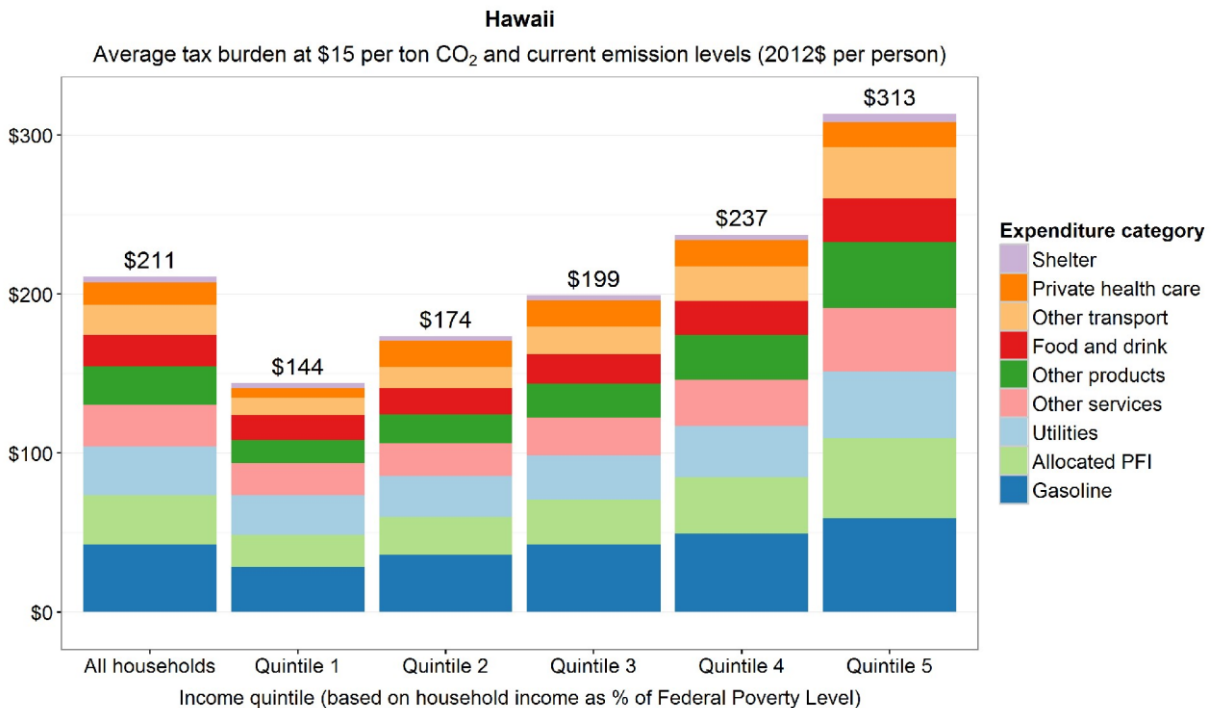


Figure 7: Expenditures by Category for Hawaii. Here we show a breakdown of where the carbon fee increases expenses (i.e. before the dividend) for each quintile. Note that direct energy expenditures (gasoline and utilities) represent less than half of the expense for most quintiles with other products and services making up the rest. Quintile 1 shows low expenditure for private health care since most health care for households in this quintile is covered by government programs. Allocated Private Fixed Income (PFI) measures economy-wide spending on fixed assets (e.g. structures, equipment, software, etc.) that are used in the production of goods and services.

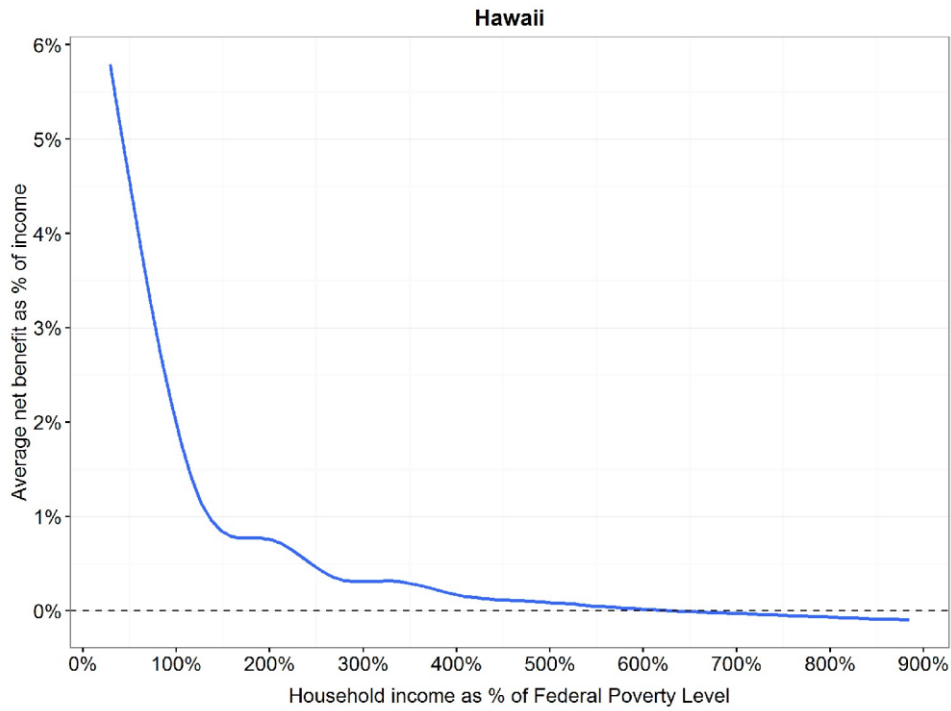


Figure 8: Relationship between benefit and income for Hawaii. This line graph shows the relationship between income expressed as a percentage of the Federal Poverty Level (FPL) vs. the average (mean) benefit as a percentage of income for households. Benefits are highest for those at the lowest income levels and generally positive through 200-300% of the FPL. Average loss for those with higher incomes is relatively small as a percentage of annual income. To avoid anomalies from small sample size at the margins, this graph does not include results for households in the bottom 1% of income, nor those above the 90th percentile of income in Hawaii. This graph also does not convey information about how much of the population in Hawaii is at any given point along the line.