JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

STATE OF HAWAII | KA MOKUʻĀINA ʻO HAWAIʻI
OFFICE OF THE DIRECTOR
DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS
KA ʻOIHANA PILI KĀLEPA
335 MERCHANT STREET, ROOM 310
P.O. BOX 541
HONOLULU, HAWAII 96809
Phone Number: (808) 586-2850
Fax Number: (808) 586-2856
cca.hawaii.gov

NADINE Y. ANDO
DIRECTOR | KA LUNA HOʻOKELE

DEAN I HAZAMA
DEPUTY DIRECTOR | KA HOPE LUNA HOʻOKELE

Testimony of the Department of Commerce and Consumer Affairs

Before the
Senate Committee on Energy, Economic Development, and Tourism
Thursday, February 8, 2024
1:01 p.m.
Conference Room 229

On the following measure:
S.B. 3194, RELATING TO ENERGY

Chair DeCoite and Members of the Committee:

My name is Michael Angelo, and I am the Executive Director of the Department of Commerce and Consumer Affairs' (Department) Division of Consumer Advocacy. The Department offers comments on this bill.

The purpose of this bill is to authorize independent generators of renewable energy to wheel the renewable electricity they produce to users of renewable energy under administrative rules established by the Public Utilities Commission (Commission).

The Department appreciates the bill's intent to advance the development of renewable energy resources in light of our State's clean energy goals. Since 2007, the Commission has evaluated issues regarding wheeling and, at that time, it was found to be complex and require considerable resources. However, new options have become available. For example, in Docket No. 2020-0204, the Commission is evaluating a pilot that will explore the University of Hawaii's ability to receive the benefits of a remotely sited renewable energy project, which is akin to the benefits realized under a wheeling

program. The Commission also considered the issue of wheeling as part of microgrids in Docket No. 2018-0163. In that docket, the scope of investigating a microgrid services tariff has expanded to include wheeling utilizing the electric utility's infrastructure, this would essentially require a form of wheeling. While procedures in both matters are currently suspended by the Commission, the Department offers that it would be more efficient to move forward with these proceedings than establishing necessary rules or a new proceeding regarding retail wheeling by independent renewable energy generators as envisioned by this bill.

In addition, aspects of wheeling have been discussed as part of other dockets, such as Docket No. 2019-0323. Through these dockets, appropriate wheeling tariffs can be developed to: (1) enable users to wheel energy from one site to another in a manner that does not adversely affect other customers or the grid; and (2) fairly compensate the utility for using their transmission and distribution facilities to enable wheeling, so that other customers do not have to unfairly subsidize wheeling activities.

In view of the foregoing, the Department respectfully requests that the Committee consider the work the Commission has already initiated and allow the Commission to carefully complete the above dockets to enable wheeling for all customers. As noted above, establishing wheeling is complex and involves various factors. If allowed to complete the ongoing work in existing dockets, the need for additional efforts related to wheeling of renewable energy would be mitigated.

Thank you for the opportunity to testify on this bill.

TESTIMONY OF
LEODOLOFF R. ASUNCION, JR.
CHAIR, PUBLIC UTILITIES COMMISSION
STATE OF HAWAII

TO THE
SENATE COMMITTEE ON
ENERGY, ECONOMIC DEVELOPMENT, AND TOURISM

February 8, 2024
1:01 p.m.

Chair DeCoite, Vice Chair Wakai, and Members of the Committee:

MEASURE: S.B. No. 3194
TITLE: RELATING TO ENERGY.

DESCRIPTION: Authorizes independent generators of renewable energy to wheel the renewable electricity they produce to users of renewable energy under administrative rules established by the Public Utilities Commission.

POSITION:

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

COMMENTS:

The Commission appreciates the intent of this measure to promote increased renewable energy production. The Commission supports examination of diverse measures that would promote the production of clean electricity and understands that generators of renewable energy play an important role in the State's transition to renewable energy.

The Commission notes that electricity wheeling requires analysis of many complex and interrelated issues to ensure reliability and cost-effectiveness, such as interconnection, availability of transmission and distribution capacity, appropriate rates and rate design, back-up power requirements, and impacts on non-participating ratepayers. The Commission observes that an investigatory docket would be an appropriate forum to explore whether implementing retail wheeling in Hawaii is feasible and in the public

interest. The investigatory docket process allows the opportunity for stakeholders to intervene and collaborate on determining the appropriate rates and procedures for retail wheeling.

