



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

**DEPT. COMM. NO. 304**

DAVID Y. IGE  
GOVERNOR

MIKE MCCARTNEY  
DIRECTOR

CHUNG I. CHANG  
DEPUTY DIRECTOR

No. 1 Capitol District Building, 250 South Hotel Street, 5th Floor, Honolulu, Hawaii 96813  
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804  
Web site: [dbedt.hawaii.gov](http://dbedt.hawaii.gov)

Telephone: (808) 586-2355  
Fax: (808) 586-2377

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December 28, 2020

The Honorable Ronald D. Kouchi,  
President and Members  
of the Senate  
Thirty-First State Legislature  
State Capitol, Room 409  
Honolulu, Hawaii 96813

The Honorable Scott K. Saiki,  
Speaker and Members of the  
House of Representatives  
Thirty-First State Legislature  
State Capitol, Room 431  
Honolulu, Hawaii 96813

Dear President Kouchi, Speaker Saiki, and Members of the Legislature:

For your information and consideration, I am transmitting a copy of the Hawaii State Energy Office's Annual Report, as required by Act 122 (SLH 2019). In accordance with Section 93-16, Hawaii Revised Statutes, I am also informing you that the report may be viewed electronically at: <http://dbedt.hawaii.gov/overview/annual-reports-reports-to-the-legislature/>.

With aloha,

Mike McCartney

Enclosure

c: Legislative Reference Bureau

# Hawaii State Energy Office

## Annual Report

### 2020



HAWAII STATE  
**Energy Office**

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This report fulfills the reporting requirements for:

Act 100, Section 7 (SLH 1999)

Act 122 (SLH 2019)

HRS 196-10.5(7)(c)

HRS 196-41(c)(3)

HRS 201-12.8(c)

HRS Section 201-104

HRS 235-110.31(l)

This annual report required by each of these statutes have been combined into this single, comprehensive report.

For screen reader users. The Hawaii State Energy Office recognizes the use of diacritical markings of the Hawaiian language such as the 'okina (also called a glottal stop) and the kahakō (also called a macron). Please note that screen readers may not read or pronounce the Hawaiian words correctly.

## Message from the Chief Energy Officer



Not since World War II has Hawai'i experienced such a disruption to its way of life. Seeing how much we depend on the rest of the world for our livelihood, people more keenly feel the vulnerability of living in one of the most isolated archipelagos in the world. And, people more keenly feel the need to be more resilient and have more options than tourism for our working families to thrive here.

COVID-19 impacts over the past year have revealed connections and dependencies in our energy ecosystem that have demanded the Hawaii State Energy Office (HSEO) reprioritize and adjust its focus on nearly a daily basis to the issues stemming from COVID-19 and its effects on the economy.

My team and I have tackled this challenge head on while fulfilling our COVID-19 disaster management responsibilities with a significantly reduced office budget and workforce. These challenges have helped us identify and prioritize our most impactful work to help spur economic development and job creation while continuing to provide services and support to other activities mandated to help us reach the state's clean energy goals.

Throughout the pandemic, news publications, select legislative committees, and newly-formed community-led groups such as 'Āina Aloha Economic Futures, asked how can clean energy be a larger part of Hawai'i's future for economic growth and jobs, and make Hawai'i more resilient to future events, whether pandemic, disaster, or climate change?

We reached out to stakeholders—including renewable energy developers, county energy officers, state agencies, non-profit and community-based organizations and concerned individuals—for their mana'o. What is the critical path over the next one, two, and five years? How can we most effectively support "energy efficiency, renewable energy, and clean transportation to help achieve a resilient, clean energy economy?" Who else is leading in ways that promote these goals whom HSEO can support to expand their impacts?

Almost universally, people valued HSEO's role as an objective, third-party source of believable information and good data. Almost equally important was our role as an educator and convener to assist people, especially host communities of renewable energy projects, to share their concerns and identify solutions for successful clean energy deployment that improves the quality of life for everyone in Hawai'i. We also heard from many about the importance of making energy and transportation more affordable to help vulnerable communities and businesses; as well as the need for the State to lower operating costs so more funding can go to services. Above all else; however, is HSEO's role of supporting energy delivery to keep the economy running and ensure basic needs are met.

The world has been inspired to follow Hawai'i's footsteps to embrace 100 percent renewable portfolio standards and zero emissions targets. Hawai'i is frequently cited as a national leader in areas such as rooftop PV installations, energy performance contracting, energy storage and electric vehicle penetration.

Despite the coronavirus, Hawai'i is on track to become a resilient, carbon-free economy, which has taken on greater importance as Hawai'i reshapes its future. Our world-recognized 100 percent renewable portfolio standard is on track to its 2020 target of 30 percent. At the end of 2019, we were at 29.8 percent and will know for sure when end of year reports are released in early 2021. Our greenhouse gas emissions are on track to be below 1990 levels, meeting our goal to do so by 2020. And we continue to save energy, staying on track to meet our 2030 energy efficiency and conservation goal.

Hawai'i's determination to end its reliance on fossil fuels is driven by a clear understanding of the risks this poses to our energy security, natural environment, and overall economic health. Even with Hawai'i's aggressive clean energy and carbon reduction policies, we as a state still export billions of dollars each year to buy foreign oil that creates jobs and economic growth in other countries. Switching to indigenous, renewable energy resources not only makes Hawai'i more self-sufficient; it creates good paying jobs here at home; and, more so, calls us to embrace our kuleana for the energy we demand to live a modern lifestyle in one of the most remote places on Earth.

To continue on track to becoming a resilient, carbon-free economy, we must embrace the paradigm shift from dependence on foreign crude oil drilling to producing our own clean renewable power here at home. That will require a larger footprint in the Islands for renewable energy project development than we are used to, and we want to make sure the path to this future occurs in way that creates good jobs for our residents, that our residents have the education and skills they need to get these jobs, and can feel proud about how the projects contribute to Hawai'i's wellbeing because they are done in a way that enhances our communities economically, environmentally, socially, and culturally.

We look forward to working with all of Hawaii along the path to bring this future into being.

Sincerely,

A handwritten signature in dark ink, reading "Scott J. Glenn". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Scott J. Glenn  
Chief Energy Officer, Hawaii State Energy Office



## Executive Summary

Hawai'i is pursuing a bold campaign to end its dependence on fossil fuels and transition to carbon free economy by 2045. Living in the world's most isolated population center there is broad support among the people of Hawai'i to eliminate the risk this dependence represents to the state's energy security, environment and overall economic health. The Hawaii State Energy Office is a catalyst for this transformation by serving as a trusted resource for the community and providing energy sector stakeholders with information, analysis, tools, and technical assistance needed to achieve Hawai'i's ambitious clean energy and climate goals. In addition, HSEO has statutory responsibilities for energy assurance and economic development, both of which it has carried out in its response to the COVID-19 pandemic by coordinating support for essential fuel and power suppliers and facilitating workforce employment opportunities in the energy sector. HSEO was able to conduct all its normal functions while delivering critical COVID-19 response services despite restrictions on general funds and a hiring freeze.

HSEO is pleased to submit this annual report prepared in compliance with sections 6 and 7 of Act 100, Session Laws of Hawai'i 1999 requiring all departments and agencies to identify their goals, objectives, and policies to provide a basis for determining priorities and allocating limited public funds and human resources. This document also fulfills a requirement under [HRS section 196-71](#) that HSEO submit a report to the Legislature no later than 20 days before the start of the session describing: the statutorily mandated activities along with progress in meeting HSEO's goals; progress toward meeting statewide energy efficiency, renewable energy, and clean transportation goals; and proposed legislation, if any.

This report lays out the priorities the HSEO is focusing on to guide Hawai'i's transition to a resilient, clean energy economy. It also provides details of the programs developed and implemented by HSEO to turn these priorities into actions to help achieve Hawai'i's ambitious clean energy and climate goals. It concludes with a description of the HSEO's funding and administrative changes, including staffing and the in-progress office reorganization.

## Energy Assurance and Resiliency

While all HSEO's priorities are essential to meet the state's clean energy goals, HSEO's top priority is to ensure the continued availability and delivery of reliable fuel and electricity energy to support economic recovery and meet the demands of a growing green economy. In this role, HSEO is responsible for maintaining what is referred to as a "common operating picture" (COP)—a continuously updated overview of Hawai'i's energy system both from a planning and incident response perspective. HSEO utilizes a COP in its role of the primary and coordinating agency for the state under the Hawai'i Emergency Management Agency (HI-EMA) for State Emergency Support Function 12: Energy (SESF-12) to coordinate and respond to "all hazards," including hurricanes and pandemics. In July, HSEO's State Emergency Response Team (SERT) found itself responding to both simultaneously with the COVID-19 outbreak gaining momentum and a category 4 hurricane bearing down on the state.

Examples of HSEO's successes in energy assurance and resiliency include:

- Developing a national best practice for keeping energy workers safe during the early days of the pandemic and working with stakeholders to address issues supporting critical infrastructure workers in the energy industry.

- Collaborating with partners to ensure effective and timely information exchange with energy companies and providing guidance on identification and prioritization of mission- and business-critical energy workers for the COVID-19 vaccine.
- Analyzing and assessing the capacity of Hawai'i's energy system to adjust to the near-total collapse of tourism travel and its effects on energy demand and supply such as jet fuel, diesel, and low-sulfur fuel oil throughout the state.

HSEO is seeking to strengthen its ability to respond to potential energy supply disruptions or shortages through the passage of a bill in the upcoming legislative session. The bill, among other things, addresses deficiencies in the state's petroleum shortage response statutes and provides up-to-date policy guidance to prepare for, respond to, recover from, and mitigate against any actual or potential energy supply disruption or shortage.

## Renewable Energy Deployment

HSEO is prioritizing support for renewable energy projects that will replace the state's only coal-fired power plant and limit negative impacts on communities, while advancing the state's decarbonized economy goals. This includes the scheduled replacement of 180 megawatts of capacity from coal on O'ahu's grid, which is dependent on the successful deployment and operation of several solar and battery storage projects over the next two years. Toward this end, HSEO is supporting the deployment of 17 solar-plus-battery-storage projects and three standalone battery storage projects on O'ahu, Maui and Hawai'i island. These projects will significantly boost Hawai'i's primary metric for measuring renewable energy penetration, the renewable portfolio standard (RPS). The RPS stood at 29.8 percent at the end of 2019 and was on track to hit the interim target of 30 percent by the end of 2020. The RPS, which represents the percentage of utility electricity sales from renewable resources, is targeted to reach 100 percent by 2045.

Examples of HSEO's successes in renewable energy deployment include:

- Meeting with Hawaiian Electric Stage 1 and some Stage 2 renewable energy developers to discern their progress and needs, and to identify current and near-term jobs and skills to enhance opportunities for Hawai'i residents to enter the clean energy industry.
- Upgrading its much-used Hawai'i Renewable Energy Projects Directory, which is the only state-controlled public resource that identifies all existing and proposed renewable energy projects in Hawai'i.
- Updating the Renewable Energy Permitting Wizard tool used to identify the county, state, and federal permits that may be required for individual projects. The tool also produces a project-specific permit schedule with suggested permitting sequencing and timelines.

## Energy Efficiency

HSEO is prioritizing energy efficiency to maximize cost effective investments and foster high impact programs. Efforts to improve energy-efficient building codes and efficiency standards are recognized as cost-effective measures that set the bar for the minimum energy performance for commercial and residential buildings in Hawai'i. Especially in these critical times, energy efficiency saves money for agencies, businesses, and residents. Hawai'i is keeping pace with its goal of reducing electricity demand by 4,300-gigawatt-hours by 2030 through efficiency and conservation measures. Hawai'i achieved an estimated 2,030 gigawatt-hours of energy savings through 2015, exceeding the interim target by nearly 50 percent. An estimated 530 gigawatt-hours of savings was achieved from 2016 through 2017.



Examples of HSEO's successes in energy efficiency include:

- As an ex officio voting member and Chair of the State Building Code Council, HSEO was instrumental in the Council's recent adoption of the 2018 International Energy Conservation Code with Hawai'i-specific amendments. HSEO's priority going forward is to provide training about the 2018 IECC and Hawai'i and county amendments.
- Coordinating the Hawaii Green Business Program, which provides technical assistance to businesses to implement energy and resource-efficient practices. In the latest program year participating businesses reduced electricity use by 1.1. million kilowatt-hours, water use by 92 million gallons and waste by 19,000 pounds.
- Assisting state agencies with achieving achieve greater levels of energy efficiency. HSEO's programs have secured federal funding for, provided, and continue to provide technical assistance to agencies to support their efforts to continuously improve their facilities with energy and water saving retrofits.

## Clean Transportation

HSEO has taken a leadership role in advancing the adoption of clean transportation across Hawai'i, including facilitating zero emission vehicle (ZEV) deployment and associated electric vehicle charging and hydrogen infrastructure, which directly contribute to reducing petroleum consumption and emissions in the transportation sector. To transition to a decarbonized transportation sector, HSEO works with the local community; federal, state, and county agencies; energy stakeholders; and clean transportation stakeholders to encourage and facilitate the deployment of clean transportation infrastructure.

Examples of HSEO's successes in clean transportation include:

- Investing \$8.125 million allocated to Hawai'i as part of a federal settlement with Volkswagen to mitigate vehicle emissions through the replacement of medium and heavy-duty vehicles, as well as the deployment of light duty vehicle supply equipment.
- Assisting the Hawai'i Department of Transportation in the procurement of services to provide electric vehicles and charging infrastructure statewide for the creation of a program that could to help with the electrification of government fleet vehicles.
- Working with the Hawai'i Department of Health in the development and administration of the Vehicle Assistance Program to offer rebates to private and public fleet owners looking to replace older, diesel busses with battery-electric vehicles.

## Stakeholder and Community Education, Outreach and Engagement

HSEO is prioritizing a more comprehensive public clean energy education, outreach, and engagement program, which is critical to achieving HSEO's broader mission to promote energy efficiency, renewable energy, and clean transportation. In order to increase living wage jobs, capital investment in energy efficiency and renewable energy projects, access to energy efficiency opportunities, and decarbonize the economy HSEO must have the support of the broadest audience possible. The increasing public challenges and vocalized community concerns about energy projects' impacts on host communities has made it clear there needs to be a more focused effort to reach out to and include grassroots community in stakeholder engagements and collaborations to more effectively, efficiently, and equitably advance Hawai'i's clean economy goals.

## Data Analytics

HSEO is prioritizing the establishment and implementation of an energy ecosystem data governance framework. Accessible, reliable, high quality data undergirds all efforts to achieve a resilient clean energy decarbonized economy. Collection, analysis, and open access to quality data is critical to Hawai'i's successful transition to a decarbonized economy. Data supports the development of equitable and economically viable energy efficiency programs. Data also is used to monitor and track progress towards state energy and climate goals, as well as objectives such as the conversion of medium- and heavy-duty vehicles.

Examples of HSEO's successes in data analytics include:

- The continuing refinement of its "Engage" energy system modeling tool that can augment the energy system planning process by empowering more stakeholders to better understand and solve energy system planning problems.
- The deployment of its HAVEN visualization platform as a community engagement tool to support the analysis and communication of information contained within complex energy data sets highlighting energy and related sector interdependencies and scenarios.

## Energy Program Administration and Funding

Major changes to the funding of HSEO came into effect in fiscal year 2020 with the passage of [Act 122, Session Laws Hawai'i 2019](#). General Funds were appropriated for HSEO positions and operating expenses. Previously, the Energy Security Special Fund covered the office's positions and operating expenses. Four positions were eliminated as of July 1, 2019.

During the third quarter of fiscal year 2020, a general freeze on position vacancies was instituted to minimize potential budget shortfalls attributed to the impacts of the COVID-19 pandemic. Departments were advised to make only critical, high priority expenditures. The HSEO responded by deferring expenditures, resulting in General Fund savings of \$365,919. Act 9, Session Laws Hawai'i 2020 further reduced HSEO's fiscal year 2020 General Fund appropriation with a permanent reduction of \$212,812 for personnel.

Act 122 not only changed the office's funding source, it established the HSEO as an attached agency within DBEDT for administrative purposes to be led by the Chief Energy Officer (CEO). In passing Act 122, the Legislature made clear its expectation that the new HSEO would reorganize itself to reflect its new mission and responsibilities. HSEO is initiating a reorganization to change the name and organizational structure, update its Functional Statement, establish appropriate levels of authority, and revise position descriptions/titles. The reorganization aims to achieve more effective use of HSEO's personnel budget.

## Introduction

Billions of dollars each year leak from Hawai'i's economy to purchase energy that could be produced here at home with good local, well-paying jobs at a variety of education levels across numerous industries on all islands. About 90 percent of our fossil fuels are imported today from countries around the world, such as Libya and Russia. Hawai'i's energy security and energy footprint are reliant on foreign countries. Hawai'i residents' electricity bills rise and fall with the price of oil; our reliance on oil is the major reason Hawai'i's electricity rates are the highest in the United States by a considerable margin—nearly triple the national average. This is money that leaves the state to support jobs in other countries rather than here in Hawai'i. By switching to renewable energy, we increase Hawai'i's self-sufficiency and resilience to ensure we have the means to power our economy and improve our quality of life. HSEO is committed to helping decision-makers and residents embrace this paradigm shift from dependence on other countries' energy production footprints and prices, to creating our own clean, renewable power production footprint. HSEO embraces the challenge to transition in the most environmentally, socio-economically, and culturally beneficial way possible to make Hawai'i a place our children can be proud of and always call home.

