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January 5, 2023

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

The Honorable Scott K. Saiki,
Speaker and Members of the
House of Representatives
Thirty-Second 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 Hawaiʻi State Energy Office (HSEO) Annual Report as required by Section 196-71, Hawaiʻi Revised Statutes. In accordance with Section 93-16, Hawaiʻi 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/.

Mahalo a e mālama pono,

Chris J. Sadayasu

Enclosure

c: Legislative Reference Bureau

HAWAIʻI STATE ENERGY OFFICE

2022

Hawaiʻi State Energy Office

ANNUAL REPORT

www.energy.hawaii.gov

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 235-110.31(L)
HRS SECTION 141-9
HRS SECTION 201-104

THIS ANNUAL REPORT REQUIRED BY EACH OF THESE STATUTES HAVE BEEN COMBINED INTO THIS SINGLE, COMPREHENSIVE REPORT.

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Message from the Acting Chief Energy Officer

Hawai‘i is widely recognized as a world leader in the fight against climate change and for good reason. Our islands inhabited by more than 1.4 million people are farther from any other land mass in the world. As carbon emissions continue to disrupt our climate and raise the sea level threatening our way of life, the State has enacted solutions that benefit our people. Hawai‘i was the first state to mandate 100% clean electricity as well as mandate and successfully close our coal plants on time in September 2022.

When Russia invaded Ukraine, the price of oil and all other fossil fuels spiked worldwide. It came as a surprise to many that Russia was one of Hawai‘i’s primary sources of oil, but not to us. In fact, HSEO staff had been working with industry participants as tensions escalated in the months leading up to the war to understand if, and how, they planned to adjust if the worst happened—and it did.

Hawai‘i’s fuel industries quickly pivoted away from importing Russian oil. Adequate supply was achieved by sourcing oil elsewhere, but energy prices increased. While Hawai‘i continues to make strong and steady progress to transition its electricity generation to renewable sources, that progress is not yet enough to avoid electricity bill and gas pump price spikes.

Hawai‘i still depends on imported fossil fuels for nearly 60% of statewide electricity production apart from Kaua‘i. Kaua‘i has the highest amount of renewable energy production at an average just shy of 70% on some days and 100% on others. Kaua‘i's electricity prices increased only slightly this year as compared to the double-digit percentage increases experienced on the other islands.

The comparably small increase has everything to do with Kaua‘i’s adoption of lower cost renewable energy and storage. Kaua‘i is showing Hawai‘i, and the rest of the country, that switching from fossil fuels to renewable energy not only helps heal the climate, but it also provides lower, stabler prices without compromising reliability.

Energy reliability and affordability are at the forefront of our minds. Fossil fuels are driving up energy costs which, in turn, drive up the cost of everything we depend on including our food, medicine, schools, and hospitals. Therefore, HSEO is continuing to prioritize energy resiliency through energy conservation education, improved access to energy efficient appliances, renewable energy, smart grid technologies and powering critical infrastructure in partnership with industry, non-profits, and community-based organizations.

HSEO is also tackling carbon reduction in the transportation sector, which is Hawai‘i’s biggest source of greenhouse gas emissions. We continue to help state government and private fleet owners replace gasoline and diesel-powered vehicles with zero-emission options as well as

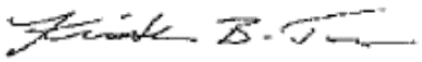
encouraging alternative forms of transportation that use less energy, while we work with partners to reduce vehicle miles traveled.

Communities reflect their residents' wellbeing. HSEO is prioritizing community engagement with two new programs that started in 2022. Energize Kākou is a program designed to help communities and renewable energy developers better understand each other and work in partnership to build new energy projects that enhance the lives of residents and communities. The program includes a culturally based community engagement playbook and workshop materials that, like our K-12 Clean Energy Education program, are available for download on the HSEO website. We also launched a successful Clean Energy Wayfinders pilot program that was highlighted by the US Department of Energy General Guidance for Justice 40 Implementation. The workforce development pilot was designed during the pandemic with the support of our first-year cohort of Energy Equity AmeriCorps-VISTA members. These members worked with the Hawai'i legislature funded Kupu 'Āina Corps to design a program that employs people living in some of the state's most vulnerable communities and trains them to be clean energy leaders in service to their neighbors. The initial cohort of eight Wayfinders on five islands are providing an essential connection between policymakers, industry partners, and communities that is critical to accomplishing the state's decarbonized economy goal.

The Biden Administration's Energy Justice 40 mandate is only one of the many challenges HSEO is prepared to meet and exceed. We are tracking and applying for new federal energy project and program funding available under the Infrastructure and Jobs Act and the Inflation Reduction Act and making this information available on our new, user-friendly website. And we continue to work closely with our industry partners, county, state, and federal agencies to ensure the equitable availability and delivery of reliable fuel and electric energy to support economic recovery in case of a disaster.

Thanks to the leadership of Hawai'i's first Chief Energy Officer, Scott Glenn, we have a high-functioning, collaborative team engaged with government, industry, and community partners to fulfill HSEO's mission "to promote energy efficiency, renewable energy and clean transportation for a resilient clean energy economy"—and to fulfill its role as 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, volcanos, and pandemics.

I am so proud of this team and each person's shared commitment to making Hawai'i a better place to live, work, and prosper.



Kirsten B. Turner
Acting Chief Energy Officer

Executive Summary

The Hawai‘i State Energy Office (HSEO) is a catalyst for the state’s clean energy 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.

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.

Energy Program Administration and Funding

HSEO staff is keenly focused on the historic opportunity in front of us to make Hawai‘i more clean energy resilient.

The Infrastructure Investment and Jobs Act (IIJA) was signed into law by President Biden on November 15, 2021. The law authorizes $1.2 trillion in Federal funds for infrastructure spending addressing clean energy and power, carbon capture and utilization, clean transportation, resiliency, and more. The Inflation Reduction Act of 2022 (IRA) includes $369 billion in Federal funds to tackle climate change.

Together these actions provide tools and funds to allow states to take aggressive actions to confront climate change, lower energy costs for consumers, enhance national security, improve human health, create high-quality jobs and new economic opportunities, and address historical inequities in the energy system.

A portion of these funds will be made available to states through non-competitive formulaic allocations. The remaining funds are to be allocated through competitive solicitations and HSEO is looking to put the state’s collective foot forward to bring home even more federal dollars.

Grant opportunities are being reviewed on an ongoing basis. HSEO is open to participating as either the lead or partner organization depending on the opportunity and level of interest.

Energy Assurance and Resilience

HSEO works diligently to ensure the uninterrupted availability and delivery of reliable fuel and electricity energy to support economic recovery and meet the demands of a growing clean economy. In this role, HSEO is developing a "common operating picture" (COP)—a continuously updated overview of Hawai'i's energy system both from a planning and incident response perspective. A COP by design is under constant improvement and evolves to provide greater understanding of the system's interdependencies and transitioning energy resource supplies.

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.

HSEO has pursued federal funding under the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program to increase the resilience of Hawai'i's energy eco-system. Working with HI-EMA, HSEO secured a $600,000 Advance Assistance grant to assess the energy supply chain and the interdependencies of Community Lifelines—FEMA-defined customers that provide essential services in response to, and recovery from, all hazards events—such as first responders, hospitals, water, and wastewater.

Representing the State's interest in energy assurance and resilience, HSEO actively participated in dockets 2020-0090 and 2020-0158 to assess the contracts' impacts on energy security in Hawai'i.

Renewable Energy Deployment

Hawai'i made significant progress toward the 2045 goal with the retirement of the last coal plant in the state located on O'ahu in September 2022. Two large fossil fuel units on O'ahu are planned for retirement in 2024 with several more fossil fuel unit retirements throughout the state by 2030.

Statewide, there are 27 large-scale renewable energy projects now actively under different stages of regulatory review and/or development. HSEO is actively supporting the deployment of many of these projects and informing the comprehensive regulatory review

of others. Transitioning to an integrated portfolio of renewable sources that provide affordable, reliable electricity while ensuring communities are encouraged to be fully engaged in the process is a top priority for HSEO.

On March 30, 2021, Governor David Y. Ige established the Powering Past Coal Task Force (PPCTF), through Executive Order 21-01. The PPCTF supports the coordinated and timely review of the projects and programs that are slated to fill the puka (holes) left by the coal plant retiring. All but one of the initially slated projects ran into construction delays caused by a variety of factors and two were unable to move forward at all.

Chaired by the Chief Energy Officer, the PPCTF consists of members from the City and County of Honolulu, the Mayor's Office, state agencies, state Legislators, Hawaiian Electric, Hawai'i Energy, non-government organizations interested in environmental protection and community engagement, and renewable energy developers. By working together, the PPCTF identifies potential delays and acts quickly to resolve them when feasible. These actions helped Clearway Energy initiate commercial operation of its 39 megawatts (MW) solar plus battery storage plant in Mililani ahead of schedule, which has the capacity to provide 1-2% of O'ahu's electricity.

The PPCTF will continue through fiscal year 2023 as projects continue preparations to be brought online to meet energy needs. The success of the PPCTF led to the creation of a similar coordination effort on Maui also supported by HSEO staff that focused on the new solar plus storage projects needed to replace Maui's large fossil fuel power plants.

HSEO has upgraded, and will continue to upgrade, its lauded Hawai'i Energy Projects Directory, the only state-controlled source of information on the status of large energy projects that currently powers Hawai'i and contribute to its renewable energy mandate. HSEO also completed updates to its Renewable Energy Permitting Wizard in 2022 including updated permit content.

HSEO advocated for the successful passage of Act 240, which changes the way Hawai'i, and HSEO, calculate progress in renewable electricity deployment. Up until this year, the Renewable Portfolio Standard (RPS) was measured based on utility net sales but will now be measured on actual electrical energy generation. This adjustment means that the RPS percentage numbers used in previous and future HSEO reports will be slightly different, but it is a more accurate representation of our progress and is more consistent with public understanding. In other words, with the new calculation, 100% RPS by 2045 really means 100%.

HSEO was a key stakeholder in numerous City and County of Honolulu measures that impact renewable energy siting, permitting, and financing on O'ahu. Some of these measures include wind project setbacks, zoning code amendments, and the assessment

of real property taxes on lands with renewable energy projects, which requires state legislation to permanently address. HSEO served as the energy subject matter expert in support of the study conducted by the Hawai‘i Natural Energy Institute and the Hawai‘i Department of Health to investigate the management and reuse of future waste streams from clean energy projects (solar panels, batteries) as directed by the Legislature in Act 92, Session Laws of Hawai‘i 2021.

Energy Efficiency

HSEO prioritizes 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.

HSEO collaborates with and provides information and technical review to 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 contracts with technical and contracting experts to provide in-depth review, analysis, and recommendations. In 2022, State of Hawai‘i buildings achieved 23% decrease in energy usage from the 2005 baseline.

Consistent with Act 239, Session Laws of Hawai‘i 2022, HSEO is working with state agencies to achieve a 25% reduction in energy by 2025, from a 2005 baseline year. These actions move state government forward to lead by example on reducing energy cost by being more efficient. Taking action to reduce electricity use in government saves everyone more money.

Now in its 19th year, HSEO coordinates the Hawai‘i Green Business Program (HGBP), which provides technical assistance to businesses to implement energy and resource-efficient practices and recognizes the success and value of the practices during an annual award ceremony. The program is a partnership between the HSEO, the Department of Health, the Board of Water Supply, and the Chamber of Commerce of Hawai‘i.

Clean Transportation

HSEO continues to take a leadership role in advancing the adoption of clean transportation across Hawai‘i. This includes facilitating zero emissions vehicle (ZEV) deployment and associated electric vehicle charging and infrastructure, which directly

contribute to reducing petroleum consumption and emissions in the transportation sector. To decarbonize the transportation sector, HSEO works with local communities; federal, state, and county agencies; energy stakeholders; and clean transportation stakeholders to encourage and facilitate the adoption of clean transportation technologies.

