REPORT TO THE THIRTY-SECOND LEGISLATURE

STATE OF HAWAII

REGULAR SESSION OF 2024

# HAWAII CLIMATE CHANGE MITIGATION AND ADAPTATION COMMISSION

Prepared by

Department of Land and Natural Resources

State of Hawaii

In response to Section 225P-3(k), Hawaii Revised Statutes

October 2023

# ANNUAL REPORT

2023

## HAWAI'I CLIMATE CHANGE MITIGATION AND ADAPTATION COMMISSION

HAWAI'I CLIMATE COMMISSION

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# HAWAI'I CLIMATE CHANGE MITIGATION AND ADAPTATION COMMISSION MEMBERS AND STAFF

## COMMISSION CO-CHAIRS

**DAWN CHANG** - Chairperson of the Department of Land and Natural Resources
**MARY ALICE EVANS** - Director of the Office of Planning and Sustainable Development

## COMMISSION MEMBERS

**JAMES KUNANE TOKIOKA** - Director of the Department of Business, Economic Development, & Tourism
**BLAINE MIYASATO** - Chairperson of the Board of Directors of the Hawai'i Tourism Authority
**SHARON HURD** - Chairperson of the Board of Agriculture
**STACY FERREIRA**- Chief Executive Officer of the Office of Hawaiian Affairs
**KALI WATSON** - Chairperson of the Hawaiian Homes Commission
**ED SNIFFEN** - Director of the Department of Transportation
**KENNETH FINK** - Director of the Department of Health
**WARREN HARUKI** - Chairperson of the Board of Education
**DAWN TAKEGUCHI APUNA** - Director of the City and County of Honolulu, Department of Planning & Permitting
**KATHLEEN AOKI** - Director of the County of Maui, Department of Planning
**ZENDO KERN** - Director of the County of Hawai'i, Department of Planning
**KA'ĀINA S. HULL** - Director of the County of Kaua'i, Department of Planning
**MIKE GABBARD** - Chair of the Senate Committee on Agriculture & Environment
**LORRAINE INOUYE** - Chair of the Senate Committee on Water & Land
**NICOLE E. LOWEN** - Chair of the House Committee on Energy & Environmental Protection
**LINDA ICHIYAMA** - Chair of the House Committee on Water & Land
**MAJOR GENERAL KENNETH S. HARA** - The Adjutant General
**JUSTINE NIHIPALI** - Manager of the Coastal Zone Management Program

## COMMISSION STAFF

**LEAH LARAMEE** - Coordinator

**Website: Climate.hawaii.gov**
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# MISSION AND PRIORITY STATEMENTS

**Mission Statement:** Hawai'i's Climate Commission recognizes the urgency of climate threats and the need to act quickly. It promotes ambitious, climate-neutral, culturally responsive strategies for climate change adaptation and mitigation in a manner that is clean, equitable and resilient.

**Priority Statement: Mitigation**[1] The Commission recognizes that ground transportation contributes significantly to Hawai'i's share of greenhouse gas emissions. It supports a price on carbon, and mechanisms to reduce overall vehicle miles traveled, as well as converting all remaining vehicle-based ground transportation to renewable, zero-emission fuels and technologies.

**Priority Statement: Adaptation**[2] The Commission recognizes the serious impacts of sea level rise on Hawai'i. It supports legislation to address development along beaches, as well as funding programs that assist in planning and implementation; urges the incorporation of the sea level rise exposure area into counties' general and development plans; and recommends that agencies identify and prioritize their assets that lie within this area.

**Priority Statement: Guidance for Investment in Resilient Infrastructure**[3] The Commission emphasizes that nature-based solutions, green infrastructure, and carbon-smart practices must be implemented now and prioritized in all planning and future actions as part of a climate ready Hawai'i. By doing so, it supports State sustainability and climate resiliency which provide a multitude of economic, environmental, and social co-benefits.

**High Impact Actions:** As part of the 25-governor U.S. Climate Alliance, Hawai'i has committed to specific and new High Impact Actions that will accelerate greenhouse gas emission reductions and drive the real, impactful implementation and results needed to make the U.S. climate targets a reality. These priority areas include: Power, Buildings, Industry, Transportation, Just Transition and Equity, Resilience, Natural and Working Lands, and the Social Cost of Greenhouse Gases. Commission members' HI Impact Actions - over seventy in all, and continually increasing - are listed on the Commission's website under the categories of equity, mitigation, adaptation, sequestration and resilience, mirroring the Commission's statement on resilient infrastructure. As climate change continues to pose an existential threat, Hawai'i helped ratchet up ambition abroad at the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP), and buckled down to work on adaptation actions at home. Hawai'i's Climate Commission also aims to continue coordinating actions being undertaken to limit warming to under 1.5°C.