Since Hawai'i passed [Act 97, Session Laws of Hawai'i 2015](#), the landmark bill making Hawai'i the first state in the nation to set a 100 percent renewable portfolio standard (RPS) for the electricity sector by 2045, HSEO has operated under this overarching goal. In 2018, Hawai'i enacted [Act 15, to establish the zero-emission clean economy](#) target, which aims to sequester more carbon than is emitted within the state as quickly as practicable and no later than 2045. With the passage of Act 122, Session Laws of Hawai'i 2019, the Legislature established HSEO as an attached agency to the Department of Business, Economic Development, and Tourism (DBEDT), the appointed Chief Energy Officer position, and HSEO's mandate **"to promote energy efficiency, renewable energy, and clean transportation to help achieve a resilient clean energy economy."** Today a carbon free economy is HSEO's goal and unifies the 100 percent RPS and zero emissions target. Strengthened under Act 122, and with new leadership at the helm, HSEO is focused on achieving a clean energy economy. As such, HSEO is strengthening its role as a central gathering place for information, education, engagement, policy and project development guidance, and technical assistance to help realize our state's pathway to a resilient carbon free economy. Under this new mandate, and with the emphasis to support job creation, increase capital investment, and revenues as a result of the devastating economic impacts of the COVID-19 pandemic, HSEO is taking a leading role in support of a cleaner, more resilient recovery.

HSEO is focused on the following top priorities as the critical path to a resilient clean energy economy:

1. Energy Assurance and Resiliency
2. Renewable Energy Deployment
3. Energy Efficiency
4. Clean Transportation
5. Stakeholder and Community Outreach and Engagement
6. Data Analytics

While all these priorities are essential to meet the state's clean energy goals, **energy assurance and resiliency** following a catastrophic event is critical to a fully functioning economy. **Renewable energy deployment** is essential to our island state's energy security, resiliency, and green economic development, especially the near-term projects needed to end the use of coal in Hawai'i. **Energy efficiency** supports these by reducing the

amount of additional energy and land required to power the economy while **clean transportation** will help to reduce the state's dependence on exporting local dollars for imported fossil fuels and spark investment, innovation, and employment in newly emerging technologies.

It has become clear **stakeholder and community outreach and engagement** are needed more than ever to successfully realize all of the opportunities above; and reliable, consistent, and easily accessible **data analytics** is key to the state's effective and efficient transition to a decarbonized economy able to take advantage of innovation and promote entrepreneurship.

In accordance with Act 100, Session Laws of Hawai'i 1999, this year's annual report is structured in three parts:

1. Current priorities and looking forward;
2. An overview of HSEO activities within the framework of legislative mandates; and
3. Funding and administrative matters.


Part 1 focuses on HSEO's priorities in response to COVID-19 and the need for economic recovery. It describes the top priorities, actions taken, and next steps in ensuring that Hawai'i's economic recovery moves in a more resilient, clean energy direction.

Part 2 describes HSEO's ongoing activities to fulfill its statutory mandate organized by each topical area: energy efficiency, renewable energy, clean transportation, and a resilient clean energy economy.

Part 3 describes HSEO's current funding and administrative changes including staffing loads and the in-progress office reorganization into four components: Administrative; Operations; Resiliency, Clean Transportation, and Analytics; and Energy Efficiency and Renewable Energy.

## Dashboard: HSEO Accomplishments By-The-Numbers

(as of June 30, 2020)



**7**  
days a week  
**700**  
staff hours

The HSEO was activated in response to COVID-19. During the peak period of April HSEO worked 7 days a week providing over 700 staff hours in fulfilling HSEO's State Emergency Support Function 12: Energy.



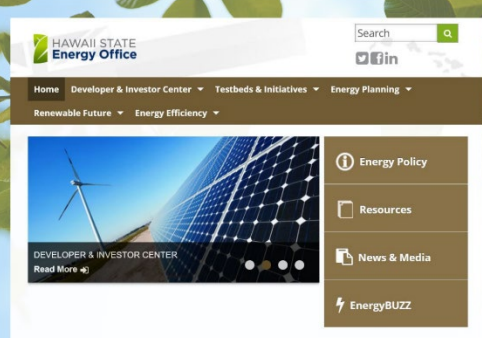
**1,000**

Designers, engineers, construction professionals, facility managers, and energy code professionals trained by HSEO and its partners on energy code updates.



**\$425,070**


New federal funds received for strategic projects that will advance Hawai'i's clean economy goals.



**338,214**


pageviews to the Hawaii State Energy Office site

## State of Hawai'i Accomplishments By-The-Numbers




**2,030**  
**GWh**

Of energy savings through 2015 exceeding the interim target by nearly 50%. An estimated 530 GWh of savings was achieved from 2016 through 2017.



**29.8%**  
**RPS**

The statewide renewable portfolio standard as of December 31, 2019. This puts Hawai'i on track to reaching the 2020 interim target of 30%.



**GHG**  
**11%** ↓

Net greenhouse gas emissions were lower by roughly 11% in 2016 relative to 1990. Hawai'i is on track to hit its 2020 GHG year-end target.



## Part 1: Priority Objectives and Policies

### Clean Energy to Achieve a Clean Economy

HSEO's mandate to decarbonize the economy reflects the fact that most of Hawai'i's greenhouse gas emissions are energy-related. Energy-related emissions account for about 85 percent of statewide emissions consistently throughout inventory years with transportation and stationary combustion emissions accounting for the largest share of energy sector emissions. Coupled with Hawai'i's renewable portfolio standards and energy efficiency portfolio standard mandates, these frame the overall direction for a clean energy economy.

Within these overall mandates and broader energy ecosystem, the Hawaii State Energy Office focuses on the following top priorities now as the critical path to a resilient clean energy economy experiencing COVID-19 and an uncertain timeline to recovery:

1. Energy Assurance and Resiliency
2. Renewable Energy Deployment
3. Energy Efficiency
4. Clean Transportation
5. Stakeholder and Community Outreach and Engagement
6. Data Analytics

With regard to these priorities, Act 100, Session Laws of Hawai'i 1999 specifically calls for:

- A statement of goals, including what the agency hopes to accomplish both short and long term;
- Objectives and policies, specifically setting forth how each goal can and will be accomplished;
- An action plan with a timetable indicating how the established objectives and policies will be implemented in one, two, and five years; and
- The process that the department or agency will use to measure the performance of its programs and services in meeting the stated goals, objectives, and policies.

The Hawaii State Energy Office was established as a separate agency and its goals were codified under Act 122 last year **"to promote energy efficiency, renewable energy, and clean transportation to help achieve a resilient clean energy economy."** All of HSEO's activities support these overarching goals. HSEO's priorities include lower costs and support job creation. HSEO is integrating into all of these priorities workforce development needs to prepare residents for the opportunities presented with advancing energy efficiency, renewable energy, and clean transportation. HSEO's priority objectives and policies, timetable, and performance measures to support these mandated goals are presented in a table on pages 49-54.

Following is a discussion of each priority and planned next steps for the priority. Additional information can also be found in Part 2 for specific activities undertaken this year.

### Energy Assurance and Resiliency

HSEO's top priority is to ensure the continued availability and delivery of reliable fuel and electricity energy to support economic recovery and meet the demands of a growing green economy. Foremost is the need to maintain a common operating picture (COP). As discussed here, a COP is a continuously updated overview of Hawai'i's energy system from both a planning and incident response perspective compiled from data shared between integrated communication, information management, and intelligence and information sharing



systems. The goal of a COP is real-time situational awareness across all levels of incident management and across jurisdictions. HSEO utilizes a COP in the role of the primary and coordinating agency for the State under HI-EMA for State Emergency Support Function 12: Energy (SESF-12) to coordinate and respond to all significant energy disruptions. To support this mission, HSEO provides technical expertise and support to energy asset owners and operators as well as other state and local government through its State Emergency Response Team (SERT). Support includes assisting government and private sector stakeholders in overcoming challenges associated with maintenance and restoration of the energy system and maintaining situational awareness of the status of energy maintenance and restoration efforts and other information as appropriate.

HSEO's SERT is led by one dedicated staff member and supported by additional HSEO staff serving as core team members and all other HSEO staff receiving cross-training on support functions for the core team members. Even with these measures in place, HSEO's ability to resource the SERT during COVID-19 and hurricane events became strained due to staff attrition and hiring freezes. HSEO anticipates continued strain on the SERT in the future as impacts from emerging threats in cybersecurity and hazards, such as major storm events, heat waves, sea level rise, and inland flooding, which are exacerbated in frequency and severity by climate change.

Also, critical to maintaining energy assurance and resiliency is understanding changes to fossil fuel supply and demand, business viability, and the costs to ratepayers and the general public. COVID-19 impacts to tourism has caused cascading effects on energy supply and demand throughout the economy from unprecedented and unplanned for demand destruction to fossil fuel and electricity use. The collapse in jet travel has made clear that tourism's demand for jet fuel subsidizes fuel and electricity prices across Hawai'i's economy and raised questions about supply chain logistics for crude and refined petroleum imports. To better understand these relationships and assure the state's energy ecosystem, the HSEO joined as participants in two dockets at the Hawai'i Public Utilities Commission (PUC), [Docket No. 2020-0090](#), relating to petroleum fuel supply contract for electricity; and [Docket No. 2020-0158](#), relating to the pricing of petroleum fuel supply for electricity production and petroleum feedstock for gas supply.

HSEO, in coordination with HI-EMA, has also applied for an advance assistance grant under the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program to assess the interdependencies of [critical community lifeline](#) infrastructure with the energy supply chain upon which it depends. The advance assistance grant supports the identification of a pipeline of resiliency investments that can support additional grant applications under FEMA's new Hazard Mitigation Program, Building Resilient Infrastructure and Investments (BRIC). HSEO is currently developing an application for resiliency investments under BRIC to position Hawai'i to successfully pursue BRIC applications for years to come.

Furthermore, [Act 23, Session Laws of Hawai'i 2020](#), prohibits the approval of a new, modified, or renewed power purchase agreement for coal-generated electricity, and after December 31, 2022, prohibits the issuance or renewal of covered source air permits for coal-burning electricity generation facilities. The replacement of the 180 megawatts of coal-fired capacity on O'ahu's grid is a substantial undertaking dependent on the completion of several solar plus battery storage projects over the next two years. Maintaining the COP of Hawai'i's overall fossil fuel situation sets the foundation for the transition from fossil fuels to renewable energy.

## Renewable Energy Deployment

HSEO is prioritizing support for renewable energy projects that will replace existing coal plants and limit negative impacts on communities while advancing the state's decarbonized economic growth. As noted above, the replacement of 180 megawatts of capacity from coal on O'ahu is a substantial undertaking dependent upon the successful deployment and operation of several solar and battery storage projects over the next two years,

as well as the continued use and expansion of customer-sited (rooftop) solar and energy storage systems. The PUC directed Hawaiian Electric to procure sufficient renewable resources to reliably replace the coal plant at the end of its contract in September 2022 and the 38-megawatt oil-fired Kahului power plant on Maui by 2024.

These mandated procurements have yielded 17 solar plus battery storage projects and three standalone battery storage projects on O‘ahu, Maui, and Hawai‘i island. The power purchase contracts of the projects participating in the first stage (Stage 1) of the dispatchable and renewable power generation procurement have already been approved by the PUC and are now seeking the requisite site permits and approvals. The second stage (Stage 2) of projects are now undergoing contract negotiations and PUC review. These projects must be operational by the end of 2023 to take advantage of the federal investment tax credit for renewable energy projects, which is critical to their lower costs. In addition, community-based renewable energy projects are being developed on O‘ahu, Lāna‘i, and Moloka‘i. HSEO is working with renewable energy project developers and stakeholders to replace the coal fired plant while providing needed employment opportunities; and how these projects can be developed on time, while minimizing impacts to surrounding communities.

HSEO prioritizes input to the appropriate permitting agencies in the review of these projects and is exploring opportunities to support the timely review of future projects. HSEO will continue working with the developers and other entities to meet workforce requirements and opportunities for employment on these projects in the next few years, as well as with future projects. HSEO also engages the communities most impacted by these projects to understand potential issues and seek solutions to address concerns where possible.

Important to the progress and vision are an understanding of the regulatory process and the major changes, impacts, and advancements that have and will affect Hawai‘i’s energy supplies and markets, both regulated and unregulated. Rooftop solar is a prime example of an essential resource that is already contributing over ten percent of Hawai‘i’s electricity and has the potential to contribute up to about 40 percent of projected electricity needs if all single-family and 20 percent of commercial buildings were willing and able to participate, with appropriate energy storage, grid upgrades, demand management technologies, and market signals in place. The alignment of state policy and regulatory actions, market signals, technical development, and economic reality are important to prudent decision-making for a successful transition to a clean energy economy. For this reason, HSEO is either an intervenor or is monitoring several key PUC proceedings affecting Hawai‘i’s energy landscape—including [Docket No. 2015-0389](#), Community Based Renewable Energy; [Docket No. 2017-0352](#), Competitive Bidding Process to Acquire Dispatchable and Renewable Generation; [Docket No. 2018-0088](#), Performance-Based Regulation; [Docket No. 2018-0165](#), Integrated Grid Planning; [Docket No. 2019-0323](#), Distributed Energy Resources; and others, including those mentioned in the Energy Assurance and Resiliency Section of this document.

## Energy Efficiency

HSEO is prioritizing energy efficiency to maximize cost effective investments and foster high impact programs. Improving energy-efficient building codes and efficiency standards are recognized as cost-effective measures that set the bar for the minimum energy performance for commercial and residential buildings in Hawai‘i. Especially in these critical times, energy efficiency saves money for agencies, businesses, and residents. First, for many kilowatts of demand, using a more efficient technology or design that uses fewer kilowatts to provide the same amount of lighting, cooling, heating water, or other energy service, is often the most cost-effective resource when both the equipment and the energy costs to run the equipment are considered. Second, reduced energy demand results in less energy needed to supply that demand.

For example, a home using 10 incandescent light bulbs at 100 watts each needs 1,000 watts (one kilowatt) to power those lights. If more efficient lightbulbs are used, for example, LEDs at 20 watts each, with the same quantity of light output, only 200 watts would be needed. Although lighting provides one of the more dramatic examples, other energy-using equipment and systems such as ventilation with energy efficient ceiling and whole house fans, are constantly being improved upon. Maximizing energy efficiency will reduce the quantity of electricity production, projects, and land needed to meet Hawai'i's daily energy requirements.

As an ex officio voting member of the elected chair of the State Building Code Council, HSEO was instrumental in the Council's recent adoption of the 2018 International Energy Conservation Code with Hawai'i-specific amendments. HSEO's priority going forward is to provide training about the 2018 IECC and Hawai'i and county amendments. HSEO will also conduct 2021 IECC working group meetings to discuss code official, industry, and other stakeholder concerns.

[HRS section 196-30](#) establishes guidelines for benchmarking, retro-commissioning, and energy savings performance contracts for public buildings. These are all effective ways to achieve greater levels of energy efficiency for state facilities. HSEO's programs have secured federal funding for, provided, and continues to provide technical assistance to agencies to support continuously improving their facilities with energy and water saving retrofits. State agencies in 2019 have achieved a 17.5 percent decrease in energy use from 2005 levels (as referenced in the [HSEO's 2020 Annual Facts and Figures](#)). HSEO has identified partners and a strategic energy management approach to assist state agencies to further decrease energy usage. HSEO will continue to seek federal funding to continue this initiative using results of previous state benchmarking of 416 public facilities to identify the highest potential for immediate action to reduce energy use.

Also, HSEO works with the local community, federal, state and county agencies, and energy stakeholders to encourage and facilitate energy efficiency, conservation, and renewable energy projects. In accordance with [HRS section 201-104](#), HSEO reports that programs such as Leadership in Energy and Environmental Design, the Green Business Consortium, and other means of reducing, reusing, repurposing materials, reducing waste, and implementing sustainable practices, are natural outgrowths of the recycled product marketing efforts previously established, and that there are no specific additional actions recommended at this time. HSEO collaborates with industry and agencies to coordinate and develop professional training events providing technical information on building codes, various technologies, and systems. Webinars took on greater importance due the COVID-19 pandemic. HSEO's webinars also provided resources for preparing to return to work accelerating facilities' energy retrofits to address COVID-19, increase efficiency, and retain and create jobs. In response to COVID-19, HSEO is examining technologies and presenting information on how to cost-effectively address indoor air quality and other issues related to planning for safely returning to the workplace and school environments. HSEO will continue to help coordinate and help develop training programs with the trades, community colleges, universities, and business and professional associations.