In 2022, HSEO partnered with the Hawai‘i Department of Transportation to outline Hawai‘i’s steps to increase the availability and accessibility to charging infrastructure through the National Electric (NEVI) formula program that provides $17 million in federal funding over the next five years. The office also 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).

Zero-emissions vehicles include micro-mobility solutions such as e-bikes and scooters. Hawai‘i’s 2022 Legislature helped to make e-bikes more affordable by providing rebate opportunities. Hawai‘i’s 2022 Legislature also provided incentives to help get more hydrogen-powered vehicles (another type of ZEV) on the road.

HSEO continues to allocate the $8.125 million Volkswagen Settlement Trust Fund by making available grant opportunities to help state medium- and heavy-duty truck fleets convert from diesel to zero-emission sources. In 2022, HSEO completed an MOA with Hawai‘i Department of Transportation to support the deployment of 12 e-busses for Kaua‘i, Maui, and Hawai‘i counties.

At a time of record high energy prices, HSEO’s focus on energy-efficient transportation modes is crucial. In the electric sector, the priority is energy efficiency. We need to continue to prioritize energy efficiency as Hawai‘i looks to decarbonize the largest energy consuming sector, transportation. HSEO is working on implementing strategies that will help to reduce the energy intensity of the transportation system. This includes using approaches related to both land-use and transportation. One strategy to reduce the energy intensity of the transportation system is to complete a Multi-modal Assessment (MMA). HSEO applied for and was awarded funding from the O‘ahu Metropolitan Planning Organization to complete such a project. The MMA will identify specific needs and projects that cover both land-use and transportation solutions to reduce vehicle miles traveled for the island of O‘ahu.

Stakeholder and Community Education, Outreach and Engagement

HSEO has prioritized the development and deployment of a 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.

The office reorganized in 2022 to establish a new branch focused on community engagement and public affairs (CEPA) and deployed two signature programs to advance energy equity, energy justice, and community engagement in Hawai'i's clean energy goals.

The Clean Energy Wayfinders program launched in February 2022 with an initial cohort of eight Wayfinders located on five islands and representing each county. The Wayfinders are community members recruited and trained to help their own mostly ALICE, LMI and vulnerable communities co-create strategies to increase access to clean transportation, energy efficiency and renewable energy resources. The Wayfinders also facilitate community input regarding renewable energy and clean transportation policy, program, and project development. They provide clean energy information, financial and technical assistance referrals and facilitate green workforce training and employment opportunities in their communities.

The U.S. Department of Energy has highlighted the Clean Energy Wayfinders as a first-of-its-kind best practice and encourages other states to follow Hawai'i's example.

Energize Kākou is a community empowerment strategy grounded in a Native Hawaiian cultural framework in collaboration with grassroots organizations in mostly ALICE, LMI and underserved communities that are also the most vulnerable to climate change impacts. Energize Kākou, which alongside continued engagement with community and cultural experts, is intended to foster successful and inclusive partnerships with these and other underrepresented populations.

Clean energy education programs developed in partnership with the Hawai'i Department of Education support the development and further expansion of clean energy education programs in mostly Title I Schools in Hawai'i. The goal is to empower Hawai'i's youth and citizens to meet the State's clean energy goals, while strengthening science, technology, engineering, and math (STEM) education and introducing students to potential energy job opportunities. See https://energy.hawaii.gov/get-engaged/energy-education/#k-12 for K-12 Modules and Energy Education Resources.

HSEO staff also hosts "Code Green", a ThinkTech Hawaii program, featuring subject matter experts in clean energy policy, programs and projects.

Data Analytics

HSEO is prioritizing the establishment and implementation of an energy ecosystem data governance framework. 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 progress toward our objectives.

HSEO launched a new website in 2022 to make it easier for users to find energy information. It is also designed to support several new interactive tools to provide publicly accessible, reliable, high-quality data and to help the public engage more effectively in energy-related issues and conversations affecting their communities. HSEO continues to support and update its data visualization and modeling tools including Hawai‘i Advanced Visualization Energy Nexus (HAVEN) and Engage.

Introduction to Annual Report

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, Hawai‘i has made substantial progress moving toward a cleaner energy sector. 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.

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.

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 near-term priorities, actions taken, and next steps in ensuring that Hawai'i 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 office reorganization into four components: Administrative; Operations; Resilience, Clean Transportation, and Analytics; and Energy Efficiency and Renewable Energy.

PART 1 Priority Objectives and Policies

Clean Energy to Achieve a Clean Economy

Hawai'i's commitment to fostering a clean economy and ending its dependence on foreign oil remains undeterred despite a challenging set of circumstances including economic recovery from the COVID-19 pandemic and geopolitical tensions including the events leading up to and including war in Ukraine. HSEO takes seriously its mandate to decarbonize the economy through supporting deep carbon reductions throughout the entire energy ecosystem and remains focused on supporting the state as it looks to take bold actions to reduce emissions and enhance energy security and affordability.

Decarbonization Strategy

In addition to Hawai'i's clean energy goals, Hawai'i also has a target to sequester more atmospheric carbon and greenhouse gases than it emits as quickly as practicable, but no later than 2045 pursuant to HRS Section 225P-5, effectively establishing a net-negative emissions target. The 2022 Legislature added an interim target to achieve a 50% reduction below statewide emissions as of 2005 no later than 2030.

In 2022, the State Legislature passed Act 238, which tasks HSEO to "analyze pathways and develop recommendations for achieving the State's economy-wide decarbonization

goals." The strategy will evaluate emission reduction pathways from all emitting sectors economy wide.

The net negative emissions target and associated decarbonization strategy is a high-priority effort within the Office and will require a significant investment of time and effort across all branches. As defined in the Act, the strategy will include recommended regulatory and/or state actions to reduce and sequester emissions to achieve the 2045 goals.

Pursuant to Act 238, the legislative report shall include and identify the following actions and considerations:

- Regulatory or other state action that will ensure the attainment of the State's decarbonization goals including measures to reduce emissions from electricity, including accelerating the adoption of clean energy and improving energy efficiency for residential, commercial, and government users, and land use and transportation planning measures aimed at reducing emissions from the transportation sector;
- State actions to address emissions associated with air travel and shipping, including how to encourage electrification and adoption of alternative fuels;
- Best management practices in the agricultural sector;
- Long-term carbon sequestration and carbon capture and utilization opportunities;
- Recommendations to aid in the transition of the state workforce to meet the needs of a decarbonized economy;
- Consider impacts to environmental justice, frontline, and low-income communities and make recommendations for how to mitigate any impacts to these communities and to facilitate a just transition to a decarbonized economy;
- Cost-effective pathways to decarbonization and a ranking of recommendations based on level of impact, cost, and ease of implementation;
- Whether the goals established pursuant to Section 225P-5, Hawai‘i Revised Statutes, should be adjusted, or if additional interim goals between the completion of the analysis and 2045 should be adopted; and,
- An examination of contributions of different carbon sources, how each source can be reduced, what entities are responsible for the reduction of each source, and how each source factors into the determination of statewide greenhouse gas reduction goals.

HSEO is actively developing a project plan that incorporates consultation and collaboration with other state agencies, counties, and relevant stakeholders and organizations, as directed by Act 238. The report is due to the Legislature by the end of 2023.

Infrastructure and Investment Jobs Act/Inflation Reduction Act

The federal government has created a historic opportunity to make Hawai‘i more clean energy resilient. The combination of the Infrastructure and Investment Jobs Act (IIJA) and the Inflation Reduction Act represent a significant opportunity to transform Hawai‘i’s energy and economic potential. To help Hawai‘i put its best foot forward and bring more federal dollars home, HSEO is reaching out to potential partners interested that share similar goals to diversify the economy, provide more local jobs, help frontline communities, and drive innovation and investment to address the climate crisis.

HSEO surveyed stakeholders in industry, non-governmental organizations, community organizations, and other governmental agencies to gather information that will help identify partnering opportunities and inform HSEO on possible Requests for Interest on competitive IIJA programs.

Additionally, HSEO has published an IIJA Tracker on its website to provide easy public access to energy related IIJA programs that are applicable to Hawai‘i. HSEO has identified about 100 potential funding opportunities to date. Users can sort, filter, and download information in the tracker to find opportunities that they may want to pursue.

Hydrogen Hubs Proposal

HSEO and a consortium of partners across government, community, industry, and academia have submitted an integrated Hawai‘i Pacific Hydrogen Hub concept proposal to the US Department of Energy’s Regional Clean Hydrogen Hub (H2Hub) program.

As part of the $8 billion hydrogen hub program funded through the Bipartisan Infrastructure Law, the US DOE is seeking proposals to establish as many as ten regional clean hydrogen hubs across the country. The hubs are intended to create networks of hydrogen producers, consumers, and connective infrastructure to accelerate the use of clean hydrogen across the economy.

The integrated Hawai‘i Pacific Hydrogen Hub aligns multiple existing, in-development, and proposed hydrogen production pathways that leverage existing energy infrastructure while developing new hydrogen infrastructure, to deploy hydrogen across all sectors of Hawai‘i’s energy ecosystem and economy over the next decade. The Hawai‘i Pacific Hydrogen Hub proposal also contributes a critical component to national security objectives in the region.

The proposal includes community collaboration and the development and coordination of a carefully crafted community benefits plan grounded in a Native Hawaiian framework to ensure at least 40% of federal H2Hub clean energy investments flow to disadvantaged communities resulting in sustainable living wages and careers in long-term industries that will increase household incomes and stimulate Hawai‘i’s economy. All the consortium participants are committed to working together with communities to develop the components of the H2Hub that incorporate proactive workforce development, labor engagement, diversity, equity, inclusion, an accessibility strategy, an implementation plan and a Community Benefits Plan relevant to each phase of the overall project.

Energy Assurance and Resilience

HSEO helps ensure the continued availability and delivery of fuels and electricity to meet the demands throughout the state.

HSEO’s State Emergency Response Team (SERT) is led by a dedicated staff member and supported by additional HSEO staff serving as core team members. All HSEO staff are cross trained to provide ongoing coverage during longer duration events. The SERT tracks emerging threats in cybersecurity and hazards such as major storm events, heat waves, sea level rise, and inland flooding increase in frequency and severity exacerbated by climate change. During 2022, the SERT was activated because of Russia’s invasion of Ukraine and during the eruption of Mauna Loa.

Actions undertaken by HSEO to support energy assurance and resilience include:

- **Energy Common Operating Picture:** In FY2022, HSEO continued to develop a comprehensive energy common operating picture (COP). HSEO has used Hazard Mitigation Grant Funding for an Advance Assistance project designed to collect the requisite data and information to support the development of improved hazard mitigation project applications. Under this project, HSEO inventories critical energy infrastructure to understand the interdependencies of the community lifeline key customers it serves. This information will be used to develop a Geospatial Decision Support System (GDSS) that will serve as the basis for an energy COP.

  HSEO completed an assessment of the Energy Industry Information Reporting Program (EIIRP) that collects fuel volume data on imports, intrastate movements, and exports from petroleum companies and will provide the quantitative basis for the COP. The assessment involved interviewing reporting entities including DBEDT's Research & Economic Analysis Division, which collects and maintains the data and entities that should be reporting under the enabling statute HRS 486J.

The assessment included an analysis of the existing data to establish a baseline, and recommendations for improvements and updates to the program. Next steps will involve a program renewal.

- **State Emergency Response Team:** Staffing the HSEO SERT to coordinate support to energy asset owners and operators and provide subject matter expertise to state and local government emergency management agencies, for the timely restoration of the energy system after disruptions.