**High Impact Actions include:**

100% net-zero operating emissions government buildings by 2030.

100% zero emission vehicles (ZEV) new light-duty sales by 2035.

100% zero-emission light-duty public fleets by 2035.

100% zero-emission public/government-owned transit bus fleets by 2030

100% zero-emission medium & heavy-duty public fleets by 2040, where technically feasible.

Promote sustainable communities that provide a range of affordable housing and transportation options that increase access to opportunity and reduce vehicle miles travelled (VMT).

Empower disadvantaged communities and foster leadership to develop climate/clean energy solutions and policies through training, facilitation, and funding.

Commit to a just transition that provides for sustainable livelihoods for those reliant on the fossil fuel economy in the shift to more sustainable systems and practices.

Integrate racial and gender diversity in developing environmental solutions to the climate crisis.

Conserve at least 30% of land and coastal waters by 2030.

Commit to large scale restoration of forests and other locally indigenous ecosystems. Increase tree canopy in disadvantaged and/or heat vulnerable communities by at least 40% by 2030 to mitigate urban heat island effects.

Increase consumption of food produced within the jurisdiction to at least 20-30% of food consumed by 2030.

Explore the adoption of zero-emission standards for space and water heating equipment.

Explore the adoption of Building Performance Standards like those enacted in Colorado, Maryland, Oregon, and Washington.

Explore the adoption of clean heat standards like those enacted in Colorado and Vermont.

Take actions to align buildings sector utility resource planning and procurement policies with state climate goals.

Join the U.S. Department of Energy's Better Climate Challenge, committing to reduce scope 1 and 2 emissions from state facilities by at least 50 percent in the next 10 years.

*Aloha Kākou,*

In this fourth year of the Climate Decade 2020-2030, the members of the Climate Change Mitigation and Adaptation Commission continue to urge that immediate, strong actions are needed to mitigate the ongoing climate crisis and lead the change we want to see in the world through Hawai'i's values and commitment to action.

This year, Hawai'i experienced the severity of the crisis when climate-related drought conditions and high winds sparked the devastating Maui wildfires. As we mourn the loss of life, land, and cultural resources, we are working to advocate for policy changes for mitigation and adaptation actions that are so desperately needed to lessen the impact of future climate disasters.

This year, the Climate Commission expanded the ways we advocate through our annual conference, legislative session participation, renewed community engagement, and the ongoing support of member departments through our AmeriCorps VISTA cohort.

2023 also brought the first year of funding from the Inflation Reduction Act to the Climate Commission for statewide climate planning and project implementation that will take place over the next few years.

Efforts to implement current knowledge and research across the state have continued this year, with a focus on keeping the community informed and supporting the work of both governmental and non-profit organizations across the state. Drawing on Hawai'i's strong sense of interconnectedness and commitment to action, key efforts this year have included:

**Engaging our communities with the latest climate information.** In a post-pandemic world, the Climate Commission has strengthened its efforts to connect with local communities across Hawai'i, both sharing information and resources and empowering communities to be involved in decisions that affect them. Our first-ever Community Climate Fairs brought together community members and local organizations in a way that will lay the groundwork for further outreach efforts in years to come.

**Advancing equity and resilience.** Using the Commission's commitment to equity as a starting point, we are working to ensure that Hawai'i's most vulnerable communities have the resources they need to adapt to climate shocks and stressors, and that no one has to bear an unequal burden.

**Expanding capacity for member departments through our VISTA team.** Through our Climate Ready AmeriCorps VISTA Cohort, departments across the state have been supported in implementing climate change priorities: from addressing energy and transportation affordability and equity, developing outreach and communications materials on climate change issues, to increasing capacity for climate change projects and meetings.

**Inspiring change around the world.** Through our close involvement with the 25-governor U.S. Climate Alliance, the global regional partnership of the Under 2 Coalition, The Climate Registry and the Conveners Network, we continued to inspire climate ambition abroad and at home.