The Commission is currently exploring issues related to compensation for renewable energy generators that address issues similar to wheeling and that could support development of a wheeling tariff. For example, the Commission has been exploring compensation for small-scale customer generators in the distributed energy resources ("DER") docket, has looked into distribution-level wheeling in the microgrid docket, has established rates for larger scale shared energy agreements in the community-based renewable energy ("CBRE") docket, and is looking at rate impacts to non-participants in such programs in the energy equity and justice docket.

The Commission notes that the measure requires that the Commission establish "policies and procedures to implement retail wheeling, including any appropriate rate" by the end of this year. Given the complexity of the issues associated with wheeling and considering that there are many complementary and interrelated issues currently before the Commission, the Commission respectfully recommends that the requirement to implement retail wheeling by December 31, 2024 be replaced by a requirement that the Commission open a docket to determine whether retail wheeling is feasible and in the public interest in Hawaii and to determine appropriate implementation policies and procedures. This would be followed by a report to the Legislature, that includes the Commission's findings, recommendations and decision on retail wheeling, no later than twenty days prior to the convening of the regular session of 2026, as currently contemplated by the measure.

Thank you for the opportunity to testify on this measure.

Email: communications@ulupono.com

SENATE COMMITTEE ON ENERGY, ECONOMIC DEVELOPMENT, & TOURISM
Thursday, February 8, 2024 — 1:01 p.m.

Ulupono Initiative offers comments on SB 3194, Relating to Energy.

Dear Chair DeCoite and Members of the Committee:

My name is Micah Munekata, and I am the Director of Government Affairs at Ulupono Initiative. We are a Hawai'i-focused impact investment firm that strives to improve the quality of life throughout the islands by helping our communities become more resilient and self-sufficient through locally produced food, renewable energy and clean transportation choices, and better management of freshwater resources.

Ulupono offers comments HB 3194, which authorizes independent generators of renewable energy to wheel the renewable electricity they produce to users of renewable energy under administrative rules established by the Public Utilities Commission.

While we applaud legislators' willingness to consider all possible solutions, Ulupono shares several concerns regarding the concept of electricity wheeling as it pertains to Hawai'i as an island state and its potential implications to our electricity markets, grid stability, and overall energy policy.

Private wheeling raises significant equity concerns, as it allows companies and other private entities to effectively buy up renewable energy projects (or the energy from such projects) that could otherwise, if purchased by the utility, benefit all ratepayers and the broader public interest. This is especially the case currently when utility-scale solar energy is being contracted at roughly half the cost of oil-fired electricity.

Ulupono's concerns around electricity wheeling also stem from its potential adverse effects on our energy market, the stability of our power grid, and the overarching goals of our energy policy. The practice of wheeling, particularly in the unique context of Hawai'i's isolated island grids, which lack interconnectivity, is ill-suited. Hawai'i's distinct challenges, such as limited land availability and high land costs, further complicate the matter. Unlike in the continental United States, where competition among independent power producers across state lines can be beneficial, wheeling in Hawai'i could unintentionally lead to a reduction in affordable renewable energy options accessible to all grid-connected consumers. In real terms, the beneficiaries of wheeling would be the customers lucky enough to gain access to a private power agreement, at the expense of

those who cannot. The customers left out of these agreements would bear an increased share of legacy costs and dwindling access to lower-cost renewable projects.

Moreover, wheeling presents intricate challenges in grid management, potentially undermining the stability and reliability of the power grid. The increased movement of electricity through different grid areas could cause congestion and complicate the real-time balancing of energy supply and demand. Retail wheeling may in fact exacerbate our energy costs by increasing grid operating costs. As noted by the National Regulatory Research Institute. "[i]f the electric transmission and distribution systems are not designed for the purpose of wheeling large and frequent quantities of power across the system, extensive use for wheeling could necessitate costly additions to the system."[1]

Although electricity wheeling is intended to encourage competition and reduce energy costs, it is crucial to contemplate its broader implications, including those on grid stability, investment in infrastructure, market equity, and the complexity of regulatory frameworks. Ulupono earnestly urges the Legislature to deliberate thoroughly on these issues and to consider the potential negative repercussions of electricity wheeling on our energy markets and infrastructure. We believe collective efforts should be directed toward formulating policies that guarantee a stable, fair, and sustainable energy future for all.

Thank you for the opportunity to testify.