## Clean Transportation

HSEO is prioritizing clean transportation vehicles and infrastructure for the conversion of government fleets and general public transportation. Central to achieving the State's commitment to meeting a zero emissions clean economy by 2045 is addressing fossil fuel consumption in transportation. In 2016, emissions from transportation activities were 8.69 million metric tons CO<sub>2</sub> equivalent, accounting for 51 percent of energy sector emissions. Ground transportation accounted for 47 percent of those transportation emissions.

HSEO has prioritized activities including market signals, innovative market offerings, backbone infrastructure, and the necessary groundwork for clean transportation that support a transformational investment in Hawai'i's clean energy economy. Whenever possible HSEO seeks to leverage funding sources from outside Hawai'i to maximize the impact of clean transportation efforts.

The availability of zero emission vehicles (ZEV), for purchase and convenient charging options are significant factors for the advancement of clean transportation. HSEO has pursued opportunities to send market signals to vehicle manufacturers broadly, and Hawai'i specifically. The light-duty (passenger) vehicle market is rapidly approaching price parity with internal combustion vehicles at the point of purchase. The next major challenge is converting medium- and heavy-duty vehicles to ZEVs. HSEO led the effort for Hawai'i to join with 14 other states and Washington D.C. in signing the Multi-State Zero Emission Medium- and Heavy-Duty Vehicle Memorandum of Understanding (MDHD MOU). The 15 signatory states and Washington D.C. account for almost 50 percent of the U.S. economy and 40 percent of goods moved by truck (value) sending a strong market signal for ZEV vehicles in the medium- and heavy-duty segment including full size pickup trucks. Supporting the growth of the MDHD ZEV market helps to drive the original equipment manufacturers to develop the models that will be needed in the near and medium term in order to keep on track to achieve state and national decarbonization goals in ground transportation.

Supporting fueling infrastructure for ZEVs is a foundational element and identified as a key barrier to adoption of ZEVs. With the passenger vehicle market accelerating its price competitiveness, the lack of planning and deployment of infrastructure charging will become a constraint on rapid conversion. A robust backbone of EV charging infrastructure is critical to the ubiquitous adoption of ZEVs necessary to achieve Hawai'i's energy and decarbonization goals. To that end HSEO engages in both market building activities and infrastructure deployment. To date, HSEO has nominated Alternative Fuel Corridors to be designated on Hawai'i island, Maui, Moloka'i, Lāna'i, and O'ahu, and is working on a nomination for Kaua'i. Segments of each nomination have been designated either "corridor pending" or "corridor ready" by the Federal Highway Administration (FHWA). In 2020, FHWA Highway Infrastructure Program (HIP) funding was expanded to projects providing "necessary charging infrastructure along corridor-ready or corridor-pending alternative fuel corridors."

For this reason, as part of the Volkswagen Settlement, HSEO allocated the maximum authorized percentage, fifteen percent, to the deployment of electric vehicle charging infrastructure in HSEO's Beneficiary Mitigation Plan. As Volkswagen Settlement funds are not federal dollars, they can qualify as the required local match for HIP projects, lowering the barrier to access HIP funds and leveraging the impact of Volkswagen Settlement funds. Supporting activities that lay a foundation for all consumers to have affordable access to EV charging serve a critical role in the equitable transition of the transportation sector.

HSEO supports state and county fleet conversion and will continue to focus on activities that lay the groundwork for success. Transformation of state and county fleets to ZEVs requires support to navigate technical, financial, and administrative issues. HSEO worked with the Hawai'i Department of Land and Natural Resources (DLNR), the Hawai'i Department of Transportation (DOT), and other stakeholders through the Rocky Mountain Institute's Mobility Innovation Lab, where alternative financing and procurement options were explored. HSEO supported DOT in advancing these concepts, including DOT's request for proposals to acquire ZEVs as a service, a service in which HSEO intends to participate. Exploring and participating in innovative ways to adopt vehicles positions HSEO with firsthand expertise to act as a resource to other state agencies as they look to begin their fleet transitions which accelerates statewide fleet conversion.

## Stakeholder and Community Education, Outreach, and Engagement

HSEO is prioritizing a more comprehensive public clean energy education, outreach, and engagement program, which is critical to achieving HSEO's broader mission to **promote energy efficiency, renewable energy, and clean transportation to help achieve a resilient clean energy economy**. In order to fulfill HSEO's mandates, increase living wage jobs, capital investment in energy efficiency and renewable energy projects, access to energy efficiency opportunities, and decarbonize Hawai'i's economy everyone must be included in achieving these goals. The increasing public challenges and vocalized community concerns about energy projects' impacts on host communities has made clear the need for a more intentional effort to reach out to and include grassroots community in HSEO's stakeholder engagements and collaborations to more effectively, efficiently, and equitably advance Hawai'i's clean economy goals.

In 2008, the Hawai'i Clean Energy Initiative (HCEI) was launched in partnership with the U.S. Department of Energy (USDOE) as a separate initiative specifically to engage the federal government and the private sector to help lead efforts to achieve renewable energy and clean transportation goals. From the outset, HSEO and USDOE sought to create a holistic, locally driven strategy to advance Hawai'i's enterprising clean energy agenda by pooling the ideas, resources, and capabilities of a diverse team of energy focused stakeholders. HCEI succeeded in bringing together industry related business leaders, policymakers, and non-governmental organizations. As Hawai'i's energy transformation gained momentum, HSEO hosted a series of charrettes under HCEI, convening knowledgeable landowners, academics, subject matter experts, and public advocates for intense planning sessions designed to generate deep thinking and answers to critical challenges. Facilitated by experts, these charrettes created an opportunity for Hawai'i stakeholders to provide leadership in the areas of energy efficiency and transportation while working alongside national and international leaders on transformative issues vital to Hawai'i. They succeeded in bringing about many policy and regulatory changes not least of which was establishing the 100 percent clean energy target by 2045.

Over the past ten-plus years, the HCEI has accomplished many of its objectives. The State of Hawai'i, USDOE, and industry leaders acted as co-pilots in creating and advocating for the landmark Initiative that developed strategic private sector partnerships for the research, development, testing, deployment, and permitting of clean and renewable technologies. Today its goals and objectives are fully woven into the fabric of HSEO, which works closely on a day-to-day basis with national, state, county, and private sector energy industry stakeholders to carry out all the mandates pursuant to [HRS section 196-10.5](#) of the HCEI including evaluating Hawai'i's potential for near-term project opportunities for the state's renewable energy resources; and initiating electric grid reliability and security projects that will enable the integration of a substantial increase of electricity from renewable-energy resources.

HSEO's priority today is to harness its strategic private sector partnerships to develop broader, grassroots public participation to move forward together to ensure renewable energy project success; and to ensure all Hawai'i's citizens engage in and benefit from the energy efficiencies needed to reach mandated targets. Industry, government, and community stakeholders have expressed that many of their concerns are not captured fully by the current regulatory process and community members have expressed a lack of knowledge about the energy industry as well as the project planning and regulatory process. These stakeholders have requested that HSEO, in its capacity as an objective neutral party, convey those concerns and weigh in on energy planning and regulatory processes. They have also asked HSEO to educate the public about energy resources, systems, and project planning, development, and regulatory processes to help resolve issues about existing and planned renewable energy projects. It is clear advancing progress toward a zero emission economy requires a mutually

informed industry, government, and community perspective. More grassroots, inclusive public engagement can help develop a collective clean energy vision that also addresses broader economic development solutions elevating the quality of life for everyone in Hawai‘i.

Part of HSEO’s broader engagement priority includes a statewide clean energy education and outreach plan to be developed in coordination with Hawai‘i’s institutions of public education as was originally mandated by HRS section 196-10.5. Hawai‘i’s K-12 students are energy consumers and potentially the next generation of clean energy leaders. Educating teachers and students about clean energy and Hawai‘i’s journey from the most fossil fuel dependent state in the country to a world leader in clean energy will empower them to be part of the solution to reach Hawai‘i’s clean energy goals.

Also, key to the overall success of HSEO’s ongoing mandated activities is enhanced messaging and communications infrastructure. HSEO will continue to work with stakeholders to overhaul HSEO communications and its websites; and launch a long-term stakeholder and community engagement strategy to educate the broader community about Hawai‘i’s energy needs and goals, what it will take to achieve them, as well as to provide all Hawai‘i’s stakeholders a voice in project and policy development. The overhaul includes the merging of the HCEI and HSEO websites and addition of web-based community engagement software to solicit feedback from stakeholders and communities on their views toward large-scale renewable energy projects. HSEO will improve its communications tools for better access to information and greater interaction among the public, HSEO, and government and industry partners.

HSEO is also adding an equity and prosperity lens in coordination with state and county agencies to support this broader, grassroots outreach and engagement. HSEO’s three member VISTA-AmeriCorps team will reach out to vulnerable and underserved communities to help them lower their energy costs, decrease the potential negative impacts of the energy transition, and improve the benefits of clean energy projects that can provide higher wage, short and long-term employment opportunities. The VISTA members will play a key role in helping HSEO build equity into its policies and programs to ensure “no one is left behind” in the transition to a zero emission economy. The three VISTA members focused on clean energy and clean transportation affordability, and community engagement and communications respectively, will help HSEO develop and implement strategies for education and outreach to vulnerable, under-represented and ALICE (asset limited, income constrained, employed) community partners to improve access to fundamental resources including reliable, affordable clean electricity and clean transportation options and employment opportunities. Fuller public engagement will advance energy self-sufficient, better protect the environment, and drive smarter economic growth. With public support, proper policy, and investments in technology and energy infrastructure that serves everyone’s needs, Hawai‘i can grow its economy and create a more equitable future.

## Data Analytics

HSEO is prioritizing the establishment and implementation of an energy ecosystem data governance framework. Accessible, reliable, high quality data undergirds all efforts to achieve a resilient clean energy decarbonized economy. Collection, analysis, and open access to quality data is critical to Hawai‘i’s successful transition to a decarbonized economy. Data supports the development of equitable and economically viable energy efficiency programs. Data is used to monitor and track progress towards state energy and climate goals, as well as objectives such as the conversion of medium- and heavy-duty vehicles to ZEVs. Reliable data is also necessary to identify and evaluate the risks and vulnerabilities of Hawai‘i’s energy supply chain for emergency response and regulatory proceedings. Data is ultimately what supports the identification of the highest impact activities that the state can pursue in order to maximize both public and private sector spending in the



transition to a carbon free economy. Having a well-developed data governance framework will enable innovation and new business opportunities by creating a foundation of high-quality data to support information sharing, machine learning, and artificial intelligence. The jobs of the future will also increasingly rely on the ability to process, analyze, and apply data analytics.

“Engage” is just one innovative data analytics project for which HSEO is a recognized national leader. “Engage” is an open access, publicly available web application for energy system modeling. HSEO developed Engage, previously known as Hawai‘i Energy Visualization Initiative or HEVI, in collaboration with the USDOE’s National Renewable Energy Laboratory (NREL). Engage can augment the energy system planning process by empowering more stakeholders to better understand and solve energy system planning problems. It can be used to explore decarbonization strategies such as 100 percent electrification of ground transportation as well as progress in aviation and marine transportation sectors. The scenarios can provide estimates of the impact on the demand for renewable energy deployment which can be visualized in tools such as the Hawai‘i Advanced Visualization Energy Nexus (HAVEN), which can be utilized for community engagement. These electrification scenarios can be weighed against other decarbonizing transportation opportunities such as efficiencies in mobility from multi-modal transportation, reduction in vehicle miles traveled, and increased utilization of mass transit. Understanding the tradeoffs of both community impacts and implementation costs associated with various tactics can promote an open and transparent dialogue to support Hawai‘i’s transition to a net-negative emissions economy. Activity in fiscal year 2020 was limited due to COVID-19 and hiring restrictions; however, HSEO is working with the USDOE and NREL on a scope of work for the coming year and HSEO is working with the University of Hawai‘i Data Science Institute for up to three Data Science Fellows to help run scenarios while gaining professional development experience.

HAVEN is another innovative HSEO-developed tool referenced above as a community engagement tool supported by Engage. HAVEN supports the analysis and communication of information contained within complex energy data sets highlighting energy and related sector interdependencies and scenarios. HAVEN will be enhanced and continue to be utilized in community engagements to advance the discussion on the tradeoffs of alternative renewable energy buildout pathways, and how they impact land utilization. USDOE requested HAVEN to be featured in the USDOE innovation exhibit at CERAWeek in Houston, Texas. CERAWeek provides an integrated framework for understanding what’s ahead for global energy markets, geopolitics, and technology. While CERAWeek was cancelled in 2020 due to COVID-19, USDOE provided a no cost extension for the HAVEN project to support continued use of HAVEN for stakeholder engagement.

## Part 2: Ongoing Mandated Activities

Part 2 describes HSEO's ongoing activities in response to the directives established pursuant to HRS sections 196-71 and 72, and other applicable statutes that support the overall advancement of Hawai'i's clean economy goals. As specifically set forth in Act 122, HSEO shall:

- (1) Provide analysis and planning to actively develop and inform policies to achieve energy efficiency, renewable energy, energy resiliency, and clean transportation goals with the legislature, public utilities commission, state agencies, and other relevant stakeholders;
- (2) Lead efforts to incorporate energy efficiency, renewable energy, energy resiliency, and clean transportation to reduce costs and achieve clean energy goals across all public facilities;
- (3) Provide renewable energy, energy efficiency, energy resiliency, and clean transportation project deployment facilitation to assist private sector project completion when aligned with state energy goals; and
- (4) Engage the private sector to help lead efforts to achieve renewable energy and clean transportation goals through the Hawaii clean energy initiative.

Part 2 sets forth these activities in fiscal year 2020 to demonstrate the integrated, holistic approach HSEO brings to achieve these critical goals within the context of HSEO's overall purpose "to promote energy efficiency, renewable energy, and clean transportation to help achieve a resilient clean energy economy."

### Introduction

HSEO has undertaken a host of initiatives in response to the COVID-19 emergency while continuing to carry out its core mission, despite restrictions on general funds resulting from the pandemic. HSEO's involvement in the COVID-19 emergency response has been wide ranging, including working with emergency response officials to prioritize energy workers for the COVID-19 vaccine and promoting a green jobs pipeline to help strengthen and diversify the pandemic-ravaged economy.

Nonetheless, HSEO has continued to support energy efficiency as the most important foundation for a clean energy economy. The concept of "energy efficiency first" reflects the understanding that it is generally cheaper and more resource-efficient to avoid using a kilowatt-hour than it is to generate or purchase a kilowatt-hour. Efficiency first requires no new land, no new power plants, and is the foundation of HSEO's programs, projects, and practices. HSEO also supported renewable energy projects that will replace the existing coal plants cumulatively by 2024 significantly advancing our carbon free economy goals. Among other initiatives, HSEO staff met with all Hawaiian Electric Stage 1 and some Stage 2 renewable energy developers to discern their progress and needs, and to identify current and near-term jobs and skills to enhance opportunities for Hawai'i residents to enter the clean energy industry. And HSEO took a leadership role in advancing the adoption of clean transportation across Hawai'i, working with stakeholders to encourage and facilitate the adoption of clean transportation.

To support these efforts, HSEO enhanced its stakeholder engagements establishing state-wide intergovernmental and civic working groups and collaborated with stakeholders to present webinars providing technical information on various technologies, systems and resources for safe return-to-work initiatives, with plans to continue efforts to collect, examine, and present information on cost-effective approaches to improved

indoor air quality and other issues related to safely and returning to work and school environments. HSEO also laid the foundations for more robust, transparent, and shareable data collection and analysis for enhanced energy efficiency and renewable energy project planning statewide.

Finally, HSEO continued to work closely with the Hawaii Green Infrastructure Authority (HGIA), upon which the Chief Energy Officer serves as an ex officio member and current Vice Chair. The Legislature established HGIA to make clean energy investments accessible and affordable for Hawai'i's consumers. HGIA was capitalized with the proceeds from the Green Energy Market Securitization (GEMS) Bond, an innovative market-driven financing mechanism, to advance Hawai'i's energy efficiency portfolio standards and to support the 100 percent renewable portfolio standard goal in the electricity sector by 2045. The program utilizes about \$67 million in loan capital to leverage \$37 million in private capital, for a total \$104.8 million in clean energy investments within the Hawaiian Electric's service territory. HGIA is Hawai'i's Green Bank.

## Promoting Energy Efficiency

### Energy Efficiency Portfolio Standards

Hawai'i has a State Energy Efficiency Portfolio Standard (EEPS), contained in [HRS section 269-96](#), to reduce electricity consumption in Hawai'i by 4,300 gigawatt-hours by 2030. To fund the energy efficiency program, a Public Benefits Fee surcharge is collected via utility customers' electricity bills. As this program is important to Hawai'i meeting its energy goals, HSEO provides information on the EEPS in its briefings, presentations, and reports, and works closely with the PUC's consultant overseeing the public benefits fee administrator, named Hawai'i Energy, in technical reviews, comments, and discussions. Fiscal year 2020 activities included:

- HSEO participated in the Technical Advisory Group and Technical Working Group meetings to ensure that the state is on track to meet its EEPS goal of 4,300 GWh reduction by 2030.
- HSEO staff reviewed and provided input to Hawai'i Energy's PY20 Technical Reference Manual and Market Potential Study.
- HSEO works in partnership with Hawai'i Energy in education, outreach, technical assistance, training for professionals, and providing information for students, as well as referring the public to Hawai'i Energy for information on rebates when appropriate.
- HSEO participates as a state partner in the Grid-interactive Efficient Buildings Pilot and Public Buildings Working Groups of the National Association of State Energy Officials and the National Association of Regulatory Utility Commissioners (NASEO-NARUC), along with the PUC, Hawaiian Electric, and Hawai'i Energy, to facilitate effective technical assistance, policy, projects, and communication between states and national laboratories and within state agencies, organizations, and utilities.