- **FEMA Grant Implementation:** HSEO received federal funding for an Advance Assistance project under the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program. With the $600,000 grant, HSEO is identifying projects that increase the resilience of O‘ahu’s energy ecosystem and can be further developed as future applications for federal funding. To collect the necessary data and information to support robust applications, HSEO is inventorying, mapping, and assessing the energy supply chain and the dependencies of Community Lifelines — the essential services a community relies upon such as first responders, hospitals, water, and wastewater. In addition, HSEO submitted a Notice of Intent for a second Advance Assistance project to complete a statewide COP by conducting the same analysis for Kaua‘i, Maui, and Hawai‘i counties. A full application is being developed and will be submitted in 2023. If selected, funding would be provided through the FEMA Building Resilient Infrastructure and Communities (BRIC) set-aside program. HSEO has continued its partnership with Hawaiian Electric to apply for funding under FEMA’s BRIC national competition for a Critical Customer Hubs (CCH) project. CCH are microgrids that service multiple Community Lifeline facilities to support local communities during emergency events. Last year, the project application received a high qualitative score and was used as an example during FEMA webinars but was not selected. HSEO and HECO will revamp and submit the project again in 2023.

- **Energy Assurance in Hawai‘i Public Utilities Commission (PUC) Dockets:** Representing the State’s interest in energy assurance and resilience, HSEO actively participated in dockets 2020-0090 and 2020-0158 to assess the contracts’ impacts on energy security in Hawai‘i.

  Docket 2020-0158 was closed on November 12, 2021 with the PUC approving the petroleum feedstock agreement between Par Hawai‘i Refining and Hawai‘i Gas. Docket 2020-0090 was closed on August 30, 2022 after the PUC had approved the first amendment to HECO's Petroleum Fuel Supply Contract with Par Hawai‘i Refining and the ordered Fuel Master Plan update was moved to docket 2022-0014 which concerns approval of HECO fuel supply contracts. HSEO is a

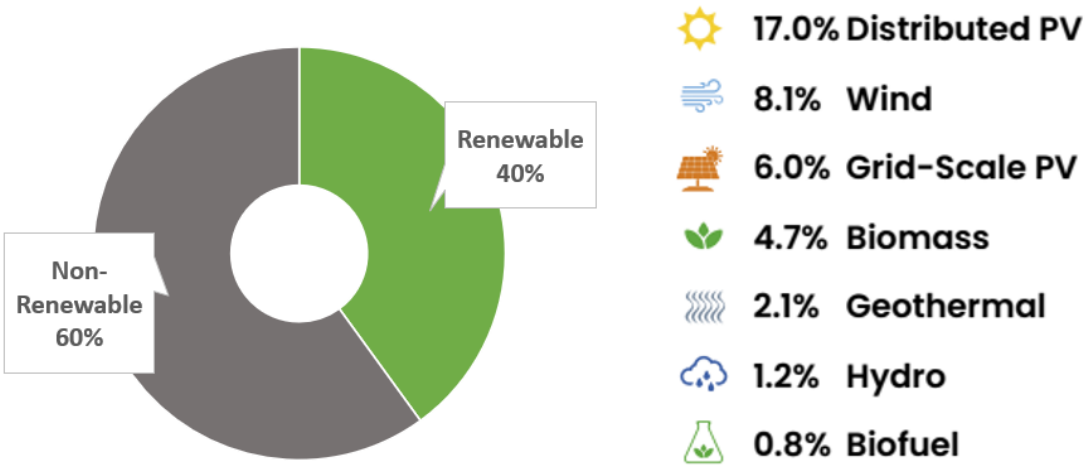
participant in both ongoing dockets. which concerns approval of HECO fuel supply contracts. HSEO is a participant in both ongoing dockets.

Renewable Energy Deployment

HSEO prioritizes support for renewable energy projects that advance the state's decarbonization goal while minimizing negative impacts on communities. In 2022, the last coal plant in Hawai‘i closed, and O‘ahu's first utility-scale solar plus storage facility was energized. Additionally, eight new solar and solar plus storage projects broke ground in 2021 and 2022 on O‘ahu, Maui, and Hawai‘i Island collectively. In total, about two dozen renewable energy projects were approved by the PUC and are currently in various stages of development across the islands, including several that are scheduled to begin operation in 2023.

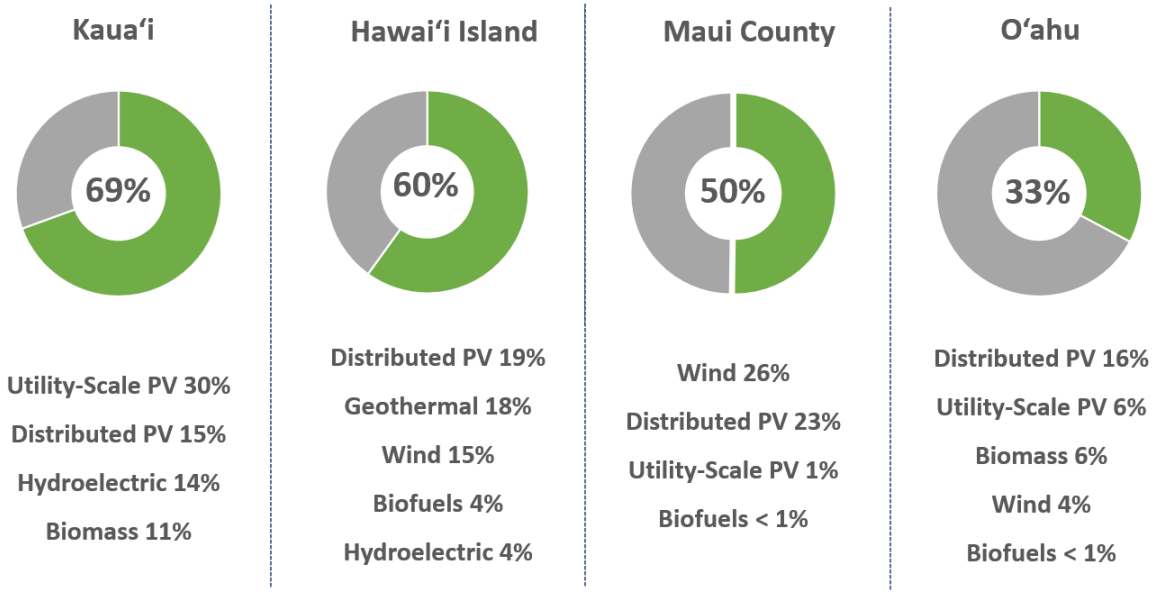
HSEO tracks Hawai‘i's energy transformation using the primary metric for measuring renewable electricity generation, the renewable portfolio standard (RPS). The overall target is 100% renewable electricity by 2045, with interim targets of 40% by 2030 and 70% by 2040. In 2022, the passage of Act 240 modified the percentage calculation to reflect net electricity generation instead of net electricity sales. In 2022, Hawai‘i's RPS based on net electricity sales was 40% meeting the 2030 goal. While the official calculations are pending, the RPS based on net electricity generation is expected to be slightly less than 40%; however, it is a more accurate reflection of electricity production in Hawai‘i.

Statewide Renewable Electricity Sales, 2021



Each island operates a stand-alone grid with a unique portfolio of renewable and fossil fuel energy resources.

2021 Renewable Portfolio, Based on Electricity Sales



HSEO is neither a utility, a developer, a regulator, nor a permitting agency. Rather, HSEO is the State agency tasked with understanding Hawai'i's complex and integrated energy systems, opportunities, policies, and impacts. HSEO serves to facilitate the development of renewable energy projects through coordination, recommendations, and communication with all stakeholders.

Actions undertaken by HSEO to support renewable energy development include:

- **Powering Past Coal Task Force:** Governor David Y. Ige established the Powering Past Coal Task Force (PPCTF) in March 2021 through Executive Order 21-01. It is chaired by the Chief Energy Officer and includes members from the City and County of Honolulu, the Mayor's Office, state agencies, state legislators, Hawaiian Electric, Hawai'i Energy, non-governmental organizations interested in environmental protection and community engagement, and renewable energy developers. The intent of the PPCTF is to identify and resolve, to the extent possible, issues as they arise with renewable energy development on O'ahu. The Task Force increases the coordination efforts between Hawaiian Electric, project developers, and key permitting agencies to mitigate and address any delays that were within the collective control of Task Force members. The work of the PPCTF has been credited with helping the Mililani Solar Plus Storage project go into production ahead of schedule and has helped numerous projects overcome barriers in obtaining critical path permits, without compromising permit review. The Task Force continues to meet to ensure projects come online as quickly as practicable, which will help to mitigate the recently increased utility costs. HSEO manages all PPCTF logistics and updates it Master Schedule monthly to reflect changes in the development of the renewable energy and energy efficiency projects and programs under its purview. HSEO provided written and verbal testimony for the projects needing approval from state and county commissions.

  Stakeholders on Maui have adopted the concept for a similar working group approach to address renewable energy development on Maui. HSEO is supporting Maui County on this initiative.

- **Productive property assessment and zoning regulations**: In late 2021, the City and County of Honolulu Real Property Assessment Division changed the classification of some land parcels where renewable energy projects are reclassified from agriculture to industrial for tax purposes. This change resulted in a steep increase in property taxes for the affected projects resulting in some operators receiving tax assessments and tax bills that were 45,000 percent higher

than the previous year. The potential tax increase impacted the viability of existing and future renewable energy projects and, consequently, the state's progress toward its renewable energy and decarbonization goals.

HSEO has been working collaboratively with developers and the county on a long-term solution that would provide certainty for renewable energy developers and utilities and their customers while mitigating potential revenue loss to the counties. This includes the need for state legislation. As of the date of this publication, the effort is still in process.

HSEO is also working with the City and County of Honolulu and community members to revise the zoning regulations regarding wind turbines. Communities on O'ahu's north and west shores have led the effort to increase the setback, or distance of wind turbine placement, to more than the current one-to-one foot requirement. (i.e., 500-foot tower is equal to a 500-foot setback). HSEO is working to establish a consensus setback distance in the range of 1 to 1.25 miles from residential areas, which is greater than the existing regulations, but less than the initial community proposal of five miles—a de facto ban on all wind projects on O'ahu. HSEO worked with community members and the City and County of Honolulu to conduct research regarding setback distances for other municipalities. In addition, HSEO conducted geospatial analysis to inform council members and other stakeholders on the potential impact of various setbacks to future wind energy deployment. Additional research was conducted to determine impacts to current wind energy projects. Findings of the research were submitted to the Honolulu City Council through written testimony and a presentation to the City Council Zoning and Planning Committee in October 2021.

- **Community engagement and public affairs:** HSEO established a new branch in 2022 to continue and grow the community engagement and public outreach activities it began in 2021. The Energize Kākou program is aimed at gathering and delivering community-based information grounded in a Native Hawaiian culture framework. The Clean Energy Wayfinders Program is a statewide cohort of entry level and career-transitioning individuals who are interested in clean energy careers. They are hired from within, or near, the vulnerable communities that they serve to help residents participate fully in the clean energy transformation.

- **Information and Data Visualization:** In addition to launching a new energy data portal in 2022, HSEO upgraded, and will continue to upgrade, its lauded Hawai'i Energy Projects Directory, the only state-controlled source of information on the

status of large renewable energy projects. In 2022, HSEO also upgraded its Renewable Energy Permitting Wizard, which identifies the federal, state, and county permits potentially required for a renewable energy project in Hawai‘i. To compliment the Wizard, HSEO also published in 2022 an updated list of over 160 federal, state, and county permits potentially required for any project in Hawai‘i including large renewable energy projects.

HSEO continued to refine 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. HSEO is exploring how to expand 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 Feedstock Program:** The Energy Feedstock Program (Act 159, Session Laws of Hawai‘i 2007; HRS Section 141-9) requires both the Hawai‘i Department of Agriculture (DOA) and HSEO to maintain cognizance of energy feedstocks and report to the Legislature. This section is provided in compliance with the statute.

  Fuels, as form of stored energy, are an essential part of Hawai‘i’s energy systems and are expected to continue to be an important part of Hawai‘i’s energy future.