Respectfully,

Micah Munekata
Director of Government Affairs

[1] See Overview of Issues Relating to the Retail Wheeling Electricity, The National Regulatory Research Institute, May 1994, at 58. https://ipu.msu.edu/wp-content/uploads/2016/12/Costello-Overview-of-Issues-Relating-94-09-May-94-1.pdf

SENATE COMMITTEE ON ENERGY, ECONOMIC DEVELOPMENT, AND TOURISM
February 8, 2024 at 1:01 PM
Room 229

TESTIMONY IN SUPPORT OF SB 3194

Aloha Chair DeCoite, Vice Chair Wakai, and Committee members:

Blue Planet Foundation **supports SB 3194**, which directs the Public Utilities Commission to implement rules that would authorize independent generators of renewable energy to "wheel" the renewable electricity they produce. This bill can ensure that the state will adopt mechanisms to increase competition within Hawai'i's electrical markets, expand customer choice, and provide pathways for renewable energy innovation and generation.

Blue Planet Foundation is a Hawai'i-based nonprofit organization committed to help Hawai'i cut its carbon emissions and avoid the worst impacts of climate change. Through our advocacy for renewable energy, energy efficiency, and clean transportation, we seek to make our communities stronger, our energy more secure, our environment healthier, and our economy more robust.

We support the ongoing shift of electric utilities in Hawai'i from a centralized producer-distributor to a decentralized distribution manager—i.e. the utility will control and manage the wires of the new intelligent grid but more of the power can come from independent, clean energy sources.

Retail wheeling is a step toward this new model for the utility, where independent power producers can enter into agreements with end users and effectively "rent" the transmission and distribution capability from the utility. Such an arrangement would open the doors to innovation and encourage more to invest in clean energy development.

For example, some renewable energy projects in Hawai'i are restricted from selling their power at certain times of the day due to oversupply or the inability of the utility to reduce the generation from a fossil fuel power plant. If retail wheeling were allowed, the renewable energy project could find a potential customer for their excess energy—perhaps at a much-discounted rate. A large resort might be interested in purchasing lower cost electricity for ice storage for air conditioning. Or someone may wish to sell lower-cost renewable energy to an electric vehicle (EV) charger aggregator to charge EVs. This would have multiple benefits for the grid, clean energy power producers, and customers. What's more, retail wheeling can be a useful tool to promote community-based microgrids and bring us closer to our vision for a participatory and resilient grid of the future where residents and communities can produce and share energy.

info@blueplanetfoundation.org
126 Queen Street Suite 204 • Honolulu, Hawai'i 96813 • 808-954-6161 • blueplanetfoundation.org

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

info@blueplanetfoundation.org
126 Queen Street Suite 204 • Honolulu, Hawai'i 96813 • 808-954-6161 • blueplanetfoundation.org

Hawaii Solar Energy Association
Serving Hawaii Since 1977

Testimony of the Hawaii Solar Energy Association (HSEA) Regarding SB3194, Relating to Energy, Before the Senate Committee on Energy, Economic Development, and Tourism

Thursday, February 8, 2024

Dear Chair DeCoite, Vice Chair Wakai, and committee members,

The Hawaii Solar Energy Association (HSEA) ***supports SB3194***, which authorizes independent generators of renewable energy to wheel the renewable energy they produce to users of renewable energy under administrative rules established by the Public Utilities Commission.

To achieve Hawaii's renewable energy and resilience goals, Hawaii needs a diverse portfolio of renewable energy assets from a variety of sources and at a variety of scales. Retail wheeling offers an attractive solution that can bring significant benefits to all Hawaii's ratepayers. As we look to rebuild after the disastrous Lahaina wildfires, retail wheeling in conjunction with microgrids, community-based renewable energy, and distributed generation could provide a relatively low-cost solution to provide resilient and clean power. And as we endeavor to transition all of Hawaii's electric grids away from fossil fuels, we need to think creatively and look at a wider array of options.

Thank you for giving this potentially "game-changing" concept a hearing and for providing the opportunity to testify in support. Please advance SB3194.

Respectfully,

/s/ Rocky Mould

Rocky Mould
Executive Director

About HSEA

Since 1977, HSEA has been advocating for policies that help Hawaii achieve critical climate and resilience goals by enabling residents and businesses to invest in and benefit from the transition to clean energy. These investments provide reliable and affordable power that reduces energy cost burden and contributes to Hawaii's energy security as we decarbonize our

economy and electric grid. HSEA members include the majority of locally owned and operated solar and energy storage companies doing business in the state of Hawaii along with leading global cleantech manufacturers and service providers that invest and sell in our market. We employ thousands of residents in diverse green economy jobs that are innovating, designing, and building Hawaii's pathway to a renewable energy future.