### Energy Code

Improving energy-efficient building codes and efficiency standards are recognized as cost-effective measures that establish minimum energy performance standards for commercial residential and other buildings in Hawai'i. Hawai'i's energy policy is focused on maximizing cost-effective investments and fostering high-impact programs. The adoption of Hawai'i's 2015 International Energy Conservation Code alone is projected to save Hawai'i's ratepayers about \$1.4 billion by 2040. HSEO works closely with federal, state, county, energy stakeholders, and others to promote and facilitate energy efficiency and conservation through technical assistance and training to state agencies, county, and energy-related stakeholders, as well as businesses, non-profits, and professionals.

HSEO is an ex officio member and one staff member serves as the elected chair of the Hawai'i State Building Code Council (SBCC). Established in 2007, the SBCC convenes the Building Code Managers of Hawai'i's four counties and representatives from the major associations representing building-related trades and professions. The mission of the SBCC is to unify, to the extent practicable, state and county building codes. In support of the SBCC and energy codes, HSEO:

- Testified before county councils on adopting the 2015 International Energy Conservation Code (IECC), including four testimonies before the Honolulu City Council.
- Testified at the second public hearing on the proposed 2021 IECC in Las Vegas, NV.
- Provided technical assistance before and after adoption in each county.
- Provided training and outreach to educate engineering, design, and construction professionals on state and county amendments adopted in 2020 to the 2015 IECC.
- Participated in Hawai'i Energy's quarterly Energy Efficient Codes Coordination committee meetings on energy code and appliance efficiency standards, as Hawai'i Energy adjusted rebates and incentives.
- Hosted bi-monthly "Code Green" episodes on ThinkTech, featuring codes and standards updates, as well as new energy and green technologies, projects, and programs.

### State Appliance Standards

In addition to energy codes, appliance efficiency standards are among the most effective policies to save consumers energy and money. In Act 141, Session Laws of Hawai'i 2019, Hawai'i joined with other states such as California and Washington, to expand the number of appliances covered by appliance efficiency standards, and Hawai'i works with the Appliance Standards Awareness Project, a non-profit organization dedicated to improving appliance efficiency standards nationwide. HSEO also works with Hawai'i Energy and other stakeholders to develop and disseminate information on the new appliance standards such as on the HSEO website. [HRS sections 196-84 and 85](#) specify the following standards, to take effect on January 1, 2021:

- Computers and computer monitors shall meet the requirements set forth in California Code of Regulations, Title 2- Section 1605.3 as amended;
- Faucets shall meet the minimum efficiency standards set forth in California Code of Regulations, Title 20, Section 1605.1, as amended;
- High color rendering index fluorescent lamps shall meet the minimum efficiency requirements contained in Section 430.32(n) (4) of Title 10 of the Code of Federal Regulations as in effect on January 3, 2017;
- Showerheads shall meet the minimum efficiency standards set forth in California Code of Regulations, Title 20, Section 1605.1, as amended; and
- Spray sprinkler bodies that are not specifically excluded from the scope of the Environmental Protection Agency's *WaterSense* Specification for Spray Sprinkler Bodies, Version 1.0, shall include an integral pressure regulator and shall meet the water efficiency standards.

### Hawaii Green Business Program

HSEO co-coordinates the Hawaii Green Business Program (HGBP), which helps businesses implement energy and resource-efficient practices and recognizes their success by communicating the environmental and financial value of their green practices during an annual award ceremony. Now in its 17th year, the Hawaii Green Business Program was established as a partnership between HSEO, the Hawai'i Department of Health, the Honolulu Board of Water Supply, and the Chamber of Commerce of Hawai'i. HSEO's activities included:

- Expanded collaboration with Hawai'i Department of Health, Honolulu Board of Water Supply, Hawai'i Energy, Hawai'i Lodging and Tourism Association's Engineer's Advisory Committee, Hawai'i Visitors and Convention Bureau's Sustainability Committee, and discussed future collaboration with others.
- Prior to COVID-19, secured support from the Hawai'i Tourism Authority to strategically expand and grow the program in order to enable the hospitality industry to reduce costs and share examples of success.
- During COVID-19, co-sponsored educational webinars on how to address air quality, at places of lodging, and safely returning to work.
- Hired a student intern to gain work experience while contributing to program objectives.
- Designed a new program logo as part of the strategy to update and refresh the program.
- Recognized 35 businesses and events for their commitment to green practices and savings in energy, water, and waste at the annual HGBP award ceremony in August of 2019.
- Recruited and provided technical assistance to over 20 prospective businesses to participate in a virtual recognition ceremony held in December 2020. The 20 businesses, including major hotels, venues, and events that participated in the 2019-2020 HGBP cohort achieved significant results, including the reduction of 19,000 pounds of solid waste, 15,000 therms of liquid propane gas, 1.1 million kilowatt-hours of electricity and 91.6 million gallons of water.
- Posted fact sheets and videos on the HGBP website to promote best management practices and participation in the program by new businesses, organizations, and events.

## Collaboration with Partners

### *Industry Experts and Professional Educators*

Hawai'i learns from, and contributes to, national and local organizations of experts in energy efficiency technologies, building codes and standards, and government operations and procurement. This allows HSEO to effectively collect information, assess feasibility, and share best practices, which informs, validates, increases success, and promotes implementation of energy programs and projects at all levels. Activities in this area in fiscal year 2020 included:

- HSEO was invited to present at the Energy Services Coalition's 8th Annual Market Transformation Conference in 2019 about energy performance contracting in Hawai'i. For eight consecutive years (2012-2019), Hawai'i has garnered national recognition from the *Race to the Top* award from the Energy Services Coalition. The award is given to the state with the highest per capita investment in energy performance contracting projects.
- Hawai'i is part of a federally-funded multi-state collaborative project with Illinois and Nevada energy offices for the development of a Community College Energy Code Training Program. Collaborating with other states, community colleges, and state and county building professionals in Hawai'i will increase: 1) Participant knowledge of advanced design and construction practices among instructors and students in community college trade and continuing education programs; and 2) Awareness of employment opportunities in code official and code verification professions.
- HSEO collaborated with the U.S. Green Building Council Hawai'i Chapter to plan and execute the Fall 2019 Hawai'i Build and Buy Green Site Tours on Kaua'i.
- Hawai'i participated in the national hearings of the 2021 International Energy Conservation Code in Las Vegas and actively advocated for measures to maximize energy savings. HSEO is also an ex officio member of and chairs the Hawai'i State Building Code Council.
- HSEO convenes a Solar Water Heater Variance working group to assess and improve calculation methods for the 30 versus 15-year life cycle cost calculator for technology alternatives to the solar water heater for new single-family homes in Hawai'i.

### *Supporting State Agencies' Energy Efficiency*

HSEO provides information, technical review, and collaboration with government agencies, professional associations, and educational institutions in Hawai'i to reduce energy use and to participate in performance contracting. In addition to in-house expertise, HSEO has contracted with technical and contracting experts to provide in-depth review and analysis services. HSEO's fiscal year 2020 activities included:

- ENERGY STAR® certification: HSEO assisted the Hawai'i Department of Accounting and General Services to apply for ENERGY STAR certification for the Hawai'i State Office Tower by performing site inspection, data entry into ENERGY STAR Portfolio Manager, verification of results, and submission of the application to ENERGY STAR.
- Leadership in Energy and Environmental Design (LEED) certification: The Hawai'i State Office Tower achieved LEED 4.1 Operations and Maintenance – Gold level re-certification with the assistance of HSEO, Hawai'i Department of Health, City and County of Honolulu Recycling, Honolulu Board of Water Supply, and the U.S. Green Building Council's Hawai'i Chapter volunteers and student interns.
- Technical Assistance for Energy Performance Contracting: HSEO gave presentations to the Hawai'i Department of Public Safety and the Hawai'i Department of Accounting and General Services about Energy Performance Contracts and the responsibilities of agencies and HSEO.
- Technical Review: HSEO reviewed and provided input to the Hawai'i Department of Transportation (DOT)-Harbors and DOT-Highways on Measurement and Verification Reports provided to them by their contractor, and assisted the Hawai'i Department of Public Safety by reviewing their Photovoltaic Power Purchase Agreement presentation for Maui Community Correctional Center.
- Strategic Energy Management: HSEO assisted the University of Hawai'i at Mānoa on potential approaches to their strategic plan for achieving their clean energy goals.
- Resilient Community Hub: HSEO participated in a working group, in collaboration with representatives from U.S. Housing and Urban Development, Hawai'i Department of Education, Kapi'olani Community College, and the City and County of Honolulu's Sustainability and Resiliency Office, to develop a proposal to submit to the Hawai'i Emergency Management Agency in support of a pre-disaster mitigation resilient infrastructure project at Kaimuki Middle School. Similar resilient community hub discussions are ongoing.
- USDOE's "Building Technologies Proving Ground – Public Sector Field Validation" Funding Opportunity Announcement (FOA): Reviewed FOA number DE-FOA-0002324, which will "invest up to \$10 million in field validation of high impact building technologies." The Hawai'i Concept Paper for an Energy Efficient Dessicant Dehumidification Air Conditioning system to be installed at the University of Hawai'i at Mānoa received an "encourage" notification, to proceed with a complete proposal, from the USDOE. However, the project was unable to proceed due to spending freeze and budget constraints preventing the state from providing the required local match. Therefore, Hawai'i had to withdraw from this innovative project.

### **Solar Water Heater Variance Program**

By state law, [HRS section 196-6.5](#), every single-family dwelling built after January 1, 2010 is required to have a solar water heater that meets specifications established by the PUC in Docket No. 2008-0249. As part of the law, HSEO administers the solar water heater variance (SWHV) program. HSEO maintains a Solar Water Heater Variance website and forms; provides information, in coordination with county building and permitting departments, to private sector architects, engineers, and homeowners; and accepts and processes the variance requests. HSEO also coordinates the activities of the SWHV Working Group, which was initiated to review provisions of Hawai'i Administrative Rules Title 15, Chapter 37 and the final judgement of Hawai'i Circuit



Court Judge Jeffrey Crabtree in *Hawai'i Solar Energy Association and Sierra Club v. DBEDT*, Civil No. 18-1398-09 (JPC), April 29, 2019, which stated in part, "It is the intent of the legislature that the variances provided for in Act 204, Session Laws of Hawai'i 2008 (Act 204) will rarely, if ever, exercised or granted because the burden of proof will lie within the applicant to demonstrate that a solar water heater system, regardless of location or circumstance, is not cost effective in the context of a 30-year mortgage term." In the reporting period, the SWHV Working Group held three meetings to discuss updating the Life Cycle Cost Comparison form, calculations, instructions, notes, and definitions. The updated workbook was circulated to the Working Group for their review and input.

During the COVID-19 pandemic, the Governor through emergency proclamation suspended in-person or paper SWHV submittals and required all applications to be submitted electronically.

## Promoting Renewable Energy

### Introduction

Hawai'i was the first state in the nation to enact an RPS requiring the use of renewable sources to generate the equivalent of 100 percent of electricity sales by 2045, with interim requirements of 15 percent in 2015, 30 percent in 2020, 40 percent in 2030, and 70 percent in 2040. Having achieved an RPS of 29.8 percent at the end of 2019, Hawai'i has exceeded its 2015 requirement of 15 percent and is on track to reach the required 30 percent in 2020. HSEO actively supports the deployment of renewable energy project investments to meet Hawai'i's RPS targets as cost-effectively as possible, through a variety of tools and initiatives. These tools also seek to inform developers of local priorities, regulatory requirements, protected environments and resources, and area-based considerations when looking for project sites and proposing new projects.

HSEO finds, collects, understands, describes, and makes available helpful information about Hawai'i's renewable energy resources, potential, projects, timelines, and how they fit together in the state's energy future. In fiscal year 2020, HSEO's areas of focus included tracking and reporting on the State's Renewable Portfolio Standards; creating, maintaining, and updating renewable energy tools and online information resources; issuing certificates under the Renewable Fuels Production Tax Credit law; collaborating with partners; and informing policies.

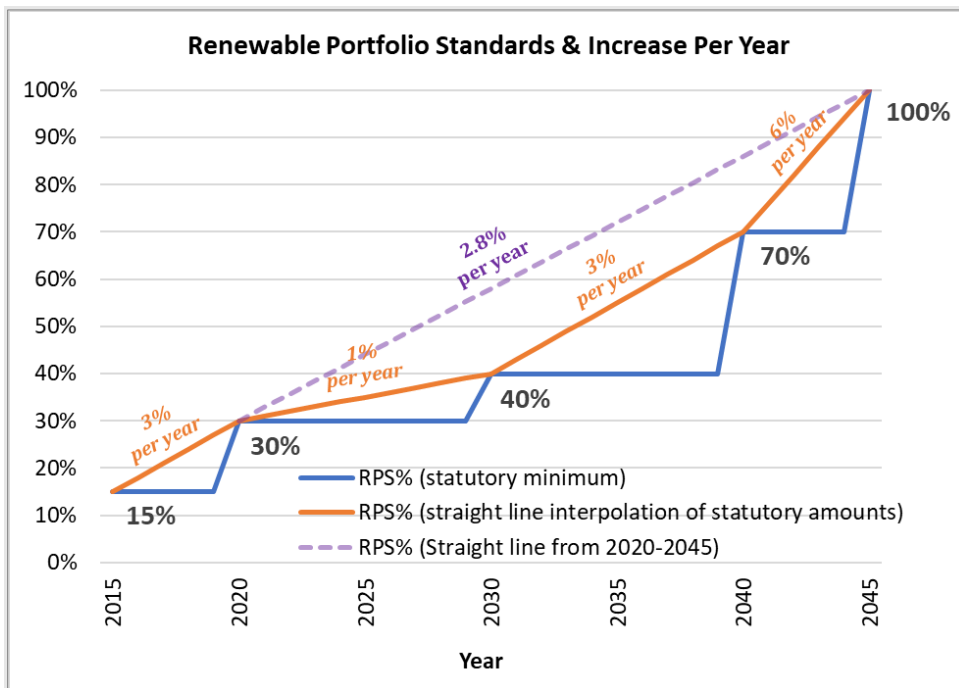
HSEO prioritizes input to the appropriate permitting agencies engaged in the review of these projects and is exploring opportunities to support the timely review of future projects. HSEO will continue to work with the developers and other entities to understand the project workforce requirements and opportunities for employment on these projects in the next few years, as well as on future projects. Also, HSEO is dedicating resources to engage the communities most impacted by these projects to understand potential issues and seek solutions to address concerns where possible.

### Renewable Portfolio Standards

Hawai'i has an RPS law, contained in [HRS section 269-91](#), requiring that the amount of renewable electricity generated in Hawai'i be equal to at least 100 percent of the electricity sold by electric utilities by 2045, with interim RPS goals:

- 30% by 2020,
- 40% by 2030,
- 70% by 2040, and
- 100% by 2045.

If the required increase is averaged over the 25 years between 2020 and 2045, the increase is 2.8 percentage points per year. This is similar to the rate of increase over the past five years of about three percentage points per year.



In order for Hawai‘i’s energy resources to contribute to Hawai‘i’s balanced portfolio of goals (including sustainable progress, self-reliance, affordability, responsibility, and environmental preservation), good information—and opportunities to both hear and be heard—are essential.

Hawai‘i renewable energy resources, available in a variety of locations throughout the state, are:

- Bioenergy (including biomass, waste-to-energy, biofuel, and biogas);
- Geothermal;
- Hydropower;
- Ocean Energy (including ocean thermal energy and hydrokinetic (wave) energy);
- Solar energy (including solar thermal and photovoltaic (PV) energy); and
- Wind energy.

Across the state, different areas have different resources and requirements. Some areas are sunnier; some areas are windier; some have more rainfall (and streams). Some resources have been proven only in specific areas (such as geothermal on Hawai‘i island). Some resources and suitable areas are remote; some are near transmission lines; some areas that appear suitable from a resource or technology point of view are not suitable for reasons of environmental sensitivity, slope, cost, regulation, zoning, or other characteristics.

The identification of energy resource intensity, parcel information, zoning, ownership, previous use, sensitivities, and other factors; as well as permitting requirements, land use plans and designations, and current and planned project sites, are necessary for informed reviews, discussions, and decisions.

HSEO's role is to collect, develop, and analyze credible information, long-term views and knowledge, and timely data; to understand trends in order to provide appropriate assistance and review; to provide this information and analysis to decision-makers, communities, the public, investors, researchers, students, teachers, and others; to seek federal funding to support these objectives; and to participate in partnerships for research, demonstration, analysis, community input, and outreach where appropriate.