This year, again, the Commission, its member departments, its staff, and its VISTAs are honored and proud to support Hawai'i's public, legislative and executive branches in service of Act 32.

With aloha,

**Dawn Chang**
**Co-Chair, Hawai'i Climate Change Mitigation and Adaptation Commission**
**Chair, Department of Land and Natural Resources**

**Mary Alice Evans**
**Co-Chair, Hawai'i Climate Change Mitigation and Adaptation Commission**
**Director, Office of Planning and Sustainable Development, Department of Business, Economic Development and Tourism**

# PROGRESS TOWARDS HAWAI'I'S CLIMATE GOALS

As seen by its Mission and Priority Statements, Hawai'i has set among the most ambitious goals to combat climate change in the entire United States. Several tracking platforms are being used to measure progress on these goals. Although some areas still lack a consolidated measurement system, such as considering the social cost of greenhouse gas emissions, many goals are being effectively tracked. Although progress has been made, it is also important to improve legislation and systemic barriers so that changes can be completed within their target timelines.

## a. Hawai'i Greenhouse Gas Program

Since 2007, the Department of Health has administrated a greenhouse gas program to reduce air pollution and combat climate change through the inventory and regulation of emissions. The below table shows past and projected emissions based on the most recent report publication in 2020. Projections show that Hawai'i is not track to meet its emissions limit goals indicating that much more needs to be done at a faster pace if we are to meet targets set by the legislature.

Learn more here: https://health.hawaii.gov/cab/hawaii-greenhouse-gas-program/

**Hawaii GHG Emissions and Sinks (MMT $CO_2$ Eq) by Sector for 1990, 2005, 2007, 2010, 2015, 2016, 2017, 2018, 2019, 2020, 2025, 2030, 2035, 2040, and 2045; Reproduced from Tables ES-1 and ES-2 (Projections*) of the Report.**

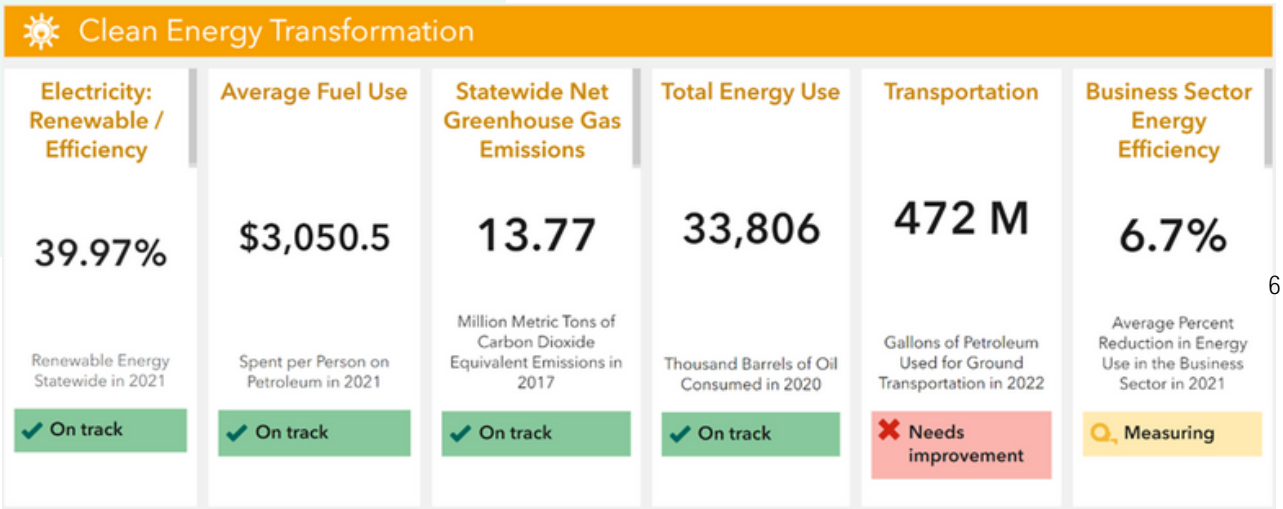
| Sector/Category | 1990 | 2005 | 2007 | 2010 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Energy**** | 20.26 | 22.71 | 24.35 | 19.38 | 18.50 | 18.52 | 18.97 | 19.23 | 19.44 | 14.78 | 16.03 | 15.30 | 14.59 | 12.85 | 12.16 |
| **IPPU** | 0.17 | 0.53 | 0.58 | 0.71 | 0.83 | 0.83 | 0.83 | 0.83 | 0.84 | 0.74 | 0.77 | 0.62 | 0.41 | 0.26 | 0.25 |
| **AFOLU (Sources)** | 1.55 | 1.22 | 1.29 | 1.24 | 1.28 | 1.29 | 1.28 | 1.48 | 1.31 | 1.30 | 1.22 | 1.14 | 1.08 | 1.03 | 0.98 |
| **AFOLU (Sinks)** | -2.43 | -2.56 | -2.57 | -2.58 | -2.72 | -2.69 | -2.68 | -2.59 | -2.59 | -2.54 | -2.50 | -2.46 | -2.49 | -2.55 | -2.62 |
| **Waste** | 0.93 | 0.91 | 0.82 | 0.55 | 0.47 | 0.43 | 0.40 | 0.38 | 0.41 | 0.42 | 0.43 | 0.43 | 0.45 | 0.47 | 0.49 |
| **Total Emissions (Excluding Sinks)** | **22.91** | **25.37** | **27.04** | **21.88** | **21.08** | **21.07** | **21.48** | **21.92** | **22.01** | **17.24** | **18.44** | **17.49** | **16.52** | **14.61** | **13.88** |
| **Net Emissions (Including Sinks)***** | **20.48** | **22.80** | **24.47** | **19.29** | **18.37** | **18.38** | **18.80** | **19.33** | **19.42** | **14.69** | **15.94** | **15.03** | **14.03** | **12.06** | **11.25** |
| Aviation (domestic & military) | 5.10 | 7.14 | 5.65 | 4.64 | 5.10 | 5.18 | 5.47 | 5.64 | 5.83 | 3.11 | 5.47 | 5.65 | 5.75 | 5.82 | 5.89 |
| **Net Emissions (Incl. Sinks, Excluding Aviation) ****** | **15.38** | **15.66** | **18.81** | **14.65** | **13.27** | **13.20** | **13.33** | **13.69** | **13.59** | **11.58** | **10.46** | **9.38** | **8.28** | **6.24** | **5.36** |