Kauaʻi Island Utility Cooperative
Your Touchstone Energy® Cooperative

LATE

Testimony Before the Senate Committee on Energy, Economic Development and Tourism

By David Bissell
President and Chief Executive Officer
Kauaʻi Island Utility Cooperative
4463 Paheʻe Street, Suite 1, Līhuʻe, Hawaiʻi, 96766-2000

Thursday, February 8, 2024; 1:01 pm
Conference Room #229 & Videoconference

Senate Bill No. 3194 - RELATING TO ENERGY

To the Honorable Chair Lynn DeCoite, Honorable Vice Chair Glenn Wakai and Members of the Committee:

Kauaʻi Island Utility Cooperative (KIUC) is a not-for-profit utility providing electrical service to more than 34,000 commercial and residential members.

KIUC opposes this measure.

Over the past 10 years, KIUC has significantly increased its renewable generation. In 2010, KIUC's energy mix included 10% renewable. Renewable production now stands at roughly 60%. This large growth in renewable generation is not only well-ahead of established goals, it has significantly stabilized KIUC's rates: since May 2022, KIUC has posted the lowest residential electricity rates in the state and is currently lower than rates recorded in several localities on the mainland, such as San Diego.

Rate stabilization on Kauaʻi is largely attributable to KIUC securing long-term power purchase agreements for utility-scale renewable projects. Solar facilities and battery storage systems connected to utility-scale solar facilities account for roughly two-thirds of our renewable production and are among our lowest priced energy sources. We believe that utility-scale projects owned or contracted by KIUC best serve our members, as they deliver electricity at prices that smaller, privately-owned projects could not achieve.

Wheeling runs the risk of creating a "have" and "have not" system of energy service where the majority would end up paying more in utility bills for the benefit of a few. KIUC questions the need for wheeling on Kauaʻi given the success of the cooperative in promoting and expanding renewable energy production. If there are good, cost-effective renewable projects that KIUC is not pursuing, we are always open to receiving developer proposals and if the project has merit, we believe the energy should be made available to the full grid and all ratepayers, not just a few.

Franchised utility companies have a duty to serve all customers, the flip side is the utility needs to have the opportunity to serve all customers to avoid subsidization. We encourage a cautious and comprehensive approach to wheeling involving any non-franchise public utility operators. It is essential that any allowed wheeling include proper costing of services from the franchise utilities, which should include consideration of potentially stranded investments. KIUC also supports the preservation of the Public Utilities Commission's ability to disallow wheeling projects if they are detrimental to an electric utility or the public interest (i.e., other utility customers).

Mahalo for your consideration.

TESTIMONY BEFORE THE SENATE COMMITTEE ON ENERGY, ECONOMIC DEVELOPMENT, & TOURISM

SB 3194

Relating to Energy

Thursday, February 8, 2024
1:01 PM
State Capitol, Conference Room 229

James Abraham
Associate General Counsel
Hawaiian Electric

Dear Chair DeCoite, Vice Chair Wakai, and Members of the Committees,

My name is James Abraham and I am testifying on behalf of Hawaiian Electric offering comments on SB 3194, Relating to Energy.

Hawaiian Electric supports programs that aid renewable energy by enabling customers to use their renewable energy systems more effectively; however, the utility also recognizes the importance of equity and ensuring that the benefits of wheeling are balanced with any additional costs or burdens that may be placed on non-wheeling customers. Regulatory policies must take into account these considerations and establish policy and technical requirements that minimize cost shifting and consider the impacts on non-wheeling customers.

Hawaiian Electric agrees with the Public Utilities Commission's suggestion of opening a new investigatory docket to explore whether implementing wheeling in Hawaii is feasible and in the public interest. Specifically, we believe that such a docket should examine intragovernmental wheeling as an initial step to consider the appropriate balance of interests and priorities and address among other things risk of potential significant cost and equity impacts to non-wheeling customers. Such a docket would allow the Public

Utilities Commission, the Consumer Advocate, Hawaiian Electric and other stakeholders to establish a foundation for a balanced wheeling model which could be used to develop similar programs for a wider range of customer-participants.