  The only biodiesel producer in the state, Pacific Biodiesel, uses a combination of waste cooking oils, recovered oils from grease traps, and oils from sustainable agriculture to support its annual production of 5.5 million gallons biodiesel on Hawai‘i Island. In 2022, the primary agriculture crop was sunflower seeds. These seeds were grown and harvested in central Maui, then shipped to the company’s crushing mill in Kea‘au, Hawai‘i Island. Other crops included cow peas (future swine feed opportunity), sunn hemp (*Crotalaria juncea*), rye, buckwheat, and clover. According to Pacific Biodiesel, plantings for the 2022 harvest season continued year-round with regenerative farming practices including efficient pivot irrigation, no till practices and rotational cover cropping to help sequester carbon and improve soil health; no herbicides or pesticides are used on any of the crops, and all farm equipment and electrical power operates on 100% biodiesel produced by the company.

Pacific Biodiesel also makes its fuel available to wholesale and retail purchasers. With U.S. Department of Agriculture grant funding, Pacific Biodiesel installed several off-grid biodiesel fueling stations to help expand availability of 100% biodiesel to serve customers around the state. With support of the Hawai‘i Board of Land and Natural Resources, the first station was installed at the Ma‘alaea Harbor on Maui in June 2022; the second station was installed at Honokōhau Small Boat Harbor on Hawai‘i Island in July 2022; and the third station was installed in Kahului, Maui in November of 2022. All of these stations offer both on-road and off-road fuel, with the harbor stations providing access for diesel powered marine vessels, including tour boats, to fuel up with local biodiesel.

Recent articles and postings indicate continued progress by Terviva in developing Pongamia (*Millettia pinnata*) for use in food production.

As energy production is often most cost-effective when using waste and by-products of other higher value outputs (food, feed, pharmaceuticals, or other products), it is not necessary for crops to be dedicated to energy production in order to be relevant as potential energy feedstocks.

The Green Energy Team biomass-to-energy facility on Kaua‘i, powered by *Albizia sp.* removed in invasive species management projects, was purchased by Mahipapa, LLC, a nonregulated subsidiary of Hawaiian Electric Industries. According to the Energy Information Administration (EIA), in calendar year 2021 (the most recent data available), the facility used about 85,000 tons of wood to generate 48 and deliver 46 gigawatt-hours of electricity to Kaua‘i Island Utility Cooperative.

The production of electricity from waste (primarily municipal refuse derived fuel) continued at H-POWER on O‘ahu. According to the EIA, in calendar year 2021 (the most recent data available) the facility used over 670,000 tons to generate about 360 gigawatt-hours of electricity. The facility also burns sewage sludge in combination with the bulky waste.

Renewable natural gas continues to be produced by Hawai‘i Gas at its renewable natural gas facility using biomethane from the City and County of Honolulu’s Hono‘uli‘uli wastewater treatment plant. Renewable natural gas produced at the facility is injected into the existing Hawai‘i Gas pipeline and mixed with synthetic natural gas, produced from petroleum by-product naphtha, to serve Hawai‘i Gas customers.

In May of 2022, a Federal Small Business Innovation Research Grant was provided to Aloha Carbon for an integrated gasification and gas cleanup process to convert biomass waste into green hydrogen and sustainable aviation fuel. In June of 2022, Par Hawai'i and Hawaiian Airlines announced a plan to explore sustainable aviation fuel in Hawai'i. Par also received funding from the USDA for biofuel storage tanks. The Hawai'i Natural Energy Institute continued work on numerous alternative fuels projects, including as a member of the Federal Aviation Administration's Center of Excellence for Alternative Jet Fuels & Environment.

In addition, many other projects and discussions occurred regarding crops and wastes that could be directed to the production of energy; and interest continued in forest biomass, soil carbon, and carbon sequestration.

Energy Efficiency

It is more cost-effective and resource-efficient to avoid using a kilowatt-hour (kWh) than it is to generate or purchase a kWh. Each dollar spent on efficiency generally saves ten times that amount on energy bills. Hawai'i's Energy Efficiency Portfolio Standard (EEPS), contained in HRS Section 269-96, requires the reduction of 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.

Energy efficiency is also important as a means of reducing the overall amount of land and resources necessary for meeting Hawai'i's energy needs. Hawai'i continues to keep pace with its target goal of reducing electricity demand by 4,300-gigawatt-hours by 2030 through efficiency and conservation measures, with significant savings from lighting, cooling and water heating measures.

Actions undertaken by HSEO to support energy efficiency include:

- **International Energy Code Adoption:** As ex officio voting member and Chair of the State Building Code Council, HSEO was instrumental in the Council's adoption of the 2018 International Energy Conservation Code (IECC) with Hawai'i-specific amendments. HSEO assisted the counties in development of their 2018 IECC codes and developed the first draft of the proposed 2021 IECC state code. At the national level, HSEO staff chaired the Tropical Zone committee of the National Green Building Standard and served as national voting member in developing the 2024 IECC.

- **Appliance Efficiency Standards:** HSEO reviewed efficiency standards and actively participated in national webinars of the Appliance Standards Awareness Project to track the status and adoption of appliance standards in the U.S. and potential for Hawai‘i.

- **Hawai‘i Green Business Program:** HSEO coordinates the Hawai‘i Green Business Program (HGBP), which provides technical assistance to businesses and organizations to implement energy and resource-efficient practices and recognizes the success and value of the practices during an annual award ceremony. This year the Hawai‘i Green Business Program is re-energizing the 10-Entry Level program focused on small and rural restaurant and food service businesses. HGBP is a partnership between the HSEO, the Department of Health, the Board of Water Supply, and the Hawaii Lodging and Tourism Association.

- **Energy Efficiency Technical Assistance:** HSEO collaborates with and provides information, training, and technical review for government agencies, professional associations, and educational institutions in Hawai‘i to reduce energy use and to participate in performance contracting and other means of financing energy retrofits. In addition to in-house expertise, HSEO contracts with technical and contracting experts as well as the US DOE’s National Labs to provide in-depth review, analysis, and recommendations.

  In 2022, State of Hawai‘i buildings achieved a 23% decrease in energy usage from the 2005 baseline. Act 239, Session Laws of Hawai‘i 2022 (“Act 239”), requires and establishes deadlines for state facilities to implement cost-effective energy efficiency measures. It also requires the design of all new state building construction to maximize energy and water efficiency, maximize energy generation potential, and use building materials that reduce the carbon footprint of the project.

Clean Transportation

Decarbonizing the transportation sector is central to achieving the State’s commitment to achieving a clean energy economy no later than 2045.

HSEO has prioritized efforts that support a transformational investment in Hawai‘i’s clean energy economy such as the electrification of government fleet vehicles, providing market

signals, developing innovative market offerings, and supporting the buildout of backbone infrastructure. Whenever possible, HSEO seeks opportunities to leverage funding sources to maximize the impact of clean transportation efforts.

The availability of zero-emission vehicles (ZEVs) for purchase and the accessibility of charging stations are significant factors for the advancement of clean ground transportation. HSEO has pursued opportunities to send market signals to vehicle manufacturers and lessors to increase the availability of ZEVs for purchase and rent throughout the state. The light-duty (passenger) vehicle market is beginning to see ZEVs priced on par with their gas-powered equivalents, even before taking into consideration any regional subsidies and lower operating costs.

Actions undertaken by HSEO to support clean transportation include:

- **Medium- and Heavy-Duty Vehicle Memorandum of Understanding:** HSEO led the effort for Hawai'i to join with Washington D.C and 14 other states in signing the Multi-State Zero Emission Medium- and Heavy-Duty Vehicle Memorandum of Understanding (MDHD MOU). The group has grown to include 17 U.S. states, the District of Columbia, and the Canadian province of Quebec. Hawai'i and the rest of the working group collaborate via the Multi-State Zero Emission Vehicle (ZEV) Task Force, a coalition facilitated by NESCAUM, to produce a bold Action Plan for accelerating a transition to zero-emission trucks and buses. This Action Plan is the culmination of two years of work by the ZEV Task Force identifying barriers and opportunities for rapid and equitable truck and bus electrification and actionable policy and program recommendations for state policymakers, utilities, and utility regulators. The plan also includes recommendations for local and federal government policymakers., to produce a bold Action Plan for accelerating a transition to zero-emission trucks and buses. This Action Plan is the culmination of two years of work by the ZEV Task Force identifying barriers and opportunities for rapid and equitable truck and bus electrification and actionable policy and program recommendations for state policymakers, utilities, and utility regulators. The plan also includes recommendations for local and federal government policymakers.

- **Investing in Transportation Choices: Recommendations for Safe, Sustainable, Affordable, and Reliable Mobility Toolkit:** Highlighted in the International Council on Clean Transportation's Hawaii Clean Energy Initiative Transportation Energy Analysis, one of the strategies expected to have the

greatest impact on energy consumption is to reduce vehicle miles traveled (VMT). HSEO and the Department of Land and Natural Resources (DLNR) applied for and was awarded a grant from the Environmental Protection Agency (EPA) to develop a VMT Reduction Toolkit. The toolkit was renamed, "Investing in Transportation Choices: Recommendations for Safe, Sustainable, Affordable, and Reliable Mobility" to reflect the outcomes of implementing VMT reduction strategies. Work to finalize the tool kit occurred this year, with final recommendations presented to the State Climate Commission meeting in April.

To see through implementation of this toolkit, HSEO and DLNR received a grant from the U.S. Climate Alliance to hire a VMT and Active Transportation Specialist (VMTATS). The role was filled in December 2021. Throughout the two years of the grant-funded position, this person will focus on the development and implementation of strategies to reduce VMT in the State of Hawai'i through mode-shift, active transportation, and other associated means.

- **Multi-modal Assessment:** One of the recommended strategies in the Toolkit was to complete a multi-modal assessment. HSEO applied for and was awarded O'ahu Metropolitan Planning Organization (OahuMPO) planning funds to assist with the completion of a multi-modal assessment for the island of O'ahu. A multi-modal assessment will help to identify specific needs and projects to reduce vehicle miles traveled for the island of O'ahu. Projects and needs cover both land-use and transportation solutions. The study will include a needs assessment, recommendations for impactful projects, and training and data subscription services. HSEO is currently working on drafting a Memorandum of Agreement (MOA) for this project and will begin procurement after the MOA is executed.

Data Analytics

Reliable and high-quality data are increasingly critical to Hawai'i's successful transition to a clean energy economy. HSEO is dedicated to fostering trust among all stakeholders as we move forward towards our goals. Actions undertaken by HSEO to support information and data analysis include:

- **Energy Data Portal:** HSEO has developed a single source repository for energy-related data to provide a solid foundation for a data-informed approach to

achieving the State's energy goals. The state-of-the-art infrastructure design supporting the Energy Data Portal is the first of its kind in Hawai'i state government. It serves as a one-stop-shop for reliable state energy data, and to ensure energy policies and regulations align with the state's clean energy goals. Importantly, it includes descriptive meta-data and source attributions for all curated data packages, so that it is clear where the data came from and what the data represents.

The portal displays standardized, live data sets for users to browse and download. Stakeholders and interested citizens can easily view and interact with data to become better educated and informed about Hawai'i's energy landscape and the state's progress towards its clean energy goals.

HSEO staff, working in coordination with data science fellows from the University of Hawai'i, curated more than 30 data sets now in the portal from a catalog of about 70 raw datasets from public and private sources. This includes state facilities energy usage data in fulfillment of Act 239, which the Legislature passed earlier this year.

- **Engage and HAVEN**: Engage is an open access, publicly available web application for energy system modeling developed by HSEO in collaboration with the National Renewable Energy Laboratory. 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). HSEO is working with the University of Hawai'i data science fellows to help run scenarios and explore greater applications for both systems in community engagements. HSEO is also working with the data science fellows to develop an updated implementation of the HAVEN on HSEO's in-house AWS Cloud infrastructure, as well as integrating the Engage and HAVEN tools to facilitate comparative analysis of energy system modeling scenarios.