* Projected Emissions are underlined.
** Emissions from International Bunker Fuels are not included in the totals, as per IPCC (2006) guidelines.
*** Net Emissions (Including Sinks) include sinks and aviation per Act 15 (2018). Updated statewide limit is the 2005 GHG emissions level. Emissions beyond 1990 show Hawaii's progress relative to the statewide goal of not exceeding the 1990 GHG level.
**** Domestic aviation and military emissions, which are reported under the Energy Sector, are excluded from Hawaii's GHG emission reduction goal established in Act 234 (2007).

## b. Aloha+ Challenge Dashboard

The Aloha+ Challenge is a statewide public-private commitment to achieve Hawai'i's social, economic, and environmental goals by 2030. Based on the 17 Sustainable Development Goals (SDG's) set by the United Nations, it identifies and tracks local metrics on Hawai'i's priority Aloha + Goals aligned with the SDGs: Clean Energy Transformation, Local Food Production and Consumption, Natural Resource Management, Solid Waste Reduction, Smart Sustainable Communities, and Green Workforce and Education. These goals align with the Climate Commission's high impact actions, the SDG of Climate Action, and other SDGs such as Zero Hunger, Clean Water and Sanitation, Renewable Energy, Good Jobs and Economic Growth, Sustainable Cities and Communities, Responsible Consumption, Life Below Water, and Life on Land. The Aloha + Dashboard tracks these actions in a way that is accessible and digestible through their "at a glance" progress displayed on the dashboard (see below) and also includes more in-depth information. Many of the Aloha + Goals are not on track for completion, leaving much room for change and improvement.