In order to effectively balance many important objectives and produce sustainable success in Hawaii's unique renewable energy environment, a wheeling program must be designed to consider and address the following key principles:

- **Promote customer choice by increasing options**. We seek collaboration to establish and coordinate specific services between utilities and customers needed to lower bills, increase renewable energy, and energy efficiency.
- **Safety is paramount**. Operating an electric grid is complex and should be the responsibility of the utility without undue interference to ensure public safety and the safety of utility crews.
- **Reliability of the electric system**. The reliability and resilience of the public utility's electric grid must not be compromised.
- **Aiding renewable energy**. Wheeling programs should be designed and implemented to help increase the use of renewable energy for the benefit of the whole community, not just the few who can afford it.
- **Cohesion with existing renewable laws**. A new wheeling model in Hawaii must recognize existing laws, such as the utilities' 100% renewable portfolio standard, and ensure that wheeling does not interfere with or defeat these goals.
- **Equity**. Burden on other customers should be balanced with the benefits, including the opportunity cost for non-wheeling customers. Regulatory policies must minimize cost shifting, along with establishing other policy and technical requirements.
- **Avoid unintended consequences**. Hawaii's regulatory framework is sophisticated and intended to serve many state and customer objectives. In fostering achievement of certain objectives, care must be applied to avoid unintentionally undermining other priority objectives.

Hawaiian Electric has strong concerns about the feasibility of addressing and balancing the above key principles in a full retail wheeling model as proposed in this bill and believes that a reasonable first step would involve the PUC's examination of intragovernmental wheeling, which may have less impacts on non-participants and the community. Enabling full retail wheeling could potentially exacerbate financial and geographic equity issues by encouraging the construction of renewable energy projects on one part of the island to supply power exclusively to customers on another part of the island, using Hawaiian Electric's transmission and distribution system to connect them. Even assuming the Company is compensated for use of its infrastructure for the benefit of some customers, this arrangement could shift costs to customers who do not benefit from wheeling arrangements yet must still pay to maintain the grid. It could also aggravate community concerns that have emerged around the siting of renewable energy projects, especially if the benefits accrue only to end users located miles away. The Public Utilities Commission is currently investigating these and other energy equity issues in Docket No. 2022-0250, but the concepts being discussed in that proceeding do not include wheeling or the unregulated private energy producers who would be allowed to wheel under this bill.

We welcome continued discussion of how wheeling concepts can be adapted to fit the realities of the Hawaii energy system, with the understanding that the Company must play a primary role in structuring such wheeling transactions to ensure safety, reliability, and financial equity. Indeed, technology and the energy market have evolved to the point where Hawaiian Electric now enables customers to enjoy many of the benefits of wheeling through existing programs such as shared solar and the Microgrid Services Tariff. We must address the State's energy future as a whole and be cautious

not to simply adopt mainland solutions ill-fit for Hawaii, especially those used in larger grids with large manufacturing and commercial loads.

Hawaiian Electric appreciates the Committee's consideration of its comments on SB 3194. Thank you for this opportunity to testify.

Tawhiri Power LLC  TM

TESTIMONY OF TAWHIRI POWER LLC
ON SB 3194 BEFORE THE SENATE COMMITTEE ON
ENERGY, ECONOMIC DEVELOPMENT, AND TOURISM
THURSDAY, FEBRUARY 8, 2024 AT 1:01 p.m.

TO THE HONORABLE CHAIR DECOITE, VICE CHAIR WAKAI AND MEMBERS OF THE COMMITTEE:

Tawhiri Power LLC ("TPL")[1] strongly supports SB 3194 because it will be a major step forward in helping the State reach its goal of obtaining 100% of its energy needs from renewable sources.

This bill is long overdue. In past Sessions there have been bills on wheeling and generally the folks opposing these bills have argued that the bills are not necessary because there is already a docket at the Public Utilities Commission ("PUC") on this issue. What they fail to say is that the docket has made little progress.

Currently, without retail wheeling, renewable energy produced by Independent Power Producers ("IPPs) generally can only be sold to the Utility or used by the IPP on its site. If there is any additional renewable energy that is not committed to the Utility or cannot be used by the IPP on its site, it is wasted. This is totally unacceptable. This bill is necessary to start the process towards allowing renewable generators to sell energy they produce directly to end users. These end users may be in state enterprise zones, affordable housing developments, or other areas of the State or Counties with distressed or disadvantaged communities. Thus, retail wheeling can benefit all.
If we are serious about being 100% renewable, we can no longer delay and we need to implement wheeling now. Thus, we strongly urge the Committee to pass this bill out.

Thank you for the opportunity to testify.

[1] TPL is an Independent Power Producer ("IPP") that owns and operates Pakini Nui Wind Farm located in the South Point Area on the Island of Hawaii.