### **Renewable Energy Tools and Online Resources**

HSEO has developed a variety of information resources and on-line tools to assist in identifying energy resources as well as permitting requirements and siting constraints. HSEO's website and subject matter experts provide information, reports, and data on several relevant topics. In fiscal year 2020, specific tools and enhancements were made to the [Self-Help Energy Suite](#) on the HSEO website, which includes the Permitting Wizard, the Renewable EnerGIS, the Renewable Energy Project Directory, and the Hawai'i Brightfields Initiative. HSEO also supported the creation of electronic permitting tools used by other agencies throughout fiscal year 2020 that regulate renewable energy projects including the Hawai'i Department of Health's [e-Permitting Portal](#) and the Hawai'i Department of Land and Natural Resources, Division of Forestry and Wildlife's [NARS, Rare Plant, and Native Invertebrates Permitting platform](#).

In accordance with HRS section 201-65, and as reported to the Legislature in 2018, the availability of on-line resources renders unnecessary the requirement of Act 237 of 1985 for a repository. Individual agencies with responsibilities related to permitting report their activities and any requests for legislative action directly to the Legislature.

### ***Renewable Energy Permitting Wizard***

In December 2019, HSEO contracted with NIC Hawai'i (then HIC Hawai'i) to hard code a short list of specified upgrades to HSEO's [Renewable Energy Permitting Wizard](#), including expanding the technologies that can utilize the Wizard, adding new user features, and streamlining the Wizard's usability. These updates were completed and launched live in July 2020. HSEO is now in the process of updating the Wizard's content including the many federal, state, and county permits identified in the Wizard. The Wizard supports the informed planning, siting, and permitting of large renewable energy projects in Hawai'i. In fiscal year 2020 there were 2,614 page views to the Permitting Wizard, an 11 percent decrease from fiscal year 2019 (2,913 page views).

### ***Renewable EnerGIS***

Also available throughout fiscal year 2020 was the [Renewable EnerGIS tool](#), which supports the siting of renewable energy projects by providing information on specific Hawai'i parcels to help inform the site assessment process, including renewable energy resource indicators, climate, topography, zoning, and other relevant site characteristics. This tool also empowers users to query sites in Hawai'i with certain attributes that may or may not be desired for development such as island, acreage, solar radiation, land use district, soil type(s), potential warm groundwater, and/or the presence of critical habitat(s), special management area(s), and reserve(s). Renewable EnerGIS was available to a broad audience (i.e., no special skills, software or experience with geographic information systems were needed) and provided information to landowners, developers, communities, individuals, regulatory entities, policy makers, non-government organizations, and other stakeholders. In fiscal year 2020 there were 9,608 page views to Renewable EnerGIS, a 48 percent increase over fiscal year 2019 (6,513 page views).

### *Hawai'i Energy Projects Directory*

The [Hawai'i Energy Projects Directory](#) (available through the HSEO site) is the only state-controlled public resource that identifies all existing and proposed renewable energy projects in Hawai'i, providing an important resource to inform the public and regulators of large projects proposed in their areas and to track the status of large renewable energy projects that contribute to Hawai'i's renewable energy mandate. In fiscal year 2020, HSEO maintained and updated the Directory as public information on each project became available. HSEO is transitioning the Directory to a data-based geographic information systems (GIS) platform that will facilitate the sharing and analysis of more project-specific information. The new Directory will include a wider range of energy projects in Hawai'i, including the fossil fuel units that still play a critical role in Hawai'i's energy mix. It will also identify the opportunities to provide public input on the projects under development. The new Directory will be launched in the beginning of 2021. In fiscal year 2020 there were 29,127 page views to the Directory, a 60 percent increase over fiscal year 2019 (18,190 page views).

### *Hawai'i Brightfields Initiative*

In November 2019, HSEO launched an online mapping tool to make it easier for land owners, developers, community members, and policymakers to assess the renewable energy potential of contaminated sites and other previously developed parcels statewide in support of Hawai'i's clean energy future. Using the [Brightfields tool](#), users can find sites by viewing the map or research specific sites through a filtering feature. The Brightfields tool was developed by HSEO and the Hawai'i Department of Health's Office of Hazard Evaluation and Emergency Response (HEER), with support from the Hawai'i Statewide Geographic Information Systems (GIS) Program in the Hawai'i Office of Planning, the U.S. Environmental Protection Agency (US EPA) and the National Renewable Energy Laboratory beginning in 2018, with technical contributions provided by Symbinomics and the Hawai'i Statewide GIS Program. Numerous other government agencies and private entities also contributed with review of the tool and suggestions for features.

### **Renewable Fuels Production Tax Credit**

The Renewable Fuels Production Tax Credit (RFPTC) is a tax credit to qualifying taxpayers who produce and sell a minimum quantity of 2.5 billion British thermal units of renewable fuels over a calendar year. In fiscal year 2020, HSEO developed and collected the forms and issued the certificates required by [HRS section 235-110.31](#). Also, in compliance with the statute, HSEO hereby reports the following:

1. The number of renewable fuels production facilities in the state and outside the state that have claimed the RFPTC for calendar year 2019: Three (3) facilities.
2. The location of renewable fuels production facilities in the state and outside the state that have claimed the RFPTC for calendar year 2019:

**Facility 1:** 16-240 Mikahala Street, Kea'au, HI 96749

**Facility 2:** 91-390 Kauhi Street, Kapolei, HI 96707

**Facility 3:** 91-1000 Geiger Rd, Ewa Beach, HI 96707

3. The total amount of renewable fuel by type, in British thermal units (Btu), produced and sold in 2019, and the amount projected to be produced in 2020, are:

Facility	Type of Fuel	2019 Amount Produced (Btu)	2019 Amount Sold (Btu)	2020 Projected Production (Btu)
Facility 1	Biodiesel	617,829,020,250	482,978,789,194	750,000,000,000
Facility 2	Hydrogen	41,463,300,000	41,463,300,000	44,000,000,000
Facility 3	Renewable Natural Gas	30,946,515,130	30,946,515,130	34,000,000,000

## Energy Feedstock Program

[HRS section 141-9](#) requires HSEO to work with the Hawai'i Department of Agriculture on an Energy Feedstock Program, and to report to the Legislature on progress. In fiscal year 2020, the major energy feedstock activities in Hawai'i continued to be the production of local biodiesel by Pacific Biodiesel, continued growing of pongamia trees by Terviva, discussions of crops and wastes that could be directed to the production of jet fuel and marine fuels, and interest in forest biomass, soil carbon, and carbon sequestration, that could result in projects or systems with energy-producing biomass components.

The only biodiesel producer in the state, Pacific Biodiesel, uses a combination of waste cooking oils, recovered oils from grease trap wastes, and sunflower seed oils from sunflowers grown on Maui and crushed on Hawai'i island. The biodiesel production facility on Hawai'i island uses off-spec and any excess oil remaining from the higher value (cosmetic and culinary) uses of the sunflower oil. Other crops planted by Pacific Biodiesel, for a variety of potential uses and with energy production potential from waste or excess products, include industrial hemp, cow peas, sunn hemp, rye, buckwheat, daikon, and clover.

Renewable natural gas is being produced by Hawai'i Gas in their new renewable natural gas facility, using methane from the Honouliuli wastewater treatment plant.

Feedstocks for sustainable aviation fuels are being investigated by the University of Hawai'i, a member of the Federal Aviation Administration's Aviation Sustainability Center. Feedstocks under consideration include agricultural and forestry feedstocks as well as urban waste streams.

Also, as reported by the Hawai'i Department of Agriculture in a letter to the Hawai'i State Legislature in response to Senate Concurrent Resolution 119 of 2019, the "counties are identifying Important Agricultural Lands (IAL) in accordance with Hawai'i Revised Statutes (HRS) section 205-47. The City and County of Honolulu has completed their identification process and has submitted the maps and documentation to the Land Use Commission for their consideration for designation. The identification and designation of IAL by the counties and individual landowners will heavily influence any strategic plans related to agricultural planning in Hawai'i and, therefore, are highly relevant."

## Informing Policies

### *Comment Letters*

In fiscal year 2020, HSEO submitted two public comment letters to facilitate and assist the informed decision-making for two renewable energy projects seeking approvals on O'ahu: Waiawa Solar (January 2020) and AES West O'ahu Solar Plus Storage (April 2020). HSEO provided comments in response to state agency inquiries regarding energy projects undergoing agency reviews.

### *Looking Ahead: Project Siting and Permitting Tools*

HSEO began reviewing potential updates to its current online tools for assisting the appropriate and informed siting and permitting of renewable energy projects in Hawai'i. HSEO is now preparing to conduct focused outreach in the beginning of 2021 with a variety of stakeholders involved in renewable energy development in Hawai'i, from developers to regulatory agencies to the communities in which projects may be located. In addition to getting their guidance on what's needed to support project siting and permitting in Hawai'i, HSEO will be requesting input from users of HSEO's existing suite of tools to determine how HSEO permitting and siting tools can be improved, and new ones developed to support informed, appropriate, and efficient siting and permitting of large renewable energy projects in Hawai'i.

### **Collaboration with Partners**

In the area of renewable energy, HSEO is approached by a wide array of entities seeking information about Hawai'i's laws, rules, regulations, requirements, barriers, concerns, issues, progress, incentives, resources, projects, and information sources. In addition to regularly responding to these requests, HSEO is informed by

the requests and surrounding discussions indicating optimism, concern, impatience, enthusiasm, resistance, and various other reactions. HSEO's activities in this area in fiscal year 2020 included the following:

- HSEO provided information on Hawai'i's renewable energy resources, process, projects, and policies to the public, land owners, project developers, teachers, students, and others through a variety of means.
- HSEO participated in organizations relevant to development of renewable energy in Hawai'i, including the Hawai'i Energy Policy Forum, Hawai'i Green Growth, the Kapolei Local Emergency Action Network, Hawai'i Ocean Resources Management Plan Coordinated Working Group, Hawai'i island's Humpback Whale National Marine Sanctuary Advisory Council, Honolulu Local Emergency Planning Committee, Maritime Transportation System Recovery Unit, and others.
- HSEO participated in discussions with state and federal agencies regarding potential assessments of smart grids, energy storage, geothermal, offshore wind resources, technologies, regulatory issues, and cost estimates.
- Act 145, Session Laws of Hawai'i 2019, directed the creation of "energy systems and technology training courses for county officers and employees" and provided funding for the initiative through HSEO. As directed by the legislation, in fiscal year 2020 HSEO provided the funding to the University of Hawai'i Community Colleges, which are establishing the courses and submitted a report to the 2020 Legislature.
- Consistent with [HRS section 196-41](#), "Work with federal agencies to develop as much research, development and demonstration funding, and technical assistance as possible to support Hawai'i in its efforts to achieve its renewable portfolio standards," HSEO is working with the U.S. Bureau of Ocean Energy Management and the National Renewable Energy Laboratory to identify issues and cost estimates for offshore wind.
- The Hawai'i-Okinawa Memorandum of Cooperation for Clean and Efficient Energy Development and Deployment (Partnership), effective June 2015 to June 2020, is a partnership between the two island areas. Participants include HSEO, the Okinawa Prefectural Government, Okinawa Enetech, University of Hawai'i's Hawai'i Natural Energy Institute (HNEI), the Pacific International Center for High Technology Research (PICHTR), and several research organizations and startup companies in both Hawai'i and Japan. The partnerships support and develops clean energy in islands and furthers innovation in the clean energy economy. Although due to COVID-19 the formal renewal of the agreement has been delayed until 2021, partnership activities are continuing.



## Promoting Clean Transportation

### Introduction

The state's commitment to meeting a zero emissions clean economy by 2045 is aimed to mitigate greenhouse gas emissions by both reducing and sequestering atmospheric carbon and greenhouse gases produced within the state. The clean economy target is supportive of the state's commitment to the Paris Agreement, and, of specific relevance to the transportation sector, [HRS section 226-18\(a\)\(2\)](#), which pursues "the ultimate elimination of Hawai'i's dependence on imported fuels for electrical generation and ground transportation." As noted in Part 1, energy for transportation makes up the vast majority of emissions and must be broadly addressed in order for Hawai'i to achieve its goals. The [Hawaii Clean Energy Initiative Transportation Energy Analysis](#), commonly referred to as the ICCT report, developed a master list of nearly 100 potential tactics that could contribute to reduced petroleum consumption across ground, aviation, and marine transportation sectors from which a short list of 38 tactics were identified. The vast majority of the then economically viable tactics were in the ground transportation sector which is where HSEO has focused much of its current activities. Material progress towards the elimination of fossil fuels in ground transportation will greatly reduce the total volume of local carbon sequestration projects that would need to be sited and funded to achieve the 2045 clean economy target. However, there have been promising developments which provide optimism for deeper decarbonization of marine and aviation transportation sectors in the future. On November 22, 2020 Ampaire Inc. flew a hybrid electric plane, the Electric EEL, round trip between Maui's Kahului Airport to Hana. According to Ampaire this is the first demonstration of a hybrid-electric aircraft along an actual airline route which Ampaire is flying regularly as a demonstration through a partnership with Mokulele Airlines.

HSEO has taken a leadership role in advancing the adoption of clean transportation across Hawai'i, including facilitating ZEV deployment and associated electric vehicle charging and hydrogen infrastructure, which directly contribute to reducing petroleum consumption and emissions in the transportation sector. To transition to a decarbonized transportation sector, HSEO works with the local community; federal, state, and county agencies; energy stakeholders; and clean transportation stakeholders to encourage and facilitate the adoption of clean transportation.

### VW Settlement

#### *Light Duty Zero Emission Vehicle Supply Equipment*

In accordance with the Volkswagen Settlement Environmental Mitigation Trust, the State of Hawai'i, as a Beneficiary of the Trust, will use 15 percent of its total allocation of trust funds on eligible costs for Light Duty Zero Emission Vehicle Supply Equipment (Eligible Mitigation Action #9). Per Hawai'i's Beneficiary Mitigation Plan (Section 6.3.2), HSEO submitted a funding request to allocate \$1,218,750 of Trust funds to contribute towards the purchase, installation, and maintenance of light duty electric vehicle (EV) charging stations, which may include a mix of Level 1 chargers, Level 2 chargers, and DC fast chargers. The program will focus on locations (1) available to the public at government owned properties, (2) available at workplaces or (3) that support charging network connectivity. The EV charging stations will help to expand Hawai'i's statewide EV charging network and support the state's fleet electrification efforts.

### *Vehicle Assistance Program*

HSEO has signed a Memorandum of Agreement with Hawai'i Department of Health (HDOH) for the development and administration of the Vehicle Assistance Program (VAP) to offer rebates to private and public fleet owners looking to replace older, diesel buses with battery-electric vehicles. HSEO is responsible for the development and administration of the VAP rebate program and HDOH is responsible for the payment of participant support costs to the Diesel Emission Reduction Act (DERA) program beneficiaries for the successful procurement of eligible vehicles through the VAP. HDOH will be a member of HSEO's evaluation committee for the VAP to select and offer rebates to program beneficiaries for electric vehicle replacements.

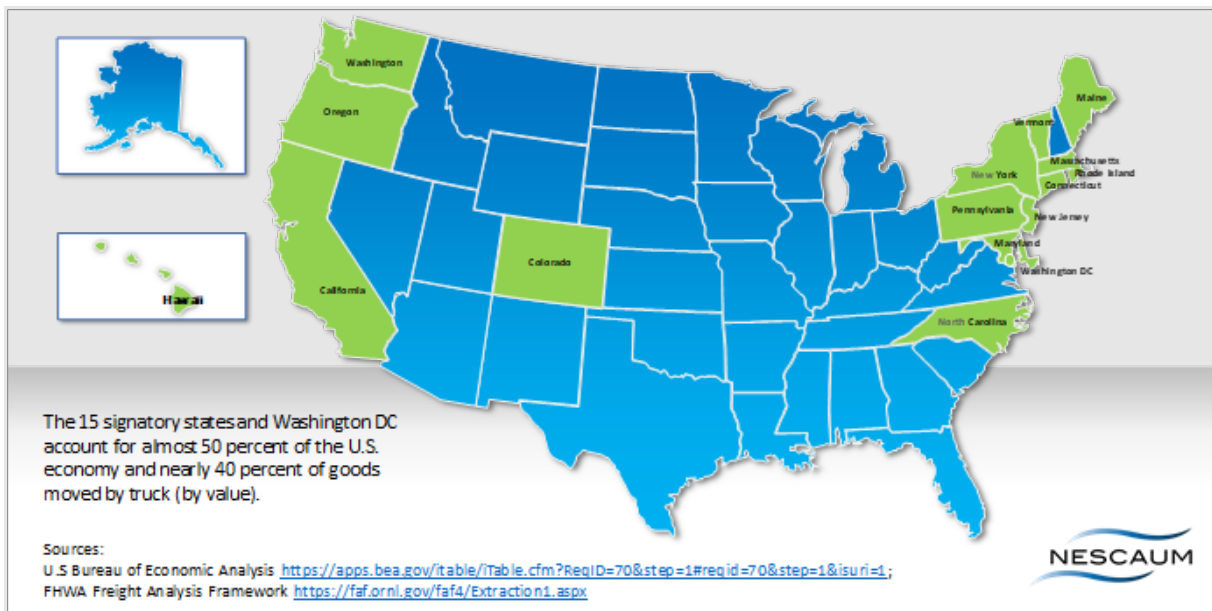
### *City and County of Honolulu Transit e-Bus*

HSEO is utilizing Volkswagen Trust funds in partnership with the HDOH to leverage DERA funds to assist with the procurement of a 35 ft. battery electric bus and charging equipment for the City and County of Honolulu, Department of Transit Services and O'ahu Transit Services. The City and County of Honolulu issued the RFP in fiscal year 2020 and awarded the contract in July 2020.