See other scorecards and learn more here:
https://alohachallenge.hawaii.gov/#scorecards

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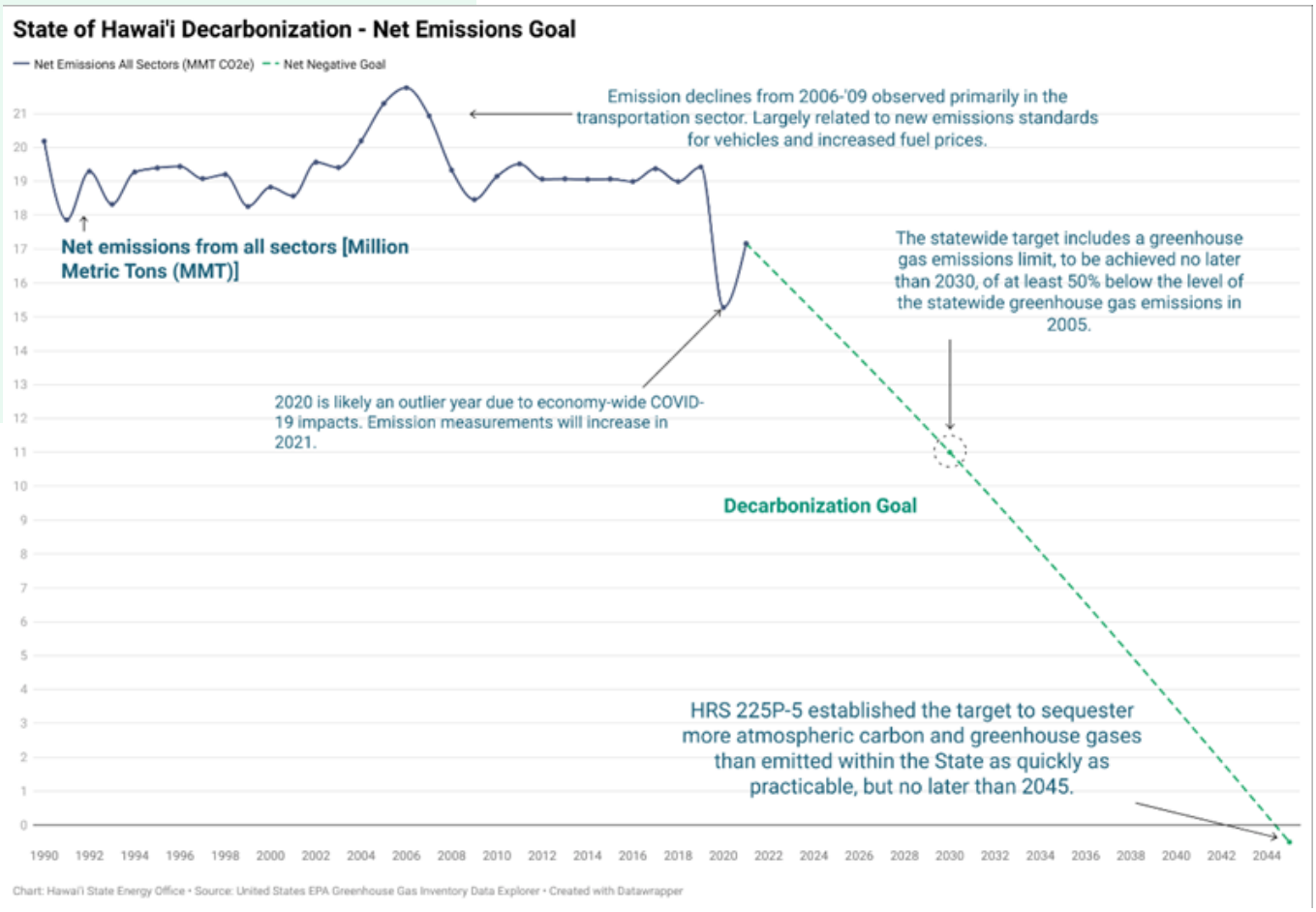
## c. State of Hawai'i Decarbonization Strategy

In effort to meet Hawai'i's goal of sequestering more greenhouse gasses than are emitted by 2045 the legislature tasked the Hawai'i State Energy Office (HSEO) to create a statewide Decarbonization Strategy. Due to the legislature December 2023 the strategy will outline opportunities and pathways for the state to reach its 2045 goal. The below graph reflects the steep shift the state will have to make in order to do so.

Learn more here: https://energy.hawaii.gov/what-we-do/clean-energy-vision/decarbonization-strategy/



## d. Investing in Transportation Choices

The Climate Commission upholds a strong commitment to empowering individuals to make journeys in a clean, equitable, cost effective and efficient way. The Investing in Transportation Choices toolkit looks at different strategies to cut emissions and provide safer, more affordable transportation choices to Hawai'i's communities. Recommendations include direct investments in transportation and land use towards projects that reduce the energy intensity of mobility through the expansion of transportation choices and giving people in Hawai'i more safe, affordable, reliable, inviting and convenient choices to get around by funding the completion of our pedestrian, bicycle, transit, and green networks.