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 fulfill HSEO's mandates everyone in Hawai'i must be included. 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.

Actions undertaken by HSEO to support stakeholder and community education, outreach, and engagement include:

- **Energize Kākou:** HSEO completed the initial development and implementation of a new a community outreach and stakeholder engagement program in 2022. The objective of Energize Kākou is to build community and stakeholder support for Hawai'i's ambitious clean energy and climate goals as well as the clean energy projects necessary to make these goals a reality.

  Effective outreach and engagement efforts are critical to achieving this support. Successful community engagement in Hawai'i must be rooted in values that define the culture of Hawai'i. Native Hawaiian values and ways of being centers connection—to the past, to others, and to places. HSEO's project is intended to assist developers and communities to engage with each other productively through a culturally relevant process that recognizes and honors mālama 'āina.

  The framework for HSEO's community engagement strategy includes a Cultural Narrative to help stakeholders understand their relationship to the cultural history of Hawai'i; a Playbook of best practices for community engagement design and execution; and a Strategic Work Plan or roadmap for community engagement workshop. All materials are available for download at https://energy.hawaii.gov.

- **Clean Energy Wayfinders:** Launched in February 2022, the Clean Energy Wayfinders program mission, in partnership with Hawai'i energy industry and community stakeholders, is to advance Hawai'i's clean energy goals and create jobs for a new generation of clean energy leaders while addressing inequities in vulnerable communities.

The Wayfinders share the benefits of energy conservation and clean energy adoption with Hawai‘i’s schools, community organizations, and households, especially those in low-to-moderate income and under-resourced communities, to help increase energy conservation and efficiencies, lower monthly energy utility bills, increase access to clean transportation and renewable energy resources, and promote green career training and employment opportunities.

With recruiting focused in targeted priority communities, the Wayfinders receive energy and community outreach and engagement training to effectively provide their communities with energy conservation, efficiency, clean energy, and clean transportation information, and to facilitate community organizations and households access to programs and resources, including federal Low Income Home Energy Assistance Program (LIHEAP) and Weatherization Assistance Program (WAP) funds, statewide Solarize initiatives, and community-based renewable energy (CBRE) subscriptions.

The Clean Energy Wayfinders program provides additional means for community voices to be heard by policymakers and project developers to more effectively collaborate and guide decision-making. Members also participate in workforce development opportunities with program and industry partners to promote living-wage green careers in Hawai‘i.

The inaugural cohort featuring eight Wayfinders located on five islands began in February through the Kupu ‘Āina Corps program, part of the year-long Green Jobs Youth Corp made possible with federal funding through the American Rescue Plan Act and approved by the governor and Hawai‘i Legislature in Act 181 Session Laws of Hawai‘i 2021.

- **Clean Energy Education:** HSEO’s broader engagement priority includes a statewide clean energy education and outreach plan developed in coordination with Hawai‘i’s institutions of public education as was originally mandated by HRS Section 196-10.5. HSEO contracted with the Maui Economic Development Board (MEDB STEMworks) to create curricula for Hawai‘i’s K-12 students and their teachers.

  MEDB STEMworks tested projects, labs, and renewable energy kits and additional online activities to vet all laboratory exercises to be included in the six modules.

Every module includes one reading exercise, three hands-on laboratory experiments, one digital extension activity and one do-at-home activity to increase engagement throughout the community. All the laboratory exercises are Next Generation Science Standards (NGSS)-aligned.

MEDB STEMworks recruited about 200 teachers throughout the state to train earlier this year. Teachers received a full classroom pack of supplies for immediate implementation in their classrooms and will be awarded a $150 stipend upon full completion of participation. HSEO is hoping to expand the program to additional schools as funds and resources allow.

HSEO partnered with the states of Illinois and Nevada to develop and implement the Building Energy Efficiency Fundamentals curricula and educational modules focusing on community colleges and workforce development.

- **AmeriCorps-VISTA:** Beginning in 2021, HSEO brought board three AmeriCorps VISTA members to 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 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 affordability, clean transportation, and community engagement and communications respectively. They also helped develop and implement strategies for education and outreach to vulnerable, under-represented, and asset limited, income constrained, employed (ALICE) community partners through the new Clean Energy Wayfinders program.

- **Rebranding and Communications:** Also, key to the overall success of HSEO's ongoing mandated activities is enhanced messaging and communications infrastructure. HSEO worked with contractors to develop and implement a strategic communication plan in support of HSEO's mission and Hawai'i's clean energy goals.

HSEO refreshed its logo and overhauled its websites and email platforms to improve public outreach and community engagement. The merging of the Hawai‘i Clean Energy Initiative and HSEO websites, additional online community engagement software, and a robust energy data portal are intended to help people access information easier and stay informed on projects and programs.

PART 2 Ongoing Mandated Activities

Part 2 describes HSEO's ongoing activities in response to the directives established pursuant to HRS 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 Hawai‘i Clean Energy Initiative.

Part 2 sets forth these activities in fiscal year 2022 (FY22) 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."

Promoting Energy Efficiency

Solar Water Heater Variance Program

Hawai‘i Revised Statutes (HRS) Section 196-6.5, requires every single-family dwelling built after January 1, 2010 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. In the reporting period, the Hawai‘i State Energy Office updated the Life Cycle Cost Comparison form, calculations, instructions, and notes. The updated workbook will be reviewed with DBEDT's Research and Economic Analysis Division. The updated workbook accounts for the Inflation Reduction Act's increased renewable energy tax credit.

Promoting Renewable Energy

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. The 2021 tax year was the last year of availability for the tax credit under Section 235-110.31 of the Hawai‘i Revised Statutes.

In early 2022, HSEO collected the forms and issued the certificates required by HRS Section 235-110.31 for fuels produced during calendar year 2021. In compliance with the statute, HSEO reports the following:

1. The number of renewable fuel production facilities that have claimed the RFPTC for calendar year 2021: Three facilities.
2. The location of renewable fuels production facilities that have claimed the RFPTC for calendar year 2021:

- Facility 1: 16-240 Mikahala Street, Kea‘au, HI 96749
- Facility 2: 91-390 Kauhi Street, Kapolei, HI 96707
- Facility 3: 91-1000 Geiger Road, ‘Ewa Beach, HI 96707

The total amount of renewable fuel produced and sold in calendar year 2021 was 606 billion British thermal units (Btu). Amounts and types of fuels are shown in the table.

Facility	Type of Fuel	2020 Amount Produced (Btu)	2020 Amount Sold (Btu)
Facility 1	Biodiesel	658,692,405,750	542,910,800,477
Facility 2	Hydrogen	34,481,628,275	34,481,628,275
Facility 3	Renewable Natural Gas	29,145,440,800	29,145,440,800

3. The amount of renewable fuel projected to be produced and sold in calendar year 2022 is about 600 billion Btu. Since the tax credit under HRS 235-110.31 ended on December 31, 2021, none of the fuel produced and sold in 2022 will be eligible for that specific credit.

In 2022, a similar tax credit was enacted by Act 216, Session Laws of Hawai'i 2022 ("Act 216"). To qualify, taxpayers are required to produce and sell at least 2.5 billion British Thermal Units (BTU) of renewable fuel per year and submit a completed lifecycle analysis demonstrating the renewable fuel's lifecycle greenhouse gas emissions are less than fossil fuels. HSEO revised the required forms for fuels producers seeking to claim the RFPTC to meeting the requirements of Act 216.

A substantial change from the previous tax credit is the requirement that "the tax credit shall only be claimed for fuels with lifecycle emissions below that of fossil fuels." The Act further requires HSEO to "provide the taxpayer with a determination of whether the lifecycle greenhouse gas emissions for each type of qualified fuel produced is lower than that of fossil fuels." In 2022, HSEO published a Lifecycle Greenhouse Gas Emissions Assessment Guidance Document for fuel producers seeking the tax credit to understand the requirements and evaluation criteria of the completed lifecycle greenhouse assessment in accordance with Act 216.

Energy Training

HSEO is serving as the backbone organization for the Clean Energy and Skilled Trades sector of the Good Jobs Challenge grant to Hawai'i from the US Economic Development Administration. The project will empower Hawai'i residents to have access and opportunity to obtain the needed skills and certifications to design, build, and operate Hawai'i's clean energy future. This work follows and builds upon the work of Act 145, Session Laws of Hawai'i 2019, that directed the creation of "energy systems and technology training courses for county officers and employees" that attracted over 260 participants to 20 training sessions in 2021, and subsequent surveys of energy project developers, that identified a need and opportunity for Hawai'i residents in this area.

Promoting Clean Transportation

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 most emissions and must be broadly addressed 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.

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 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. HSEO has allocated $50,000 towards a public DC fast charger on Kauai, which currently has no publicly accessible DC fast charger.

Diesel Replacement Rebate (formerly Vehicle Assistance Program): HSEO signed a Memorandum of Agreement with Hawai'i Department of Health (HDOH) for the development and administration of the Diesel Replacement Rebate (DRR) to offer rebates to private and public fleet owners looking to replace medium-heavy duty diesel vehicles and equipment with zero emission equivalents. HSEO is responsible for the development and administration of the DRR 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 DRR. The program opened on October 29, 2021 and has received numerous applications. The program will re-open annually and plans to expand it's offering each year.

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 Oʻahu Transit Services. The City and County of Honolulu issued the RFP in fiscal year 2020 and awarded the contract in July 2020. The Vehicle was delivered in 2021 and replaced an existing diesel bus, thereby reducing the pollutants that residents are exposed to daily.

Hawaiʻi Zero Emission Bus Program: The HSEO is continuing to work with the State of HDOT, the County of Kauaʻi , the County of Maui, and the County of Hawaiʻi on a program to replace up to 12 MHD diesel buses with battery-electric zero-emission equivalents buses. HSEO working in collaboration with the partners are leveraging Volkswagen Settlement funds with Federal Transit Administration (hereinafter called "FTA") Low-No grant applications proposing to replace aging diesel transit buses that are beyond their useful life, with battery electric transit buses with supporting charging infrastructure. DOT can distribute FTA formula funds from FY 19, 20, & 21 as well as Low-No grants from 2018 and 2021 towards projects that replace diesel buses with electric buses.

Collaboration with Partners: HSEO coordinated Hawaiʻi's participation in the Multi-State Zero Emission Medium- and Heavy-Duty Vehicle Memorandum of Understanding (MDHD MOU) along with 17 other states, the District of Columbia, and Quebec. 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.

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 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. The Task Force developed 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). The plan was released in July 2022 after public input and stakeholder feedback.

Technical Assistance to Other Government Agencies

HRS Section 196-71 states that one of the primary responsibilities of the Energy Office is to, "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." HSEO collaborated on the following transportation energy efficiency activities with other government agencies: ." HSEO collaborated on the following transportation energy efficiency activities with other government agencies:

Oʻahu Mobility Hub Study:
The Commission received planning funds from the OahuMPO to conduct a mobility hub study on Oʻahu. This study will develop a plan for assessment of state parking facilities on Oʻahu that may be converted into multi-modal hubs. It proposes to identify and describe state parking facilities, including their utilization rates and evaluate and price various ways to make better use of these state assets in ways that encourage the use of low energy intensive transportation modes and mobility options.

HSEO is co-managing this study with the Commission. During the Annual Report period, HSEO worked with the Commission to write the scope of work used in the procurement process for a consultant. Work on this study began in October 2022. HSEO will continue to co-manage this study with the Commission, particularly by providing technical input on how recommended mobility hubs might best help to encourage the use of active and shared mobility modes.

State Smart Transportation Initiative Drivers of VMT and Priority Reduction Strategies Hawaiʻi:
The Commission initiated the Drivers of VMT and Priority Reduction Strategies Hawaiʻi Report. The report includes crucial data on VMT patterns and strategies to reduce VMT. HSEO assisted with the review and completion of the report.