### **Collaboration with Partners**

Multi-State Zero Emission Medium- and Heavy-Duty Vehicle Memorandum of Understanding  
(Signed July 10, 2020)

HSEO coordinated Hawai'i's participation in the Multi-State Zero Emission Medium- and Heavy-Duty Vehicle Memorandum of Understanding (MDHD MOU) along with 14 other states and the District of Columbia. The MDHD MOU commits signatories to work together to foster a self-sustaining market for zero emission medium- and heavy-duty vehicles. The Signatory States agree to strive to make sales of all new medium- and heavy-duty vehicles in their jurisdictions zero emission vehicles by no later than 2050. In order to ensure adequate progress toward the 2050 goal, the Signatory States will strive to make at least 30 percent of all new medium- and heavy-duty vehicle sales in their jurisdictions zero emission vehicles by no later than 2030. Each Signatory State will report, within its available capabilities and on a schedule agreed to by the states, medium- and heavy-duty vehicle registration data needed to track progress toward meeting these targets. The need to track progress is one of the activities supported by HSEO's Forward Looking goals to develop an energy data governance framework discussed below. In 2025, the Signatory States agree to assess progress toward meeting the 2030 and 2050 targets and determine whether an adjustment to the 2030 interim sales target is appropriate. Following execution of this MOU, the Task Force is developing a multi-state action plan to identify barriers and propose solutions to support widespread electrification of medium- and heavy-duty vehicles (Zero Emission Medium- and Heavy-Duty Vehicle Action Plan).



*Graphic courtesy of Northeast States for Coordinated Air Use Management*

## Achieving a Resilient, Clean Energy Economy

### Introduction

HSEO has statutory responsibility for resiliency and energy assurance and is the primary and coordinating agency for State Emergency Support Function 12: Energy (SESF-12). Under SESF-12, HSEO coordinates and staffs the SERT and Shortage Management Center (SMC) to support energy industry stakeholders including navigating issues responding to events such as hurricanes and COVID-19.

HSEO also has statutory responsibility for maintaining a quantitative and qualitative capacity to support Hawai'i's transition to achieving a resilient, clean energy, and decarbonized economy. Foundational to that capacity is development of an energy data governance framework to provide quality and accessible data from which HSEO and stakeholders can develop plans and measure progress. From those planning efforts HSEO supports the investment in resilient energy infrastructure to achieve the state's energy policy objectives.

### Energy Assurance/Resiliency

#### *State Emergency Support Function #12 – Energy*

HSEO serves as the lead state agency under HI-EMA to coordinate and respond to all significant energy disruptions impacting Hawai'i. To support this mission HSEO provides technical expertise and support to energy asset owners and operators as well as other state and local government agencies. Support includes assisting government and private sector stakeholders in overcoming inherent challenges associated with restoration of the energy system and maintains situational awareness of the status of energy restoration efforts and other information as appropriate. In addition to the unprecedented impact to Hawai'i's energy supply from COVID-19, HSEO was activated for Hurricane Douglas and prepared diligently for and tracked other potential causes of significant disruption to Hawai'i's energy and fuel supplies.

As part of the response to COVID-19, HSEO worked to keep energy workers safe during the early days of the global pandemic. HSEO proactively worked with emergency management agencies and the energy industry to address priority testing of these critical energy infrastructure workers, specifically:

- **Energy Workers Best Practice:** HSEO developed a national best practice for keeping energy workers safe during the early days of COVID. In its SESF-12 capacity, HSEO proactively worked with stakeholders to address issues supporting critical infrastructure workers in the energy industry. HSEO worked with emergency management agencies and the energy industry to address priority testing of these critical energy infrastructure workers, which was highlighted as a best practice by the National Association of State Energy Officials (NASEO) to the USDOE Office of Cybersecurity, Energy Security, and Emergency Response (CESER) and in their nationwide coordination efforts for COVID-19 response.
- **State of Hawai'i Vaccination Plan:** As part of the planning and implementation of the State of Hawai'i Vaccination Plan, HSEO participates in the Communications, and the Allocation/Prioritization Working Groups to ensure effective and timely information exchange with energy companies, and providing guidance on identification and prioritization of mission- and business-critical energy workers for the COVID-19 vaccine.

HSEO is also analyzing and assessing the capacity of Hawai'i's energy system to adjust to the near-total collapse of tourism travel and extended recovery of Hawai'i's tourism industry and its effects on energy supply such as jet fuel, diesel, and low-sulfur fuel oil (LSFO) throughout the State. COVID-19 created a scenario that was largely not considered in prior emergency planning: the demand destruction of jet fuel due to the absence of millions of tourists flying into and out of Hawai'i. As a result, Hawai'i's sole refinery operator renegotiated numerous contracts, including its LSFO contract with state's largest electric utility, which resulted in an interim increase of about \$4.50 per month on O'ahu electricity customers' bills. It is unclear whether and when the demand for jet fuel will return to pre-COVID levels--and if it does not--what the long-term solution is. The possibility that Hawai'i could switch to 100 percent importation of refined products in response to future demand or supply disruption and the potential impact on fuel supplies and distribution in Hawai'i is a priority investigation for HSEO. While energy supply is currently stable, the absence of millions of tourists flying into and out of Hawai'i created a collapse in jet fuel, causing cascading effects throughout Hawai'i's energy system. As tourism resumes and jet fuel use recovers, HSEO is working to assure Hawai'i's energy supply is resilient to any further potential disruption and still moving forward on Hawai'i's clean energy goals.

#### *FEMA Hazard Mitigation Program Advance Assistance Grant*

HSEO submitted Advance Assistance grant aligned with the planning supported by USDOE through the Pacific Northwest National Laboratory (PNNL) for the Interdependencies of Critical Energy Infrastructure (ICE-I) MOU discussed below under Collaboration with Partners. A primary purpose of Advance Assistance application is to provide resources to develop mitigation strategies and obtain data to prioritize, select, and develop comprehensive applications for FEMA's Hazard Mitigation Grant Program (HMGP) Building Resilient Infrastructure and Communities (BRIC) program. Working with public and private sector stakeholders the project will, among its deliverables, develop State of Hawai'i mitigation strategies, and update/improve identification of mitigation actions in support of the State of Hawai'i Hazard Mitigation Plan and related state- and local-level risk/vulnerability priorities. The project will enhance sections of the current FEMA-approved Mitigation Plan, such as: (1) The risk and vulnerability assessment based on new information, and (2) The mitigation strategy, specifically strengthening the linkage to mitigation action implementation, with emphasis on available new BRIC project grant funding. Evaluation criteria for BRIC includes whether a proposed infrastructure investment was identified in an Advance Assistance grant.

### *Critical Customer Hubs*

HSEO is partnering with Hawaiian Electric to apply for Critical Customer Hubs (CCH) through FEMA's Building Resilient Infrastructure and Communities (BRIC) program in January 2021. This collaboration came out of "Strengthening Ko'olaupoko: A Community Resilience Initiative" ("Ko'olaupoko Initiative") lead by Hawaiian Electric which had the initial kick-off meeting on October 29, 2018 with subsequent workshops over the last two years. The Ko'olaupoko Initiative is a collaboration with Ko'olaupoko community leadership on solutions to ensure a safe recovery for area services and residents in the aftermath of a severe hurricane. The HSEO presented the BRIC opportunity to stakeholders at an Energy Working Group meeting in October 2020. HSEO has been working with the NASEO to gather information for the purposes of positioning Hawai'i to be successful in applications for resilient energy infrastructure investments through BRIC. BRIC is FEMA's new Hazard Mitigation Grant Program as a result of the Stafford Act. BRIC is funded at 6 percent of the cost of disasters in the U.S. each year and includes a national competition that is funded at \$446.4 million for fiscal year 2021. HSEO has engaged with Hawaiian Electric, HI-EMA, and Ko'olaupoko Initiative stakeholders to explore the opportunity for CCHs to be funded by BRIC. This effort leverages and builds on the ICE-I MOU and Advance Assistance grant. HSEO submitted a Notice of Intent to HI-EMA as the sponsoring state agency for a CCH and was identified as a priority project to be pursued. The application is to be submitted in the 3rd quarter of FY 2021.

### *Resilient Community Hubs*

In cooperation with the U.S. Department of Housing and Urban Development and Enterprise Communities, HSEO in fiscal year 2020 began planning for a "Resilient Community Hubs and Keep Safe" webinar in July 2020 and co-facilitated and participated in discussions and meetings with potential community partners: Hawai'i Department of Education, University of Hawai'i at Mānoa, City and County of Honolulu's Office of Sustainability and Resilience, Kapi'olani Community College, SHADE (Sustainable, Humanitarian Architecture & Design for the Earth), and Hau'ula's Ko'olaupoko Community, and Ko'olaupoko via Hawaiian Electric's community working group, to explore developing resilient community hubs and microgrids at individual facilities across the state, as well as supporting a proof of concept project. Resilient Community Hubs could potentially be funded by FEMA's BRIC Program.

### *Visualization Tools*

HAVEN is focused on the visualization and analysis of energy system data. HAVEN is supported by a \$225,076 grant from USDOE, in partnership with The University of Hawai'i at Mānoa's Laboratory for Advanced Visualization & Applications and Hawaiian Electric. HAVEN supports the analysis and communication of information contained within complex energy data sets highlighting energy and related sector interdependencies and scenarios. HAVEN continued to be utilized in community engagements to advance the discussion on the tradeoffs of alternative renewable energy buildout pathways, in particular how they impact land utilization. USDOE requested HAVEN to be featured in the USDOE innovation exhibit at CERAWeek in Houston, TX. CERAWeek provides an integrated framework for understanding what's ahead for global energy markets, geopolitics, and technology. Participants were to include senior executives, government officials, thought leaders, academics, technology innovators and financial leaders drawing over 5,000 delegates from 85 countries. While CERAWeek was cancelled in 2020 due to COVID-19, USDOE provided a no cost extension for the HAVEN project to support continued use of HAVEN for stakeholder engagement.

## Workforce Development

HSEO launched its Workforce Development Initiative to better understand the potential of the energy sector, including new projects, to provide or expand opportunities for the local workforce affected by the economic dislocation caused by the pandemic. In the Spring of 2020, HSEO began engaging various stakeholders involved in clean energy workforce development and sourcing to identify potential opportunities for HSEO to increase the number of clean energy jobs filled by qualified Hawai'i residents. HSEO is now in the process of gathering and analyzing data from the developers of the newest utility-scale renewable energy projects in Hawai'i to get a better idea of the jobs created by these projects and the workforce development opportunities to increase the number of Hawai'i residents eligible for employment by these projects, and others, starting in 2021.

As there is also a significant amount of work to be done in the energy efficiency sector, as well as an anticipated gradual increase in work to support the smart grid, energy storage, and electric vehicle charging, HSEO will work with partners to identify energy and resilience jobs, necessary training, and funding sources, including federal funding sources, should those become available and be directed to HSEO as the recognized federal recipient for USDOE State Energy Program funds and grants.

## AmeriCorps/VISTA Program

HSEO partnered with the Hawai'i Climate Change Mitigation and Adaptation Commission on a successful application to the Center Corporation for National and Community Service (CNCS) for a VISTA-AmeriCorps Climate Ready Hawai'i cohort. The team of six VISTAs joined four state agencies: the Hawaii State Energy Office, the Hawai'i Department of Health, the Hawai'i Office of Planning and the Hawai'i Department of Land and Natural Resources. HSEO's three members will help lift Hawai'i residents out of poverty through focused work on developing public outreach and engagement supporting clean transportation alternatives, energy efficiency savings, and clean energy workforce development opportunities. The three CNCS-funded positions will provide full time employment for at least one year in the HSEO office for three recent college graduates. The HSEO has a proven track record of mentoring interns and young professionals into the energy industry. HSEO and the Hawai'i State Climate Commission anticipate growing the program to continue helping build the state's capacity to reach out to vulnerable and underserved communities to help them lower their energy costs, decrease the potential negative impacts and improve the benefits of clean energy projects that can provide higher wage, short- and long-term employment opportunities.

## Decarbonization

Act 122 states that the Chief Energy Officer shall advocate for Hawai'i's decarbonization goals, which HSEO has foremost done by aligning state, local, national, and international decarbonization efforts to ensure that multiple levels of climate action build on and advance Hawai'i's goals. At the state level, the DBEDT Director designated the Chief Energy Officer to serve as the Director's designee to the State Climate Change Mitigation and Adaptation Commission (Hawai'i State Climate Commission), ensuring that at least one agency with primary focus on mitigation is included in commission deliberations. HSEO further coordinated with the Hawai'i State Climate Commission on national and international climate activities and creating the Climate Ready Hawai'i VISTA cohort.

At the local level, HSEO convened the county energy coordinators for regular coordination on energy and decarbonization and supported counties on implementation of their policies as described throughout this report. Further, the Chief Energy Officer served as an advisor on the Climate Action Plan prepared by the Office of Climate Change, Sustainability and Resilience, City and County of Honolulu.



At the national level, HSEO serves as primary point of contact for the Governor's Office to the U.S. Climate Alliance (USCA), a bipartisan alliance of governors committed to climate action consistent with the U.S.' former national determined contribution, even as the federal government formally withdrew from the Paris Agreement. The USCA conducts several working groups on various aspects of decarbonization, from GHG inventorying to power production to the electrification of transportation, and HSEO coordinates various state agency participation in these working groups in conjunction with the State Climate Commission Coordinator. Through various national organizations such as the USCA, National Governors Association (NGA), and NASEO, as well as on its own, HSEO provided briefings and strategies for economic recovery that advanced decarbonization goals. HSEO advised members of Congress and USDOE on existing laws and funding mechanisms and potential new vehicles for economic recovery funding.

Internationally, the Under2 Coalition, a global coalition of subnational governments committed to climate action consistent with the Paris Agreement, invited Hawai'i to join its Steering Committee in recognition of Hawai'i's leadership on setting among the most ambitious and inspiring climate and energy goals globally as well as undertaking the hard work of making them a reality. The Under2 Coalition holds the Carbon Disclosure Project (CDP) for subnational jurisdictions to report emissions and activities to allow comparison across the world and inspire each other to more ambitious action. HSEO coordinated state completion of the CDP with other state agencies and reported on this to the Hawai'i State Climate Commission.

### Carbon Pricing Study

Part V of Act 122, appropriated funds out of the energy security special fund "for the purposes of conducting a study of carbon pricing, including whether and how a carbon pricing policy shall be implemented in Hawaii." HSEO has contracted with the University of Hawai'i Economic Research Organization to perform the study with preliminary results expected by the end of calendar year 2020 and the final report issued in mid-2021.

### Collaboration with Partners

#### *Interdependencies of Critical Energy Infrastructure (ICE-I) MOU*

The ICE-I MOU signatories include the Hawaii State Energy Office, Hawai'i Office of Homeland Security, USDOE, U.S. Department of Homeland Security, and U.S. Indo-Pacific Command (USINDOPACOM). Objectives of the MOU include Identifying comprehensive, integrated critical risk assessment and mitigation approaches, leveraging Parties' current authorities and efforts underway to address mutual priorities, institutionalizing a framework established through the MOU for persistent future collaborations, and establishing integrated planning, training and exercise events to feed a continuous improvement process. PNNL through funding from USINDOPACOM developed a scope of work from which to draw from in working towards achieving the outcomes identified through the MOU. The Advance Assistance grant under FEMA's Hazard Mitigation Grant Program discussed above is an identified activity under the scope of work developed by PNNL and the CCH proposal to be submitted under FEMA's BRIC program is aligned with the Advance Assistance grant objectives.

### Proposed Legislation: Relating to Energy Assurance

With increasing amounts of renewable energy being generated and stored on and off the grid, new fast evolving threats and risks to the state's aging energy infrastructure from cybersecurity issues, climate change, natural disasters, market vulnerabilities, and maritime/transportation bottlenecks, there is a critical need for the state to have better situational awareness of the status of all interdependent energy systems. This proposed bill updates antiquated statutory authority and legislative guidance in [HRS section 125C](#) to be supportive of the responsibilities and duties of the Chief Energy Officer. In particular, this proposed bill

addresses deficiencies in the state's petroleum shortage response statutes, provides up-to-date policy guidance on information and analysis required to prepare for, respond to, recover from, and mitigate against any actual or potential energy supply disruption or shortage, better ensures that fuel products and energy resources are made available to emergency services and the public in an orderly, efficient, and safe manner, provides protections for confidential information collected to effectuate these purposes, and clarifies powers of Governor and the Chief Energy Officer in an energy shortage or state of emergency.