More information can be found here: https://climate.hawaii.gov/wp-content/uploads/2023/07/Investing-in-Transportation-Choices-V6.pdf

# OPERATIONALIZING CLIMATE READY HAWAI'I

**The Commission's guiding principles embodied in its various statements are operationalized in its Climate Ready Hawai'i initiative. These projects and efforts summarize actions taken by the Climate Commission in 2023 to advance a Climate Ready Hawai'i.**

## a. Funds sought and awarded

Funding is crucial to achieving success in climate action projects across the state. The Commission actively pursued funding opportunities that will have a lasting impact on climate mitigation and adaptation needs.

This summer, the Climate Commission applied for and was granted $3 million in federal funding for climate mitigation planning through EPA's Climate Pollution Reduction Grant program (CPRG). This funding will be used to write a statewide Priority Climate Action Plan (PCAP) and a Comprehensive Climate Action Plan (CCAP), which will serve as a roadmap for applying for and implementing further funding through CPRG. $4.6 billion will be made available nationwide to implement the strategies identified by the planning grant. The Climate Commission is engaged in an in-depth process of identifying climate mitigation projects that focus on greenhouse gas reduction, clean energy, and equity. This involves gathering input and information from stakeholders, coordinating projects with state, county, and local organizations, and outreach to community members with a focus on equity to ensure that the funded climate mitigation projects advance equity for all of Hawai'i's communities, especially those who face disproportionate vulnerability to climate change.

In addition, funding was renewed through the AmeriCorps VISTA program to continue the Climate Ready VISTA Cohort for three more years. Additional funding for operations support was also awarded to the Commission. The VISTA program has successfully placed volunteers in key state and county offices to assist with projects that advance climate action from the lens of poverty alleviation and community resilience. This funding will enable even more AmeriCorps members to serve in this important area.

The Commission was also awarded funding to support Climate Week through Ulupono Initiative to bring together youth and climate advocates to share and discuss how to engage and learn more about key climate issues impacting their daily lives and beyond. The Commission's Community Climate Fairs were supported through a grant from the Hawai'i State Energy Office.

### b. Support and coordination for key offices to address resilience in vulnerable communities.

As climate change exacerbates weather patterns and extreme weather events, it is important to equip those who do not have the resources to recover and thrive as a result of even relatively "minor" disasters. Particularly vulnerable are low-income communities and those who are considered homeless or are at risk of becoming homeless. The Commission has begun working on creating coordinated statewide efforts to identify and address the impacts of climate change and related policies on vulnerable populations and communities.

i. Accurate representation in federal datasets

In 2021, President Biden issued a historic commitment to equity by signing Executive Order 14008, also known as the Justice40 Initiative, which mandates that at least 40% of the benefits of certain federal initiatives will flow to disadvantaged communities. However, eligibility is determined by the Climate and Economic Justice Screening Tool (CEJST)[6], which does not accurately represent Hawai'i. The disproportionate wealth gap between communities within the same census tracts, the exclusion of certain climate-change related hazards present on islands, and the high cost of living compared to the federal poverty line, results in the CEJST not accurately reflecting communities that are considered disadvantaged according to local knowledge and datasets.

This year, the Climate Commission formed a working group across various state and county agencies to address this issue and ensure that Hawai'i's disadvantaged communities will be eligible for Justice40 support. The working group is coordinating efforts to submit feedback to CEJST based on local data, including the Social Vulnerability to Climate Change in Hawai'i Data, Indicators, and "Gap" Assessment (2022) as well as pursuing funding to create an accessible, user-friendly database on climate change and social vulnerability that can be used for local knowledge and decision-making.