Offices: 1291 E. Hillsdale Blvd., Ste. 213, Foster City, CA 94404 1-650-358-1550; 1-650-358-1966 Fax
Pakini Nui Wind Farm, 93-1373 South Point Road, Kau, Hawaii 96772

SB-3194
Submitted on: 2/6/2024 3:46:18 PM
Testimony for EET on 2/8/2024 1:01:00 PM

Submitted By	Organization	Testifier Position	Testify
Dylan P. Armstrong	Individual	Support	Written Testimony Only

Comments:

Sens. DeCoite and Wakai, Chair and Vice Chair
Committee on Energy, Economic Development & Tourism

RE: SB 3194

Dear Senators,

I support SB 3194 which is intended to:

> Authorizes independent generators of renewable energy to wheel the renewable electricity they produce to users of renewable energy under administrative rules established by the Public Utilities Commission.

As indicated in Section 1 of this measure, the state has a 100% renewable goal for 2045 which requires urgent and steady progress to remain achievable.

This measure encourages decentralized renewable energy production down to the level of the consumer by permitting the wheeling or distribution of this energy through the grid. I certainly take the concerns of the utility leaders into account and recognize that there are technical barriers to both scientific and ideological goals. To that extent, I would hope that these can be mitigated in subsequent bill drafts. However, the state‘s imperartive to incentive further renewable development and production is unmistakable.

In summary, I support.

Thank you for your consideration.
Dylan P. Armstrong

Statement of
Brigadier General Stanley J. Osserman Jr. (USAF Ret.), President
Tigershark, LLC
Before the
Senate Committee on Energy, Economic Development and Tourism
8 February 2024
1:01 pm
State Capitol Conference Room #229
In consideration of
SB3194
Relating to Renewable Energy

Chair DeCoite 4 February 2024

Vice Chair Wakai and Distinguished Committee Members:

I stand in support of this bill.

As the former director of the Hawaii Center for Advanced Transportation Technologies (HCATT; 2013 to 2019), Hawaii Department of Business, Economic Development and Tourism (DBEDT), I continue to serve our state by promoting clean, renewable energy solutions. This testimony is NOT being given for compensation of any kind by any corporate or commercial entity. I am presenting to you today as a concerned "Life-Long" citizen of the State of Hawaii with extensive professional experience in energy systems, retail and wholesale business, military matters, international commerce, aviation, construction, maritime operations, and public safety, among others. My goal is to help our government leaders make good strategic choices.

Although Climate Change and Carbon Sequestration are the "hot topics" today, we are not managing the transition away from fossil fuels well, at all, and the fact is, over a decade of focus on Climate Change, and we are nowhere near where we should be in terms of reducing use of fossil fuels in Hawaii on our grid or for transportation! The irony is that we need fossil fuels to make the transition but the emphasis on "zero fossil fuels, NOW" makes the transition impossible because the scale of the economic impact and the time it takes to grow new industries will simply not allow us to "switch" to clean energy and electricity all at once. In addition to this challenge, the longer it takes us to transition, the more expensive fossil fuel products (gas, diesel, aviation fuel, plastics, and thousands of other products that are by-products of making fuel) will get. Simply put, we can't mine the materials we need without diesel equipment so we can make electric mining equipment! And as the price of fuel climbs, the cost of many products will soar, because we have already "harvested" all the good quality oil and finding more is becoming difficult. In addition, companies are hesitant to borrow money to look for new sources of oil or maintain facilities. For example, we may be forced to use diesel fire trucks for another 15 years because they can't make them fast enough, and at the same

time the price of diesel keeps climbing. So, will the county, state and federal government be willing to pay $8, $10 or even $15 per gallon for diesel fuel until we can procure electric fire trucks? What will happen to tourism here, if the cost of aviation fuel climbs at the same time and we take our sweet time to meet our RPS goals? SB3194 helps us speed up the necessary and complex growth in clean firm electrical power to, not only have clean electricity, but make clean hydrogen which can be used to make synthetic liquid “bridge fuels” for aircraft engines, vehicles and gas turbines (in ships and power plants) as well as fuel cell electric transportation. Private power producers have been hamstrung by complex PPA’s and cumbersome processes to develop distributed power generation and using wheeling of electricity to help Hawaii address the complex challenges that lie ahead. SB3194 is a good start.

Brigadier General, Stanley J. Osserman Jr. (USAF Ret.)

President, Tigershark, LLC