### **Stakeholder Education, Outreach, and Engagement**

HSEO utilizes a variety of communication channels to build awareness and solicit feedback about its core objectives and programs that play a critical role in helping the state meet its clean energy goals. The HSEO's audience includes a wide variety of energy stakeholders, policymakers, regulators, non-profits, and the broader community. The range of outreach channels employed by HSEO includes websites, news releases, newsletters, social media engagement, sponsorships of energy related events, presentations and appearances by HSEO staff and strategic alliances with energy sector partners.

### ***Clean Energy Education***

HSEO works in partnership with the Hawai'i Department of Education to support the development and further expansion of clean energy education programs that will empower Hawai'i's youth and citizens to meet clean energy goals while strengthening science, technology, engineering, and math education and introducing students to potential energy job opportunities. Accomplishments included:

- Developed a "Green Schools Resource List for Distance Learning" during the COVID-19 pandemic, in cooperation with the Hawai'i Department of Health; Honolulu Board of Water Supply; Hawai'i Energy; and the U.S. Green Building Council, Hawai'i Chapter. The Resource List was provided to Hawai'i Department of Education, counties, and Hawai'i Association of Independent Schools for distribution.
- Secured federal funding for a Clean Energy Education Program. HSEO worked with the Hawai'i Department of Education and other energy education stakeholders to identify gaps in energy education in Hawai'i's schools and performed market research to develop a scope of work for K-12 classroom and professional development curriculum expansion and development targeting Title 1 schools.
- Regularly responded to questions from students, teachers, community members, and other stakeholders regarding energy efficiency technologies, opportunities, and accomplishments.
- Met with numerous industry, non-profit organizations, and community groups to identify the gaps in stakeholder and consumer understanding about energy ecosystems including energy resources, production, distribution, and utilities. This ongoing effort is informing the office's overhaul of its communications, education, outreach, and engagement planning.

### ***Outreach Events***

HSEO participated in numerous educational and outreach events with staff serving as subject matter experts in a myriad of clean energy-focused topics. Event topics and themes include energy building codes, energy performance contracting, environmental/climate change, renewable energy, energy awareness fairs, EV/clean transportation, and energy-focused community meetings.

Additionally, HSEO participates in several working groups that allow the Office to interact on a substantive basis with a variety of energy stakeholders and community members. These groups include:

- A civic advisory group made up of community members who live in areas affected by the deployment of large-scale renewable energy projects,
- The Green Schools Committee of the U.S. Green Building Council,
- The NASEO-NARUC Buildings Working Group,
- The U.S. Climate Alliance Power Sector Working Group,
- Hawai'i Green Growth Dashboard & Measures Group, and
- NASEO Electricity Committee.

### *Hawaii State Energy Office Website*

HSEO's website at [energy.hawaii.gov](https://energy.hawaii.gov) is a conduit of public outreach that educates visitors on Hawai'i's growing clean energy economy and the HSEO's vision, role, and programs. The HSEO website provides information on the wide variety of initiatives, activities, and programs of the energy office. Visitors can find information on energy planning, renewable energy, energy efficiency, and clean transportation, among other things. Fiscal year 2020 updates included a web page, [Hawaiian Electric Stage 1 and 2 Renewable Energy Projects](#), to provide information on the 13 solar-plus-storage and three standalone projects by Hawaiian Electric as part of the largest renewable energy procurement undertaken in Hawai'i. The development of this web page is part of the HSEO's ongoing effort to keep Hawai'i's communities better informed about renewable energy projects.

Another update was creating an index page for the many [Hawai'i Energy Building Code Training sessions](#) hosted by the HSEO and its partners. In fiscal year 2020 building code training sessions included energy modeling and net-zero design.

In fiscal year 2020 there were 338,214 page views to the HSEO site, a 94 percent increase over fiscal year 2019. The top five visited pages were the homepage, Developer & Investor Center, EVs in Hawaii, Hawaii Energy Building Code, and Solar Water Heater Variance. The top five countries that visited the HSEO site were U.S., Canada, Japan, South Korea and India.

### *Hawaii Green Business Program Website*

HGBP's website at [greenbusiness.hawaii.gov](https://greenbusiness.hawaii.gov) informs of the state program that assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The dedicated website is managed and maintained by HSEO. The HGBP site provides information on the structure of the program, how to participate, and past and current awardees.

In fiscal year 2020 there were 15,703 page views to the HGBP site, a 135 percent increase over fiscal year 2019. The top five visited pages were the homepage, Apply page, 2019 Awardees page, Overall Awardees page, and Resources page. The top five countries that visited the HGBP site were U.S., South Korea, France, Germany, and Denmark.

### *Hawai'i Clean Energy Initiative Website*

HSEO maintains the dedicated website for HCEI at [hawaiicleanenergyinitiative.org](https://hawaiicleanenergyinitiative.org) that educates visitors on the history of HCEI, goals and objectives, organizational structure, project teams, and legislative updates. The HCEI website informs about the program that launched in 2008 as a partnership between the State of Hawai'i and the USDOE.

In fiscal year 2020 there were 14,066 page views to HCEI site. The top five pages visited were the homepage, About page, Progress Though Policy, Goals and Objectives, and the Resources page. The top five countries that visited the HCEI site were U.S., Canada, South Korea, Japan, and Germany.

### *HSEO News Releases*

HSEO issues news releases on newsworthy information and events which are sent to more than 60 local and mainland media organizations as well as Hawai'i policymakers. HSEO news releases in fiscal year 2020 covered a range of public interest topics including the HSEO's launch of an online tool to assess potential contaminated sites for renewable energy development, Hawai'i's inclusion in a memorandum of understanding to expand the market for electric medium- and heavy-duty vehicles. HSEO press releases garnered local and national media coverage as well as numerous social media hits.

### *HSEO Digital Marketing and Publications*

HSEO develops and distributes publications and collateral material to raise awareness and communicate progress of clean energy efforts of the HSEO. To educate and update stakeholders on Hawai'i's constantly changing energy landscape, HSEO distributes an annual report, quarterly e-newsletters, an annual compendium of key Hawai'i's energy data, and various collateral pieces.

In fiscal year 2020 e-newsletters and e-blasts communications were sent to 19,403 subscribers, a 21 percent increase over fiscal year 2019. HSEO's e-newsletters stories focused on current, newsworthy subjects such as the work HSEO's is doing to develop the energy sector workforce, invest funds from the Volkswagen Settlement to reduce diesel emissions, and fulfill its statutory duty to develop and recommend programs for energy assurance and resilience. E-blast communications were used to notify the public of energy code training and HSEO employment opportunities.

HSEO's annual energy data update, [Hawai'i Energy Facts & Figures 2020](#), was sent to more than 1,800 policymakers and local and international energy stakeholders. The energy report is a comprehensive collection of data on Hawai'i's energy landscape and is often referenced in media and reports. It was also the top downloaded document of the entire website.

HSEO maintains a branded social media presence on Facebook, Twitter, and LinkedIn. HSEO posts daily messages on the office's activities to its 2,250 followers. These social networking platforms reach a large mass audience with real time news and engages interaction in a people-focused manner.

HSEO staff make regular appearances both as hosts and guests on ThinkTech Hawai'i, a public affairs program that is livestreamed on the internet. HSEO's resident subject matter expert in energy codes hosts "Code Green," a twice-monthly show about developments in energy efficiency. Other HSEO staff make monthly guests appearances on ThinkTech energy-themed shows.

### *Communications Overhaul*

HSEO obtained federal funding to overhaul its communications tools and messaging in order to improve HSEO's outreach to stakeholders and the broader public. HSEO conducted extensive market research to develop a scope of work for a comprehensive, consistent communications and messaging program aligned with HSEO objectives for delivery across all platforms including, but not limited to websites and web platforms, social marketing, collateral materials, and articles for publication.

### *Community Engagement Planning*

HSEO obtained federal funding to develop and implement a statewide community engagement plan including facilitated meetings, workshops, charrettes, and surveys to support successful pathways to a decarbonized economy. The office worked with state and county agencies, industry, and community stakeholders to develop a scope of work for a comprehensive community engagement plan.

### *Collaboration with Partners*

In addition to the specific initiatives mentioned in all of the sections above, HSEO administrators and subject matter experts also engage with existing and new energy and decarbonization-related working groups and initiatives including:

- Hawaii Energy Policy Forum
- Hawai'i Green Growth
- 'Āina Aloha Economic Futures
- Hawaii Solar Energy Association
- Hawaii Bioeconomy Trade Organization
- Drive Electric Hawaii

HSEO also developed and supports several new working groups including the following coordinating working groups:

- State-County Energy Offices
- Clean Energy Financing
- Clean Energy Education
- Workforce Development
- Data Management
- State Land Use Coordination
- State-County Community Engagement
- HSEO Civic Advisory

## Part 3: Energy Program Administration and Funding

### Introduction

Major changes to the funding of HSEO came into effect in fiscal year 2020 with the passage of Act 122. General Funds were appropriated for HSEO positions and operating expenses. Previously, the Energy Security Special Fund (ESSF) covered the office's positions and operating expenses. Four positions were eliminated as of July 1, 2019.

During the third quarter of fiscal year 2020, a general freeze on position vacancies was instituted to minimize potential budget shortfalls attributed to the impacts of the COVID-19 pandemic. Departments were advised to make only critical, high priority expenditures. The HSEO responded by deferring expenditures, resulting in General Fund savings of \$365,919.

[Act 9, Session Laws of Hawai'i 2020](#), further reduced HSEO's fiscal year 2020 General Fund appropriation with a permanent reduction of \$212,812 for personnel.

Act 122 not only changed the office's funding source, it established the HSEO as an attached agency within DBEDT for administrative purposes to be led by the Chief Energy Officer. In passing Act 122, the Legislature made clear its expectation that the new HSEO would reorganize itself to reflect its new mission and responsibilities. HSEO is initiating a reorganization to change the name and organizational structure, update its Functional Statement, establish appropriate levels of authority, and revise position descriptions/titles. The reorganization aims to achieve more effective use of HSEO's personnel budget. Key changes under consideration include the following:

- Combine and rename the Energy Efficiency Branch and Renewable Energy Branch as the Energy Efficiency and Renewable Energy Branch (EERE), which mirrors the U.S. Department of Energy organizational structure and its funding mechanisms;
- Establish a Deputy Energy Officer position that reports to and supports the Chief Energy Officer in all of its duties including staff management and legislative coordination, and also to add business continuity between gubernatorial appointments and confirmation of the Chief Energy Officer;
- Move the former administrator civil service position to undertake special projects in support of the Chief Energy Officer and Deputy Energy Officer;
- Redescribe positions for Managing Director and Manager for the two subject matter branches so there is a clear decision-making hierarchy and ability for each branch to undertake multiple initiatives while expanding decision making bandwidth and credibility with stakeholders; and
- Redescribe Energy Analyst positions as Energy Program Specialists in formal organization charts and use working titles in daily work that reflect the individual's specialty (e.g., resiliency and energy assurance specialist). This allows HSEO to retain the organizational flexibility intended by the Legislature so that the HSEO can adjust its staff specialty to reflect changing conditions, simplify administrative reporting, and communicate to the public the individual's specific expertise.



## Administration

HSEO's administrative team provides accounting, grants management, budgeting, procurement and contracting services, personnel management, and internal tracking of programs and projects with timely status updates and metrics. The team is responsible for ensuring HSEO's compliance with federal regulations for its federal grants and agreements; the Hawai'i Public Procurement Code, chapter 103D, HRS; and the Hawai'i Ethics Code, chapter 84, HRS. The administrative team develops and implements processes and procedures to facilitate and expedite the work of the entire office. The team also assists the public by processing Uniform Information Practices Act (UIPA) requests for government records.

## Energy Security Special Fund

Act 122 also made significant changes to HSEO's ESSF which was the office's predominant source of funding for HCEI. The allocation of the Environmental Response, Energy, and Food Security Tax ("Barrel Tax") to the ESSF was reduced by 66.7 percent. As a result, ESSF revenue from the tax dropped from \$4,015,775 in fiscal year 2019 to \$1,367,287 in fiscal year 2020. The expenditure ceiling for the ESSF was also eliminated by Act 122, except for \$150,000 for the purposes of conducting a study of carbon pricing. Because of insufficient expenditure ceiling, HSEO was unable to transfer any monies from the ESSF for special fund assessments. The absence of a spending ceiling for general authorized program activities consistent with HRS section 201-12.8 meant that HSEO did not have the flexibility to respond to events as they occur, such as with COVID-19 impacts to energy assurance, and opportunities to leverage state matching funds to obtain a multiplier match of federal or other non-state funds.

Other legislative action impacted the ESSF. Pursuant to Act 142, Session Laws of Hawai'i 2019, HSEO transferred \$150,000 from the ESSF to the Hawai'i Public Utilities Commission Special Fund for a rebate program that incentivizes the installation or upgrade of an electric vehicle charging system. HSEO, pursuant to Act 145, Session Laws of Hawai'i 2019, also transferred \$130,000 from the ESSF to the Community Colleges Special Fund for energy systems and technology training courses as needed to educate relevant officers and employees of the counties on the various standards and requirements for renewable energy systems and related distributed electricity technologies.

With restrictions and reductions for General Funds expected to continue, HSEO's portion of the Governor's proposed Fiscal Biennium 2021-2023 budget is to include an expenditure ceiling for the ESSF to address priority areas of its mission. These include continuing the EV charging system rebate program, providing funds to leverage federal grant funding, continuing to pay Special Fund Assessments, and converting some of the General-funded positions to Special Funds.

## Federal Funds

### State Energy Program Formula Grant

HSEO is the expending agency for USDOE State Energy Program (SEP) formula grant program. The allocation from USDOE for expenditure during fiscal year 2021 was \$425,070, with a cost match requirement of 20 percent. SEP provides annual funding to enhance energy security, advance state-led energy initiatives, and maximize the benefits of decreasing energy waste. Federal expenditures in fiscal year 2020 were \$16,743.

*“We commend Hawaii for its strategic use of SEP funds, including leveraging with outside stakeholders to maximize program impacts and pursuing a comprehensive set of programs tailored to community goals.”*

-Kelsie Bell, USDOE SEP Program Officer

### State Energy Program 2016 Competitive Award – HAVEN

HSEO won a competitive federal award for the HAVEN project. The USDOE cooperative agreement continues through June 30, 2021. The goal of HAVEN is to demonstrate visualization as a means of analyzing and communicating the tradeoffs and interdependencies of resource deployment to achieve a 100 percent RPS for Hawai‘i’s electricity sector. Federal expenditures in fiscal year 2020 were \$85,731.

### State Energy Program, American Recovery & Reinvestment Act (ARRA) – Repurposed

In 2016, the USDOE allowed states to request to repurpose remaining funds in their ARRA financial program toward other eligible SEP activities. USDOE approved the use of funds for clean transportation; policy, planning and energy security; technical assistance; and energy analytics. HSEO is currently administering \$1,268,614 of SEP-ARRA repurposed funds.

### Energy Efficiency & Conservation Block Grant – Repurposed

USDOE also allowed states to request to repurpose remaining funds in their EECBG financing program toward other eligible EECBG activities. USDOE approved the use of funds for financial incentives for energy efficiency; energy efficiency and conservation programs for buildings and facilities; and building codes and inspection services. HSEO is currently administering \$2,556,884 of EECBG repurposed funds.

### Petroleum Violation Escrow Funds

Beginning in 1983, additional funds became available to states as a result of alleged oil company violation of the federal oil pricing controls in place from 1973 to 1981. The funds, known as Petroleum Violation Escrow (PVE) funds or oil-overcharge funds, must be used to provide indirect restitution to energy consumers through a variety of energy related programs. States may use these funds to finance SEP activities. HSEO is currently administering \$301,240 of remaining PVE funds.

## Other Funds

### VW Settlement Trust Funds

In 2018, DBEDT became the lead agency for administering Hawai'i's allocation from the Volkswagen Diesel Emissions Environmental Mitigation Trust. HSEO is responsible for deploying Hawai'i's \$8.125 million allocation from the Trust. Hawai'i's Beneficiary Mitigation Plan includes the following eligible clean transportation programs to achieve the goals of the Trust:

- \$4.15 million to projects which electrify Class 4-8 School Buses, Shuttle Buses, or Transit Buses,
- \$2.75 million to projects which contribute to Hawai'i's Diesel Emission Reduction Act, and
- \$1.22 million to support projects which facilitate the deployment of Light Duty Zero Emission Vehicle Supply Equipment.

VW expenditures in fiscal year 2020 were \$39,220.

### Hawai'i Natural Energy Institute – Agreement for Services

In 2019, HSEO entered into an agreement to provide services to HNEI in coordination of HNEI's work. HSEO is to provide (or subcontract to provide) energy efficiency program support, renewable energy generation diversification and support, grid opportunity assessment, and clean transportation transition support. As a result of the removal of the ESSF special fund ceiling, HSEO's ability to execute the contract is limited because the terms of HNEI's agreements is for reimbursement for services rendered.