Rocky Mountain Institute SHIFT Calculator Podcast: HSEO and the Commission coordinated and executed the Rocky Mountain Institute Shift Calculator Podcast, as part of the University of Hawaiʻi's Better Speaker Tomorrow Series. The podcast covered the SHIFT calculator, which measures induced demand and how we can build more livable, sustainable, and affordable communities by expanding transportation choices. HSEO participated in helping to select the moderator, write interview questions, select the title and marketing pictures, and record the podcast.

Shift Worker Transportation Demand Management Project: HSEO developed a proposal for HDOH in response to a funding opportunity from the EPA to improve air quality. The proposal includes technical assistance, support to various stakeholders, and community engagement to identify programs that will serve an often-forgotten segment

of the population in transportation planning, shift workers, particularly those traveling to/from rural and exurban communities. This project will develop transportation demand management strategies that improve transportation choices and address the operational inefficiencies of the transportation system for shift workers.

Achieving a Resilient, Clean Energy, Decarbonized Economy

Energy Assurance/Resilience

HSEO is the primary and coordinating agency for Emergency Support Function – 12 (ESF-12) and when activated responds to all hazard emergencies and provides energy subject matter expertise for emergency management. During activation, ESF-12 is staffed by members of HSEO's State Emergency Response Team (SERT) and Shortage Management Center (SMC) to coordinate response to energy issues. ESF-12 was last activated for the November 2022 eruption of Mauna Loa. A multi-year training and exercise plan (MYTEP) is important to maintain readiness and improve capabilities and capacity over time. HSEO has long required all staff to take foundational emergency management courses in WebEOC and SERT. HSEO also participates in the annual statewide hurricane exercise called Makani Pahili which is coordinated by HIEMA. In 2022, HSEO has been working with the U.S. Department of Energy (US DOE) to plan for and bring the US DOE's annual energy sector exercise Clear Path to Hawai'i in 2023. The exercise will improve response, coordination, and planning amongst local, State, and Federal agencies as well as with private sector industry stakeholders during a multi-day event that includes scenarios with cybersecurity threats, natural hazards, and a future 100% renewable energy system.

Planning
HSEO maintains and updates several plans related to Energy Assurance and Resilience and coordinates with other agencies in the update of plans within their purview. In 2022, HSEO submitted the State's Energy Assurance Plan to U.S. DOE for a review of all required elements of Energy Security Plans as required by IIJA. HSEO also updated the energy annex to the State Emergency Operations Plan, coordinated with the Office of Homeland Security on its Cyber Response Plan, and provided input on the update of the State Hazard Mitigation Plan.

Mitigation

- HSEO supports several activities with the purpose of pursuing funding for or directing investment toward energy hazard mitigation and resilience projects. HSEO again collaborated with Hawaiian Electric Company (HECO) to apply to FEMA's Building Resilient Infrastructure and Communities (BRIC) national

competition for a Critical Customer Hubs (CCH) project. A CCH is a micro-grid that can power proximate community lifeline facilities during a prolonged outage. This project was developed through a multi-year stakeholder engagement process with Koʻolaupoko community leaders, organizations, and residents.

- HSEO received FEMA Hazard Mitigation Grant Program funding to implement an Advance Assistance project for Oahu. Advance Assistance projects are for the purpose of collecting the data and information that will support better federal funding applications to programs such as BRIC. The project includes an inventory and map of Critical Energy Infrastructure (CEI) and Community Lifeline Key Customers (CLKC) with identified dependencies, a comprehensive risk analysis of CEI from threats/hazards, and the identification of and framework for selecting energy hazard mitigation projects. Information collected will also support the development of an energy common operating picture (COP) that can be used during response and planning activities. This project kicked off in 2022 and is on track to be completed in summer 2023. HSEO has also applied for a second Advance Assistance project to carry out the same work for the counties of Kauai, Maui, and Hawaiʻi and complete a statewide energy COP.

- HSEO was designated the sole entity in the State of Hawaiʻi to administer and allocate funding for grid resiliency under IIJA Section 40101(d). The state will receive approximately $15M over 5 years through this program to make investments that mitigate outages through measures to make the grid more resilient to all hazards. HSEO hosted a public information session to collect feedback on its plan to disburse funds. HSEO submitted to U.S. DOE its plan to distribute funds by county leveraging the localized selection criteria and framework that will be developed under the Advance Assistance projects.

PART 3 Energy Program Administration and Funding

Introduction

HSEO operates under a working organizational structure with statutory responsibilities assigned to branches given the integrated nature of the statutory objectives and activities.

The formal reorganization of HSEO pursuant to Act 122, Session Laws of Hawai‘i 2019, is still pending because of year-over-year budget and staffing reductions.

Act 122 established the following mission for HSEO: “The purpose of the Hawaii state energy office shall be to promote energy efficiency, renewable energy, and clean transportation to help achieve a resilient clean energy economy.” Act 122 created Hawai‘i Revised Statutes (HRS) Sections 196-71 and 196-72, and in so doing established the above mission, created the Chief Energy Officer position, amended numerous other statutes in addition to HRS Chapter 196, and removed the HSEO’s discretionary use of the Energy Security Special Fund (ESSF), among other changes.

The pending reorganization will incorporate Act 122 and the flexibility of exempt positions into five groups:

- Administration (Admin),
- Operations (Ops),
- Community Engagement and Public Affairs (CEPA),
- Energy Efficiency and Renewable Energy (EERE), and
- Resilience, Clean Transportation, and Analytics (RCA).

Each branch is assigned a team of employees with knowledge, skills, and abilities relevant to the scope of objectives assigned to the branch. The Chief Energy Officer, Deputy Energy Officer, and branch managers regularly assign priorities and staff to complete work, including when work requires cross-branch synergy and designating a lead branch for a particular effort, which is frequent.

Act 88, Session Laws of Hawai‘i 2021, appropriated $1,958,082 in FY22 General Funds for HSEO’s positions and operating costs, 24.6% less than FY21’s appropriation. The position ceilings allocated by Act 88 included 2.0 permanent positions and 20.0 temporary positions; however, 2 of the temporary position were unfunded. $500,000 in Special Funds was appropriated from the ESSF to provide funds to leverage federal grant funding. Special Funds to pay special fund assessments mandated pursuant to Sections 36-30 and 36-27, HRS were not approved.

To provide adequate staffing for HSEO activities and programs, four temporary 100% federal funded positions were established and filled during FY22. Although not sustainable, the positions are essential to fill critical ongoing needs.

- An Energy Assurance Specialist was hired to provide professional and technical program and project staff support related to the energy assurance and energy emergency response mission, functions, and responsibilities of the State Energy

Office to conform with relevant laws, policies, rules, and guidance. The position supports the HSEO Chief Energy Officer's and the DBEDT Director's roles in energy assurance and emergency management.

- An Outreach & Community Engagement Specialist was hired to coordinate the development and implementation of a program to advance Hawai'i's clean energy goals and create jobs for a new generation of clean energy leaders and provide communications and technical support for HSEO's broader community outreach and engagement efforts.

- A Transportation Energy Specialist was hired to interface with stakeholders at the Legislature, State departments, County agencies, Federal partners, industry, and other stakeholder groups ensuring coordination of clean transportation efforts with the overarching state energy policy; ensures follow-up communication with businesses, energy developers, researchers, and the public; ensures accuracy, clarity and timeliness of information, data, and updates provided in presentations, publications, and online; answers questions about Hawai'i's energy objectives, opportunities, permitting requirements, laws, incentives, organizations and information resources; coordinates updates to energy databases, web pages, data reports, and training information.

- HSEO also hired an Energy Grants Specialist to perform a wide range of functions related to coordinating HSEO's grant activities. This includes developing funding applications and managing the financial aspects of grant awards including researching and analyzing funding sources, writing project descriptions and performance measures, monitoring grant spending and performance compliance, and preparing analyses and reports.

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, with specialized knowledge of U.S. Department of Energy programs; 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.

State Funds

Energy Security Special Fund

The Energy Security Special Fund was created in 2008 to support Hawai‘i’s clean energy initiative programs and projects that promote and advance dependable and affordable energy, renewable energy, energy efficiency, energy self-sufficiency, and greater energy security and resilience for the State and public facilities. In FY20, when General Funds were appropriated for HSEO’s positions and operating expenses, the ESSF expenditure ceiling was eliminated.

In FY22, ESSF revenue from the Environmental Response, Energy, and Food Security Tax (“Barrel Tax”) was $1,111,061, 8.2% less than FY21’s revenue. The reduced revenue is a consequence of Act 75, SLH 2021, which cut the ESSF’s Barrel Tax allocation from 5 cents to 4 cents per barrel. The projected annual accrual of this fund at 4 cents per barrel is $1,040,000.

An ESSF expenditure ceiling of $500,000 was approved for FY22 to provide funds to leverage federal grant funding. This enabled HSEO, as a grant subrecipient for an award from the Federal Emergency Management Agency, to provide the working capital for eligible project costs. The ESSF expenditure ceiling allowed HSEO to contract for the development of prioritized energy mitigation strategies for critical O‘ahu facilities to help communities become more energy resilient to hazards. Expenditures from the ESSF will be reimbursed with federal funds from HI-EMA. Without the upfront expenditure of ESSF monies, HSEO would not have been able to execute the federal grant and would have forfeited $600,000 in federal 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 FY22 was $425,100, 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 FY22, including prior year allocations, were $654,716. HSEO funds a temporary Energy Assurance Specialist position and a temporary Energy Grants Specialist position using SEP Formula funds.

FEMA Hazard Mitigation Grant Program – HI-EMA Subaward

HSEO received a subaward from the Hawai‘i Emergency Management Agency for a project entitled “Advance Assistance, Energy and Critical Infrastructure Vulnerability and Resilience Assessment.” In FY22, HSEO contracted for the conduct of a comprehensive

inventory and risk, vulnerability, and dependency assessment of O‘ahu’s major energy supply distribution, and demand networks.

USDOE Community College Energy Code Training Program – Subaward

HSEO received a subaward from the University of Illinois for a project entitled “Community College Energy Code Training Program.” The University of Illinois, in collaboration with State Energy Offices in Illinois, Nevada, and Hawai‘i will carry out a program for instructors at community colleges to provide hands-on workforce training to implement and verify energy efficiency codes.

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

In 2016, the USDOE allowed states to repurpose remaining funds in their ARRA financial program toward other eligible SEP activities. USDOE approved HSEO’s use of funds for clean transportation; policy, planning, and energy security; technical assistance; and energy analytics. In FY22, HSEO administered $1,126,732 of SEP-ARRA repurposed funds with expenditures of $443,758. HSEO funds a temporary Data Science Specialist position and a temporary Energy Analyst position using SEP-ARRA funds.

Energy Efficiency & Conservation Block Grant – Repurposed

USDOE also allowed states to repurpose remaining funds in their EECBG financing program toward other eligible EECBG activities. USDOE approved HSEO’s use of funds for financial incentives for energy efficiency; energy efficiency and conservation programs for buildings and facilities; building codes and inspection services; and sustainable transportation. In FY22, HSEO administered $2,475,629 of EECBG repurposed funds with expenditures of $146,712. HSEO funds a temporary Outreach and Community Engagement Specialist position and a temporary Transportation Energy Specialist position using EECBG funds.

Petroleum Violation Escrow Funds

Beginning in 1983, additional funds became available to states because 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 $304,671 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 (VW) 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 FY22 were $292,004. HSEO funds a temporary Clean Transportation Analyst position using VW funds.

U.S. Climate Alliance

The U.S. Climate Alliance, through the United Nations Foundation, awarded a grant to HSEO to provide capacity to work on Vehicle Miles Traveled (VMT) reduction strategies and state fleet conversion. In FY22, HSEO administered $290,000 of U.S. Climate Alliance funds with expenditures of $46,500. HSEO funds a temporary VMT/Active Transportation Specialist position using U.S. Climate Alliance funds.