ii. Climate Ready VISTA Cohort

Through a grant from AmeriCorps, a total of 8 volunteers served in relevant offices including the Hawai'i State Energy Office, the Hawai'i Green Infrastructure Authority, the Hawai'i Department of Transportation, the Hawaii County Planning Office, and the Kauai County Planning Office to work on projects that benefit disadvantaged/overburdened communities and increase resilience to climate change. Projects included outreach to ensure that community members have a voice in county and statewide climate action plans, coordination of urban forestry and energy literacy efforts, grant writing, and research and planning for clean and equitable transportation. VISTAs also mobilized outreach efforts to connect community members to programs and incentives that help to both save money and transition to clean energy and transportation, including the Electric Bike and Moped Rebate, Weatherization Assistance Program, Low-Income Home Energy Assistance Program, and Energy Smart for Homes. Additionally, the VISTA cohort regularly volunteered with other local and non-profit agencies in the community on projects including regenerative Hawaiian agriculture, community placemaking, and post-wildfire relief efforts for Maui. The program will expand over the next 3 years to continue to provide support for climate change and resilience efforts.

## c. Local and global policy efforts for climate action.

Hawai'i's geographic isolation makes it critical to connect to the rest of the world in dealing with this global challenge. For this reason, the Commission and its staff are involved at all levels of climate change response—from the global to the state and county levels to local communities. Such involvement provides venues to highlight the work being done in Hawai'i, forms channels of knowledge sharing and cooperation across jurisdictions, and helps align Hawai'i's efforts with sub-national, national, and international mitigation and adaptation efforts. Here are some of this year's efforts that Hawai'i has been involved in through the Commission and its staff:

**National:** Commission co-chairs and staff provide updates and respond to information requests to Hawai'i's congressional delegation. The Commission is engaged in the many national efforts of the US Climate Alliance (USCA), the 25-governor effort that pledged to uphold the U.S.'s commitments to the Paris Climate Agreement. USCA supports Hawai'i' in its climate actions such as cutting emissions, accelerating climate action and policies, building resilience to the impacts of climate change, and promoting clean energy deployment at the state and federal level. USCA supports deploying bipartisan climate actions at scale centered around equity, environmental justice and a just economic transition, to safeguard public health, grow the U.S. economy, and secure a net-zero future. Commission staff serves as a Governor's Representative to coordinate, collate, and organize responses to the Governor's Office and participates in the Resilience, Transportation, Natural and Working Lands and Just Transition working groups. The Alliance is a valuable resource for Hawai'i's efforts, as it provides knowledge, guidance, funding, and amplification of climate change efforts at the state level.

**State:** The Commission provides information and analysis in many ways, particularly through the legislative session and the annual statewide conference.

**i. Legislative Action.** The Commission regularly engages with the legislature through submitting legislative testimony on measures relevant to climate change. Bills include the establishment of climate smart programs, setting carbon emissions goals, addressing sea level rise, and supporting partner agencies in their climate work. This year, Commission staff testified in person, coordinated testimony with departments and partners, flagged issues for legislators, and responded to requests for information.

**ii. Annual Conference.** The statewide climate change conference is a flagship event for the Commission. It highlights research, practice, and engagement on the state's climate change response. It is the culmination of year-long work, cutting edge knowledge, and valuable partnerships. This year's Climate Week was held in January of 2023 in partnership with the Pacific Islands Climate Adaptation Science Center, Pacific Regional Integrated Sciences and Assessments, the East-West Center, Hawai'i Sea Grant, US Forest Service, and others.[7] The week began with a Climate Action Day which focused on natural solutions to climate challenges, climate legislation, and youth climate action. It also featured a Hawai'i Climate Adaptation Summit, a panel discussion from women leaders who represented Hawai'i and the Pacific Islands at COP27, and the 20th Anniversary of the Hawai'i Energy Policy Forum, which examined strategic alliances for decarbonization and energy self-sufficiency.