## Energy Program Funding Tables

The following tables are provided:

1. Expenditures from the Energy Security Special Fund, pursuant to [HRS section 201-12.8](#),
2. Hawai'i Clean Energy Initiative Program – Fiscal Year 2021 Spending Plan, pursuant to [HRS section 196-10.5](#), and
3. Administratively Established Accounts of Funds as of June 30, 2020, pursuant to [HRS section 37-52.5](#).

<b>Expenditures from the Energy Security Special Fund</b>			
<b>ENERGY SECURITY SPECIAL FUND</b>	Actual FY2020		Projected FY2021
<b>BEGINNING FUND BALANCE</b>	<b>2,278,932</b>		<b>3,237,356</b>
<b>REVENUES</b>			
Environmental Response, Energy and Food Security Tax	1,367,287		1,300,000
Investment Pool Interest	83,141		8,000
Solar Water Heater Variance Fees	9,392		5,000
Other	727		-
<b>TOTAL REVENUES</b>	<b>1,460,547</b>		<b>1,313,000</b>
<b>EXPENDITURES</b>			
Hawaii State Energy Office Operations	21,430		81,000
Programs:			
Renewable Portfolio Standards Program Support	200,693		150,000
Energy Efficiency Portfolio Standards Program Support	-		-
Education and Outreach	-		-
<b>TOTAL EXPENDITURES</b>	<b>222,123</b>		<b>231,000</b>
<b>TRANSFERS</b>			
PUC Special Fund (Act 142, SLH 2019)	150,000		250,000
Community Colleges Special Fund (Act 145, SLH 2019)	130,000		-
<b>NET TRANSFERS</b>	<b>280,000</b>		<b>250,000</b>
<b>ENERGY SECURITY SPECIAL FUND BALANCE</b>	<b>3,237,356</b>		<b>4,069,356</b>

Pursuant to Section 201-12.8, HRS

Hawaii Clean Energy Initiative Program Fiscal Year 2021 Spending Plan				
ANNUAL SPENDING PLAN	State Funds		Other Funds	Total
Hawaii State Energy Office Operations	2,598,265		120,845	2,719,110
Programs and Projects	481,000		2,862,257	3,343,257
	<b>3,079,265</b>		<b>2,983,102</b>	<b>6,062,367</b>
<i>Spending plan is based on anticipated spending levels for FY21</i>				
FUNDING SOURCES:				
State Funds				
General Funds	2,598,265			2,598,265
Energy Security Special Fund	4,550,356			4,550,356
Federal Funds				
DOE - State Energy Program (SEP)		1,138,601		1,138,601
DOE - SEP Competitive 2016 - HAVEN		43,501		43,501
DOE - Energy Efficiency & Conservation Block Grant *		150,000		150,000
DOE - SEP American Recovery & Reinvestment Act *		360,000		360,000
Trust Funds				
VW Settlement Trust Funds		1,241,000		1,241,000
	<b>7,148,621</b>	<b>2,933,102</b>		<b>10,081,723</b>
* Repurposed ARRA Funds				

Pursuant to Section 196-10.5, HRS

<b>Administratively Established Accounts or Funds</b> <b>As of June 30, 2020</b>					
APPROPRIATION ACCOUNT/TITLE	MOF	REVENUE	EXPENDITURES	ENCUMBRANCES	ENDING BALANCE
S-17-216 STATE ENERGY PROGRAM-ARRA REPURPOSE	N	1,506,460	237,846	182,134	1,268,614
S-17-516 HI ADV VISUALIZATION ENVIRONMENT NEXUS	P	181,575	181,575	31,463	-
S-17-518 EECBG - ARRA REPURPOSE	P	2,664,229	107,346	150,130	2,556,884
S-18-255 STATE ENERGY PROGRAM	N	19,644	19,601	12,567	43
T-20-910 VW DIESEL EMISSIONS ENVIRONMENTAL MITIGATION TRUST-NON-ADMIN EXP	T	1,507,420	-	-	1,507,420
MOF = Means of Financing N = Federal Funds P = Other Federal Funds					

Pursuant to Section 37-52.5, HRS



## HSEO's Goals, Plans, and Measurements

HSEO's Goals, Plans, and Measurements					
HSEO Topic	Priority Objectives and Policies	1-year Actions	2-year Actions	5-year Actions	Measure Performance
Energy Assurance and Resiliency	Continue to build out HSEO's SERT and expand office-wide capability to support SESF 12 activities to prepare for effective discussion-based exercises, as well as development and implementation of the actual exercises that provide needed feedback and input needed for updating state level plans and developing institutionalized capacity within the HSEO and state.	Contract for services to develop training exercise workshops for SESF 12/SERT; identify and obtain funding for a second position to support energy assurance operations and training.	Implementation of training exercise workshops for SESF 12/SERT; recruit and train a second position to support energy assurance operations and training.	All HSEO staff cross-trained in SERT responsibilities and business continuity of operations to ensure SERT capacity and effectiveness.	Number of staff and stakeholders trained in the roles and responsibilities related to SESF 12: Energy.
Energy Assurance and Resiliency	Develop an Energy Common Operating Picture (COP) for both energy assurance and resiliency planning and emergency response.	Introduce legislation to amend HRS 125C. Energy assurance legislation to update decades old statute to clarify authorities to collect relevant information from energy market participants under states of emergency. Expands energy information to be collected to include renewable sources.	Implement Advance Assistance grant assessing Oahu's energy supply chain supporting the development of a COP and identifying projects and strategies for integration into State and County Hazard Mitigation Plans; update energy assurance operations and training; develop and implement data management protocols.	Energy assurance capability that incorporates all energy resources on a given island to enhance island energy security and overall resiliency.	Energy stakeholders coordinated with, energy supply chains monitored, percentage of events staffed in the role of SESF 12.
Energy Assurance and Resiliency	Advance resiliency and investment in resilient energy supply infrastructure throughout Hawai'i. BRIC, Advance Assistance grants, and other energy resiliency grant opportunities coordinated as relevant with sister agencies at the state and county level.	Apply for Advance Assistance Planning Grant which supports identification of future projects for Building Resilient Infrastructure and Communities (BRIC) grant and apply for a BRIC grant; coordinate and strengthen statewide BRIC applications relating to energy.	If awarded BRIC grant, implement grant. Develop applications for projects under the BRIC program that are identified in the Advance Assistance Planning Grant.	Develop a self-sustaining pipeline for energy resiliency investments in Hawai'i supported by Advance Assistance grants, State and County Hazard Mitigation Plans, and utility planning documents.	Number of community life line infrastructure investments and strategies identified. Energy projects integrated into state and county hazard mitigation plans. Federal and private dollars leveraged.

HSEO's Goals, Plans, and Measurements					
HSEO Topic	Priority Objectives and Policies	1-year Actions	2-year Actions	5-year Actions	Measure Performance
Renewable Energy Deployment	Support implementation of the Stage 1 and 2 solar plus battery storage and standalone battery storage projects to ensure the timely decommissioning of Hawai'i's only coal plant. Identify and facilitate local workforce employment opportunities.	Survey developers of current, contracted, and proposed large renewable energy projects about development timelines, anticipated issues, workforce needs, and areas of opportunity or concern. Engage workforce development entities to meet identified needs. Provide support to agencies permitting these projects to encourage timely permitting. Recruit and train a second position to support renewable energy project deployment.	Implement identified workforce development initiatives. Monitor progress of projects toward guaranteed commercial operation date and proactively address issues that arise. Identify dedicated funding to support the second position.	All Stage 1 and 2 projects are expected to be operational by the end of 2023, before the federal tax credit lowers in 2024.	Leverage state funds to obtain federal funds. Support given to permitting, construction, and operation of the Stage 1 and 2 projects. Support given to decommissioning of the coal plant.
Renewable Energy Deployment	Support siting and permitting of large renewable energy and related projects to reduce risks and facilitate more appropriate siting of grid-scale projects.	Conduct needs assessment with renewable energy developers, consultants, and permitting agencies to identify potential project siting and permitting needs. Prioritize these needs, including evaluating existing HSEO resources (e.g., Permitting Wizard, EnerGIS, online permitting, etc.) and determine which priority needs can be addressed, potentially with federal and National Laboratory support. Contract for services.	Develop, demonstrate, finalize, and deploy tools.	Maintain and update the tools to address contemporary issues and subjects regarding the siting and permitting of large renewable energy projects in Hawai'i.	Leverage of state funds to obtain federal funds. Successful deployment of tools. Number of users.

HSEO's Goals, Plans, and Measurements					
HSEO Topic	Priority Objectives and Policies	1-year Actions	2-year Actions	5-year Actions	Measure Performance
Energy Efficiency	Provide leadership and support to further reduce state energy use. Hawai'i Revised Statutes, section 196-30, requires that "each state department with responsibilities for the design and construction of public buildings and facilities" is to evaluate the energy efficiency of public buildings larger than 5,000 square feet or using more than 8,000 kilowatt-hours annually, in a process known as "benchmarking." This helps identify building upgrade opportunities that can [lower] energy and operating costs, and it facilitates continuous improvement by providing diagnostic measures to evaluate performance over time.	Using results of previous state (HSEO and partners) benchmarking of 416 public facilities, including more than 2,600 buildings covering more than 29 million square feet, identify highest potential ("Tier 1") sites for immediate action. The benchmarking project found potential for significant savings by state agencies. Additional savings are possible from operational and demand response measures.	Identify "Tier 2" state facilities with energy efficiency retrofit potential and likely candidates for ESPC or other financing options to achieve further savings.  For both Tier 1 and Tier 2 sites, identify demand response or other potential tariff /aggregator participation options to reduce state agency energy (electricity and fuel) costs.	Provide technical assistance to support state agencies in financing energy efficiency and cost reductions via operational changes, energy savings performance contracts, or other mechanisms. Hawai'i Revised Statutes, Section 196-30, also requires that every five years, major facilities be "retro-commissioned."	Number of state facilities benchmarked. Rebate or energy cost savings identified for capital improvement projects or energy efficiency retrofits. Measured energy savings. Calculated bill savings based on actual electricity prices.
Energy Efficiency	Energy Code Updates, Working Group, and Training. Pursuant to Act 122, 2019 and HRS section 107-22(4), HSEO is a voting member and active participant on the State Building Code Council (SBCC) and the Council's Investigative Committee for the International Energy Conservation Code (IECC). Provide leadership in Energy Code and Community College Train the Trainer events and toolkits. Increase the knowledge of advanced design and construction practices in community college and continuing education programs. Also, improve the awareness of and interest in employment opportunities in code official and code verification professions. Establish a working group to develop Hawai'i-specific provisions for the 2021 IECC for the State Building Code Council.	Provide training on the 2018 IECC and Hawai'i and County Amendments. Conduct 2021 IECC Working Group meetings to discuss industry, code official and other stakeholder concerns. Obtain federal funding. Contract for services.	Train-the-trainer (in-person or online) workshop preparation: Collaborate to recruit workshop attendees and speakers. April 2022 – June 2023 curriculum delivery and evaluation: Collaborate to deliver and evaluate the curriculum. Develop provisions for the 2021 IECC.	Adopt 2021 IECC at the SBCC with Hawai'i Amendments and at the county level with County Amendments. Recruit and expand training programs to trade and professional associations via on-going partnership with the community colleges.	Utilization of train-the-trainer toolkit. Number of instructors and students participating. Number of other states that participate with Hawai'i, Illinois, and Nevada. Meetings of the 2021 IECC working group and list of provisions for Hawai'i Amendments.

HSEO's Goals, Plans, and Measurements					
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Clean Transportation	Invest in clean transportation infrastructure and vehicle adoption throughout Hawai'i through the Volkswagen Settlement, Diesel Emission Reduction Act (DERA) and other federal grants, and designation of clean transportation corridors coordinated as relevant with sister agencies at the state and county level and transportation stakeholders.	Release the Vehicle Assistance Program (VAP) for eBuses rebates funded through the Volkswagen Settlement fund and DERA. Refine deployment plan for the investment of the remaining EV charging infrastructure dollars and eBus program under the Volkswagen Settlement taking into account strategies included in the MDHD MOU and the impacts of COVID-19. Submit Alternative Fuel Corridor for Kaua'i County.	Continue with the deployment of the Volkswagen Settlement fund consistent with the deployment plan. Work with state and county agencies, local stakeholders, and market participants to leveraging Volkswagen Settlement funds as appropriate and federal programs as possible to implement strategies under the multi-state MDHD MOU.	Deploy all Volkswagen Settlement funds except for the final two years of VAP rebates. Through collaboration with HDOT, counties, and relevant state agencies and stakeholders develop a plan to systematically access and deploy federal funds through a variety of programs strategically filling market gaps.	Alternative fuel vehicles adopted, GHG and NOx emission reductions, federal and private funds leveraged.
Clean Transportation	Public fleet conversion - explore and participate in innovative ways to adopt alternative fuel vehicles. Support other State and county agencies as they transition to a decarbonized fleet.	Utilize HDOT RFP to procure EVs as a service for HSEO's EV and act as a resource to other state and county agencies looking to access the HDOT RFP to electrify their fleets. In collaboration with the multi-state MDHD MOU signatories, conduct outreach to stakeholders and finalize the MDHD MOU action plan.	Continue to serve as a resource to state and county agencies for conversion of fleets to alternative fuel vehicles including utilization of HDOT's RFP. Collaborate with State and county agencies to deploy strategies identified in the MDHD MOU.	Develop and implement a clear pathway for state agencies to have a zero emission fleet by 2035.	Number of state and county agencies supported and percentage of the total state and county fleet the agencies represent. Percentage of state and county fleet converted.

HSEO's Goals, Plans, and Measurements					
HSEO Topic	Priority Objectives and Policies	1-year Actions	2-year Actions	5-year Actions	Measure Performance
Stakeholder and Community Education, Outreach and Engagement	<p>Establish an ongoing community outreach and engagement program that informs the public, community members, and other energy stakeholders about Hawai'i's clean energy transformation goals, policies, projects and initiatives and provides communities a voice.</p> <p>Develop a Statewide Clean Energy Public Education and Outreach Program in coordination with Hawai'i's Institutions of Public Education expands and develops clean energy professional development and classroom curricula and toolkits and provide professional development credits for HDOE educators. Contract for services.</p>	<p>Develop a comprehensive stakeholder engagement, strategic communications and marketing plan.</p> <p>Create an updated strategic communications program integrated across all communication platforms including digital and print media. Create an integrated HSEO/HCEI website including an online community engagement platform and featuring accessible and portable data. Contract for services. Oversee the Clean Energy Education contract to develop curricula and toolkits and provide professional development credits for HDOE educators, in collaboration with the HDOE.</p>	<p>Continue statewide facilitated, community-based workshops. Draft Statewide Energy Strategy. Contract for services. Assess Clean Energy Education Program impacts and apply for additional federal funding support if needed. Expand the Clean Energy Education program to additional schools.</p>	<p>Develop and grow working groups to include community leaders, industry, and non-profit organizations engaged in developing the Statewide Energy Strategy. Provide HSEO staff to community, industry, and intergovernmental events. Reassess HDOE Clean Energy Public Education Program to determine ongoing needs.</p>	<p>Improved stakeholder engagement, greater public awareness and satisfaction, effective decision making. Solicited feedback from community members on the value provided by the improved communications, outreach and engagement. Number of teachers that participate in developing, are trained in, and use the curriculum. Results of teacher and student pre and post knowledge assessments. Contractor's final report including measured results of the program.</p>
Stakeholder and Community Education, Outreach and Engagement	<p>Promote educational and career entry pathways into clean energy. Prepare for potential federal funding directed to state energy offices for energy sector employment.</p>	<p>Fund three Data Science Fellows from the University of Hawai'i in support of data analytics objectives. As noted under "investment in clean transportation" submit an application for an alternative fuel corridor on Kaua'i, a qualifying criterion for some federal programs.</p>	<p>Identify energy sector workforce opportunities, obtain funding for workforce training and on-the-job support, in collaboration with community colleges and other training providers, trades groups, and workforce development organizations.</p>	<p>Continue and expand opportunities for energy workforce project.</p>	<p>Number of employees trained; apprenticeships or placements into clean energy employment.</p>

HSEO's Goals, Plans, and Measurements

HSEO Topic	Priority Objectives and Policies	1-year Actions	2-year Actions	5-year Actions	Measure Performance
Data Analytics	Develop a data governance framework for energy data to support measurement and evaluation of progress towards state energy goals, identify opportunities, and promote outreach and education. Design the framework to better disseminate data to the public. Develop the energy data governance framework for Hawai'i through a federally-funded Data Scientist and Fellows in partnership with UH Data Science Institute.	Create and fill data scientist position with 3-year dedicated federal funding. Support the position with graduate data scientist students. Identify priority data governance activities. Create data sharing platform.	Implement identified data governance priority activities. Train graduate students. Expand data sharing and portability. Identify and pursue potential long-term funding for the position and activities.	With a data governance framework largely in place, advanced data analytics are underway and available to the public. Explore monetization of data analytics per HRS §196-72(c)12. Dedicated funding source supports ongoing data science activities.	Common data standards and practices across Hawai'i's energy ecosystem. Accessibility of data sets.