Hawai‘i Natural Energy Institute – Agreement for Services

In 2019, HSEO entered into an agreement to provide services to the Hawai‘i Natural Energy Institute (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.

Energy Program Funding Tables

The following tables are provided: Table 2: Expenditures from the Energy Security Special Fund, pursuant to HRS Section 201-12.8; Table 3: Hawai‘i Clean Energy Initiative Program – Fiscal Year 2022 Spending Plan, pursuant to HRS Section 196-10.5; and Table 4: Administratively Established Accounts of Funds as of June 30, 2022, pursuant to HRS Section 37-52.5.

Table 2: Expenditures from the Energy Security Special Fund

ENERGY SECURITY SPECIAL FUND	Actual FY2022	Projected FY2023
BEGINNING FUND BALANCE	**1,767,988**	**2,718,555**
REVENUES		
Environmental Response, Energy and Food Security Tax	1,111,061	1,040,000
Investment Pool Interest	12,606	10,000
Solar Water Heater Variance Fees	16,966	10,000
Other	59,934	-
TOTAL REVENUES	**1,200,567**	**1,060,000**
EXPENDITURES		
Hawaii State Energy Office Operations:		
Special Fund Assessments	-	65,000
Programs	150,000	500,000
TOTAL EXPENDITURES	**150,000**	**565,000**
TRANSFERS		
PUC Special Fund (Act 75, SLH 2021)	100,000	-
NET TRANSFERS	**100,000**	**-**
ENERGY SECURITY SPECIAL FUND BALANCE	**2,718,555**	**3,213,555**

Pursuant to Section 201-12.8, HRS

Table 3: Hawaii Clean Energy Initiative Program
Fiscal Year 2023 Spending Plan

ANNUAL SPENDING PLAN

	State Funds	Other Funds	Total
Hawaii State Energy Office Operations	2,216,673	1,065,540	3,282,213
Programs and Projects	565,000	4,040,211	4,605,211
TOTAL	2,781,673	5,105,751	7,887,424

Spending plan is based on anticipated spending levels for FY23

FUNDING SOURCES:

State Funds			
General Funds	2,216,673		2,216,673
Energy Security Special Fund	2,718,555		2,718,555
Federal Funds			
DOE - State Energy Program - Program Year 20		378,719	378,719
DOE - State Energy Program - Program Years 21/22		507,801	507,801
DOE - Energy Efficiency & Conservation Block Grant *		300,000	300,000
DOE - SEP American Recovery & Reinvestment Act *		385,951	385,951
FEMA - Advance Assistance		300,000	300,000
DOE - Community College Energy Code Training		33,280	33,280
Trust Funds			
VW Settlement Trust Funds		3,100,000	3,100,000
US Climate Alliance Grant		100,000	100,000
TOTAL FUNDS	4,935,228	5,105,751	10,040,979

* Repurposed ARRA Funds

Table 4: Administratively Established Accounts or Funds
As of June 30, 2022

APPROPRIATION ACCOUNT/TITLE	MOF	REVENUE	EXPENDITURES	ENCUMBRANCES	ENDING BALANCE	
S-17-216 STATE ENERGY PROGRAM-ARRA REPURPOSE	N	1,670,868	830,813	230,669	840,056	✓
S-17-516 HI ADV VISUALIZATION ENVIRONMENT NEXUS	P	215,147	215,147	-	-	✓
S-17-518 EECBG - ARRA REPURPOSE	P	2,765,945	335,312	264,357	2,430,632	✓
S-18-255 STATE ENERGY PROGRAM	N	858,900	779,483	378,590	79,416	✓
S-22-235 CC ENERGY CODE TRAINING PROGRAM	P	-	-	-	-	
S-22-502 FEMA ADVANCE ASSISTANCE	P	-	-	-	-	
S-22-503 POWERING PAST COAL TASK FORCE	V	-	-	-	-	
T-20-910/T-21-910/T-22-910 VW DIESEL EMISSIONS ENVIRONMENTAL MITIGATION TRUST-NON-ADMIN EXP	T	6,933,135	195,574	-	6,737,561	✓

MOF = Means of Financing
N = Federal Funds
P = Other Federal Funds
T = Trust Funds

Pursuant to Section 37-52.5, HRS

Table 5 - HSEO Goals, Plans and Measurements

HSEO Topic	Topic Code	Priority Objectives and Policies	1-year Actions (July 1 2022-June 30 2023)	2-year Actions	5-year Actions	Measure Performance
Decarbonization	All (RCA and EERE SME lead)	Analyze pathways and develop recommendations for achieving the State's economy-wide decarbonization goals, including the statewide greenhouse gas emissions limit and goal to sequester more atmospheric carbon and greenhouse gases than emitted by no later than 2045 pursuant to section 225P-5, Hawaii Revised Statutes and in accordance with Act 236 (2022) and HRS 342B-71 (Statewide greenhouse gas emissions limit).	Procure and contract necessary expertise to conduct the studies needed to inform the decarbonization study to fulfill the requirements of Act 238. Contract work will include 1) updates to scenario modeling tool(s) to reflect the most recent State GHG emissions inventory data, 2) developing reference scenarios for existing policies, and 3) recommendations for how to mitigate impacts to communities including the mechanisms to facilitate a transition to a decarbonized economy. The contracts will assess the cost-effectiveness of pathways. The project studies will include other relevant considerations as deemed appropriate and necessary.	Conduct stakeholder and community outreach engagement. Work with stakeholders to finalize the study and develop recommendations for policy actions and mechanisms to achieve decarbonization pursuant of HRS 225P-5 and HRS 342B-71. Submit final report to legislature. Conduct community outreach activities.	Continue stakeholder and community outreach and engagement activities. Develop and recommend policy actions as recommended by the study to achieve short term and long term goals. Coordinate with stakeholders from all emitting sectors. Identify and pursue federal funding opportunities to support relevant activities.	Implementation of the policies and mechanisms as recommended in the Decarbonization study completed in year 2. Measured reduction in greenhouse gas emissions as measured in the State greenhouse gas inventory completed by DOH. Continued progress toward renewable energy and clean transportation goals.
Hydrogen Hub	All	The Integrated Hawaii Pacific Hydrogen Hub concept is to establish an integrated hydrogen ecosystem across the Hawaiian Islands that builds on Hawaii's unique geography and renewable energy resources as well as the energy security and national security roles Hawaii provides for the United States in the Asia-Pacific region as the host of the Indo-Pacific Command and regional headquarters for six uniformed services. The DOE is seeking applications to establish 6-10 regional clean hydrogen hubs nationwide to create a network of hydrogen producers, consumers, and connective infrastructure to accelerate the use of clean hydrogen across the economy. Winning proposals will receive as much as $1 billion to implement their strategies.	Develop a full application for a multi-year $1 Billion hydrogen hub project. The U.S. Department of Energy reviewed the initial concept and encouraged the 21-member consortium headed by HSEO to submit a full application due April 7, 2023.		Implement plan	
Stakeholder and Community Education, Outreach and Engagement	CEPA 01	Maintain and enhance 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 collaborative voice in the energy transition.	Continue implementing the comprehensive stakeholder engagement, strategic communications and marketing plan (Energize Kakou). Launched an integrated HSEO website including an online community engagement platform and featuring accessible and portable data. Continue building out the Clean Energy Wayfinder workforce development and community engagement program with the second cohort beginning in Q1 2023. Continue implementing the Ameri-Corps VISTA Energy Equity workforce development and capacity building program. Continue implementing strategic communications plan using email, digital and social media, and sponsorship/partnerships to inform and educate residents about clean energy, energy efficiency and affordability measures, clean transportation, energy assurances and resilience/reliability measures.	Continue statewide facilitated, community-based workshops. Secure dedicated funding support for Clean Energy Wayfinders workforce development and community engagement program. Maintain integrated HSEO website and increase availability of relevant data, and community-based online engagement tools. Assess and improve strategic communications plan using email, digital and social media, and sponsorship/partnerships to inform and educate residents about clean energy, energy efficiency and affordability measures, clean transportation, energy assurances and resilience/reliability measures.	Develop and grow stakeholder 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.	Increasing stakeholder engagement and public awareness as measured by relevant website and digital media performance metrics. Solicited feedback from stakeholders and community members on the value provided by the improved communications, outreach and engagement.
Stakeholder and Community Education, Outreach and Engagement	CEPA 02	Implement Statewide Clean Energy Public Education and Outreach Program in coordination with Hawaii's Institutions of Public Education expands and develops clean energy professional development and classroom curricula and toolkits and provide professional development credits for Hawaii DOE educators.	Complete K-12 curricula and toolkits and provide professional development credits for HDOE educators, in collaboration with the HDOE. Assess Clean Energy Education Program impacts and apply for additional federal funding support if needed. Expand the Clean Energy Education program to additional schools. Update and expand curricula.	Assess Clean Energy Education Program impacts and apply for additional federal funding support if needed. Expand the Clean Energy Education program to additional schools. Update and expand curricula.	Reassess HDOE Clean Energy Public Education Program to determine ongoing needs.	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.

Table 5 - HSEO Goals, Plans and Measurements

HSEO Topic	Topic Code	Priority Objectives and Policies	1-year Actions (July 1 2022-June 30 2023)	2-year Actions	5-year Actions	Measure Performance
Stakeholder and Community Education, Outreach and Engagement	CEPA 03	Develop energy equity measures and framework to support state, county, and stakeholder activities. Provide support and tracking for federal-funded programs requiring adherence to "EJ 40" benefits. Work closely with stakeholders to develop and implement policies, programs, and measures that address full range of energy and climate equity/equality/justice and energy affordability issues.	Add federal-funded position to help coordinate activities and outcomes of the Energy Equity Hui (100+ stakeholder group actively engaged in equity, affordability, and clean energy in Hawai'i). Develop and implement consistent application of energy equity definition and measures to support partner programs. Develop Hawaii-centric resources and mapping tools that improve Hawaii's access to federal program funds.	Ongoing coordination of activities and outcomes of the Energy Equity Hui. Develop and implement consistent application of energy equity definition and measures to support partner programs. Implement and improve Hawaii-centric resources and mapping tools that improve Hawaii's access to federal program funds.	Assess state of energy equity policies and programs and determine ongoing needs.	Implementation of policies and programs identified by the Energy Equity Hui. Success of, and feedback received from, federal grant competitive grant applications related to specific energy equity and EJ 40 measures.
Renewable Energy Deployment	EERE 01	Support timely review and implementation of near-term renewable energy and battery storage projects (including the Stage 1, 2, and 3 RFP and CBRE) as well as distributed energy resources (rooftop solar) applications to provide needed energy and capacity as fossil facilities are retired (including Hawai'i's last coal plant (2022) and fossil-fueled generating units (2023-2045). Lead the ongoing efforts of the Powering Past Coal Task Force (PPCTF) and other established working groups aimed to ensure timely review, construction, and energization of approved projects.	Communicate with renewable energy project developers and permitting agencies to maintain awareness of development timelines, anticipated issues, and other topics as they arise. Support the agencies permitting these projects to encourage timely permitting (e.g., RFP for consultant to assist the City and County of Honolulu Department of Planning and Permitting). Continue to support improvements in renewable energy project deployment. Explore updating existing HSEO resources (Permit Wizard, EnerGIS, Energy Directory).	Communicate with government agencies and project developers to maintain awareness of issues, concerns, and processing timelines. Monitor progress of projects toward commercial operations and critical paths within the control of state and county government. Proactively address issues that arise. Identify dedicated funding to continue staff and government agency (including county) support. Update existing resources as needed (includes sourcing funds and procurement).	Continuously improve processes associated with approvals, siting, construction, and financing of cost-effective renewable energy projects. Leverage state funds to obtain federal funds. Evaluate success for potential modification or replication.	Support given to permitting, construction, and operation of renewable energy projects, both small and large, including improving processes for planning and appropriate siting. Number of projects supported or facilitated. Number of concerns addressed. Successful retirement of fossil fuel plants across the state. Timely development of replacement renewable energy.
Renewable Energy Deployment	EERE 02	Inform and advance the siting and permitting of renewable energy projects with longer lead times (e.g., geothermal, offshore wind, pumped hydropower, hydrogen, fuels) and later procurement cycles. Identify knowledge gaps, areas of concern, and regulatory barriers to implementation. Where necessary, advocate for policies and/or mechanism to overcome the gaps and address concerns and barriers. Serve as a partner agency for federal funding opportunities.	Provide input on key county and state policies (e.g., on-shore wind setbacks, real property taxation). Support HNEI / UH studies (e.g. waste solar panels, bioenergy, geothermal, hydrogen, ocean, grid, etc.). Coordinate with US Bureau of Ocean Energy Management, the Sanctuary Advisory Council, and others on offshore wind due diligence. Conduct needs assessments and outreach with renewable energy developers, consultants, regulators, permitting agencies, community members, and others to identify potential project siting and permitting needs. Evaluate HSEO's existing tools (e.g., Permitting Wizard, EnerGIS). Seek Federal and National Laboratory support. Apply for grants. Contract for services. Provide policy and assessment recommendations to other entities.	Continue to manage contracts and assessments identified in Year 1. Provide input on key policies (e.g., on-shore wind setbacks, real property taxation, solicited RFI's, utility procurement proposals, fuels, customer-sited systems). Apply for, implement, and distribute grant funding.	Continue to provide needed services, conduct assessments, and provide input on key policies. Sustain long-term renewable energy progress. Perform/support studies as needed (e.g., resource, technology, and financing assessments; hydrogen and energy storage; pumped hydro evaluation; co-product analyses; etc.).	Leverage of state and private funds to obtain federal funds. Number of projects supported or facilitated. Number of resource assessments conducted. Number of policies reviewed. Number and quality of solutions identified.
Renewable Energy Deployment	EERE 03	Identify potential opportunities for residential rooftop solar deployment and market adoption, to include: financing programs, rebate and tax credit programs, including the Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA). Act as a resource for Hawaii taxpayer on federal and state residential solar tax credit inquiries.	Conduct ongoing assessment and evaluation of federal funding opportunities through the IIJA and evaluate the extension and modifications to the IRA with reference to rooftop solar tax credits, rebates and incentives. Identify barriers to Hawaii's rooftop solar penetration. Work in collaboration with the Hawaii Green Infrastructure Authority, Hawaii Solar Association and Hawaii Energy to leverage programs and partnerships for residential rooftop solar program deployment. Provide counsel and information to Hawaii taxpayers on federal and state solar tax credits, rebates and amendments per the IRA.	Continue ongoing assessment, evaluation and partnership deployment of program opportunities and incentives through county, state, and federal rooftop solar programs and initiatives.	Continued successful installation of customer-sited energy systems, including solar, energy storage, demand response, and other grid interactive technologies supportive of on-site energy production and statewide energy reliability and resilience.	Programs and projects supported; federal/state dollars leveraged to support solar programs; number of taxpayers assisted (solar tax credit call center)
Renewable Energy Deployment	EERE 04	Administer Solar Water Heater Variance (SWHV) program	Review, refine and update applications and forms. Receive, review, and process applications.	Review, refine and update forms. Receive, review, and process applications.	Review, refine and update forms. Receive, review, and process applications.	Meet HSEO obligations

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Renewable Energy Deployment	EERE 05	Administer Renewable Fuels Production Tax Credit (RFPTC), Act 216, SLH 2022 ("Act 216").	Create application process and procedures for taxpayers under Act 216, including: forms for Notice of Intent and Third-Party Validation; outline Lifecycle Analysis (LCA) requirements, create and provide LCA guidance instructions and post on HSEO website. Verify and clarify Act 216 terms and conditions with AG. Receive, evaluate and review applications. Conduct LCA review, establish baseline fuel comparisons, determine qualification for certification, issue certificates.	Review, refine and update applications and forms. Receive, review applications and conduct LCA review, update fuel comparisons, make determinations of qualification based on data provided by taxpayer applications on annual basis. Report to legislature annually.	Review, refine and update online applications and forms. Receive, review applications and conduct LCA review, update fuel comparisons, make determinations of qualification based on data provided by taxpayer applications on annual basis. Report to legislature annually.	Meet HSEO obligations, annually, as outlined under Act 216.
Renewable Energy Deployment	EERE 06	Perform HSEO's duties as lead for the Clean Energy sector under the Good Jobs Challenge (Federal) grant in partnership with the University of Hawaii Community Colleges.	Workforce Development Program startup including recruitment, outreach to energy and skilled trades sector employers, identification of sector needs including training and wraparound services, and completion of phase 1 plan.	Identify and provide training courses and materials. Support job placement and promotion. Track progress.	Continue 2-year Actions through duration of three year grant period; develop follow-on plans for next steps and expansion, working with employers. Good-paying local jobs are expected to increase in the Clean Energy and Skilled Trades sector.	Number of people trained; apprenticeships or placements into clean energy employment, including promotions.
Energy Efficiency	EERE 07	Provide leadership and support to reduce the net energy used by State government facilities. Act 239, Session Laws of Hawaii 2022 ("Act 239"): (a) requires state facilities, with the exception of smaller facilities, to implement cost-effective energy efficiency measures; (b) directs HSEO to collect all state-owned facilities' utility bill and energy usage data and make this data publicly available; and (c) beginning July 1, 2023, requires, where feasible and cost-effective, the design of all new state building construction to maximize energy and water efficiency and energy generation potential and to use building materials that reduce the carbon footprint of the project.	Using recent energy usage data and the 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 all state agencies to save more than 56 million kilowatt hours annually— equivalent to saving more than $25 million annually using current electricity rates. Additional savings are possible from operational and Strategic Energy Management measures. Work with the Public Benefits Fee Administrator to target and provide rebate and incentives information to Tier 1 and 2 agencies. HSEO collects through READ, utility bill and energy usage data for state-owned facilities and the data is posted on the state's energy data portal. Notify all agencies of the requirements under Act 239 related to existing as well as new facilities.	Identify "Tier 2" State facilities with energy efficiency retrofit potential and likely candidates for ESPC or other financing options. For both Tier 1 and Tier 2 facilities, identify demand response or other potential tariff /aggregator participation options to reduce State agency energy (electricity and fuel) costs. Seek Federal funding and other support for the stated objective of maximizing energy and water efficiency and energy generation potential and to use building materials that reduce the carbon footprint of the project.	Provide assistance to support government agencies in financing energy efficiency and cost reductions via operational changes, energy savings performance contracts, or other financing mechanisms. Hawaii Revised Statutes, Section 196-30, also requires that every five years, major facilities be "retro-commissioned."	Meet HSEO obligations as outlined in Act 239; collection and posting of data on energy use of state facilities; progress towards meeting objectives.
Energy Efficiency	EERE 08	Energy Code Updates, Working Group, and Training. Pursuant to HRS Section 107-22(4), HSEO is a voting member of 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.	Provide training on the 2018 IECC and State and County Amendments. Conduct 2021 IECC Working Group meetings to discuss industry, code official and other stakeholder concerns. Adopt the amended 2021 IECC at the state level and assist counties in adopting amended 2021 IECC at the county level. Distribute PNNL (National Laboratory) studies of savings projections of the 2021 IECC. Expand the list of appliances covered by appliance energy efficiency standards.	Provide training on the 2021 IECC and State and County amendments. Draft Hawaii amendments to 2024 IECC. Assist community groups and community colleges residential energy auditing, solar/battery installations, and cool wall applications. Assist community groups working in low-income areas re energy audits, installation of high-efficiency lights and water fixtures, high-efficiency water heaters, cool roofs and walls, and energy efficient ventilation measures.	Adopt the amended 2024 IECC as a state code. Assist counties with adoption of the amended 2024 IECC at the county level. Provide training on the 2024 IECC. Continue assistance to community groups working in low-income areas re: energy audits, installation of high-efficiency lights and water fixtures, high-efficiency water heaters, cool roofs and walls, ceiling fans, and efficient appliances. 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.	Timely updates (Hawaii amendments) to the International Energy Conservation Code, which is amended every 3 years. Adoption at the State level. Adoption at the County level. Meetings of the SBCC. Training and the number of trainees that attend informational events on the updated versions of the IECC.
Energy Efficiency	EERE 09	Hawaii Green Business Program - Pursuant to HRS 196-71(b)4, HSEO is directed to engage private sector to lead clean energy efforts.	Recruit participant organizations and provide technical assistance and training. Conduct forums and recognition ceremony to promote businesses and organizations that are leaders in energy efficiency, renewable energy and clean transportation. Expand outreach and participation in the Hawaii Green Business Program to small and rural businesses in the state.	Continue to collaborate with other organizations, the Clean Energy Wayfinders and VISTAs to reach more small and rural businesses and organizations on Oahu and the Neighbor Islands to increase participation in the Hawaii Green Business Program.	Pursue federal and other funds to support the expansion and growth of the Hawaii Green Business Program.	Number of businesses that are recruited, participate and are recognized in the Hawaii Green Business Program (HGBP). Energy, water and waste reduction metrics from each year's awardees.

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Federal Grant Opportunities	All	Apply for and administer Federal funding directed to Hawai'i for energy efficiency and renewable energy, including from the CARES Act, IIJA, IRA, EECBG, and other relevant programs.	Track funding opportunities. Identify potential sources of matching funds where necessary or advantageous to Hawaii. Coordinate with participant organizations in applications for Federal funding of energy efficiency and renewable energy. Submit and accept applications, concept papers, and responses to Requests for Information in compliance with State procurement requirements.	If projects advantageous to Hawai'i are identified and funding and partners are available, coordinate and support applications, consistent with Hawai'i's procurement requirements. If grants or cooperative agreements are provided, carry out the projects.	If projects advantageous to Hawai'i are identified and funding and partners are available, coordinate and support applications, consistent with Hawai'i's procurement requirements. If grants or cooperative agreements are provided, carry out the projects.	Identification and pursuit of opportunities; successful application for and management of funds; achieving the objectives set forth in the grants and agreements.
Energy Assurance and Resiliency	RCA 01	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.	Coordinating with US DOE Cybersecurity, Energy Security, and Emergency Response on an annual multi-day, energy-specific tabletop exercise (Clear Path XI) hosted in Hawaii and including national and local stakeholders. The third day of the exercise will explore energy security and emergency response in a 100% decarbonized economy; identify and obtain funding for a second position to support energy assurance operations and training. Develop a multi-year training and exercise program for SERT/ESF 12.	Implementation of multi-year 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	RCA 02	Develop an Energy Common Operating Picture (COP) for both energy assurance and resiliency planning and emergency response.	Implement Advance Assistance grant assessing Oahu's energy supply chain 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.	Implement Advance Assistance grant assessing Oahu's energy supply chain 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 and Resiliency	RCA 03	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 and for Building Resilient Infrastructure and Communities (BRIC) grant; coordinate and strengthen statewide BRIC applications relating to energy.	If awarded BRIC grant, implement grant. Develop applications for projects identified in the Advance Assistance grant under the BRIC program.	Develop a self sustaining pipeline for energy resiliency investments in Hawaii 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.
Clean Transportation	RCA 04	Advance investment in clean transportation infrastructure and vehicle adoption throughout Hawaii 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 second year of the Diesel Replacement Rebate (DRR) for zero emission medium and heavy duty vehicle rebates funded through the Volkswagen Settlement fund and DERA updated to incorporated hydrogen vehicles. Refine deployment plan for the investment of the remaining EV charging infrastructure dollars taking into account current and upcoming federal funds. Continue the Zero Emission Bus Project with the counties.	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 and disperse EV funds.	Deploy all Volkswagen Settlement funds except for the final year of DRR 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.	