## d. Implementation of climate action projects.

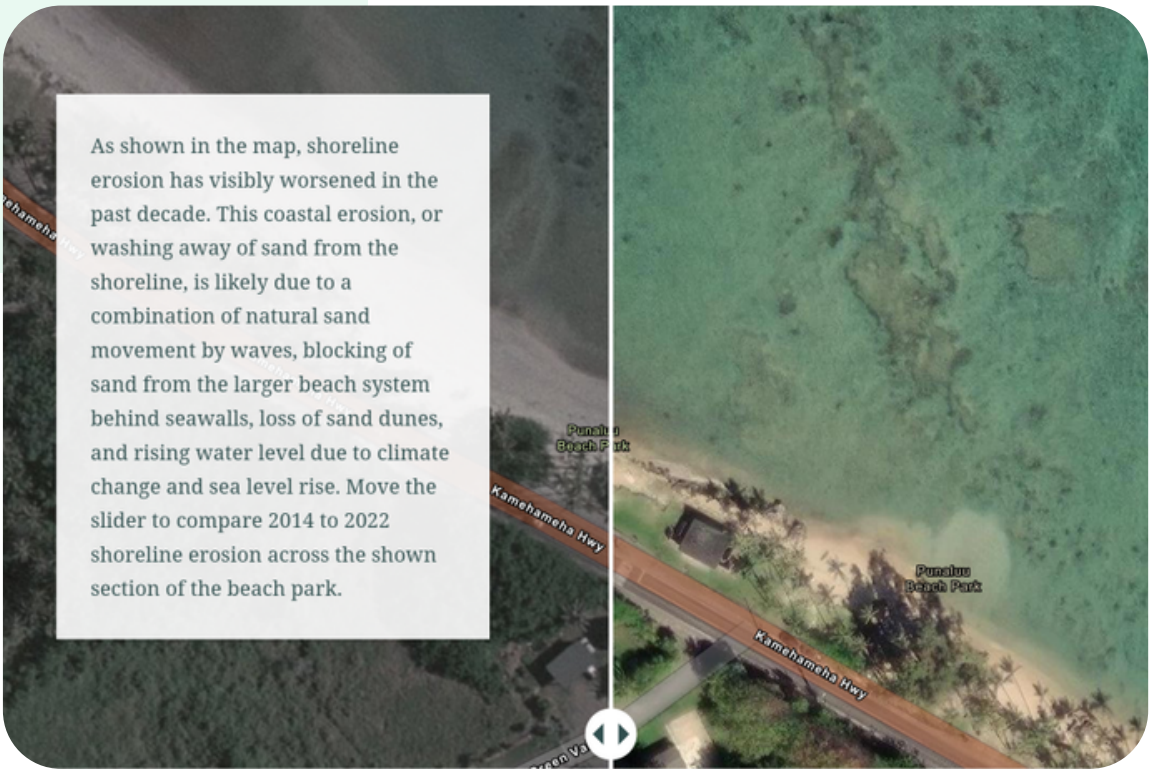
### i. Mitigation

As reducing greenhouse gas (GHG) emissions and increasing the capacity for natural and working lands to sequester GHGs are the primary pathways that climate change can be mitigated, the Climate Commission is committed to supporting initiatives that will lower emissions. Efforts are underway to create a statewide Priority Climate Action Plan (PCAP) and Comprehensive Climate Action Plan (CCAP) and apply for CPRG funding up to $4.6 billion that will implement climate mitigation strategies including improved clean transportation options, protecting natural lands, renewable energy, creating a circular economy, nature-based solutions, regenerative agriculture, waste prevention, and energy incentives. Focus groups to identify needs and project opportunities for funding have begun across sectors and organizations, and outreach to community members will follow within the next few months. Additionally, the Climate Commission is in the process of hiring 5 new positions in partnership with Hawai'i Sea Grant to support this effort, including a climate action program manager, outreach leader, data specialist, and grant manager. This will greatly expand the Climate Commission's capacity to ensure that the CPRG funded projects meet our most pressing climate mitigation needs, and uplift Hawai'i's communities that are most vulnerable to the impacts of climate change.

Additionally, the Climate Commission continues to support projects that advance sustainable transportation and reduce vehicle miles traveled (VMT). One such effort has been the continuation of research for multimodal mobility hubs- locations that connect alternative transit modes such as bike share, carpool, and public transit, making them a convenient and accessible option for community members. Commission staff and VISTAs have helped to take an inventory of state-owned parking spots to identify potential locations to create mobility hubs, as well as researching barriers and solutions for clean transportation for shift workers who travel outside of regular business hours. This helps to create an equitable transportation system alongside reducing greenhouse gas emissions from VMTs.

## ii. Adaptation

In collaboration with Hawai'i Sea Grant, the Department of Land and Natural Resources, the Department of Transportation, and the partnership of the surrounding community, the Climate Commission is continuing work on a pilot project to address the impacts of sea level rise and coastal erosion at Punalu'u Beach Park.[8] Not only will this protect the coastline and the Kamehameha Highway in Punalu'u, it will serve as a model for future efforts as the impacts of sea level rise become more frequent and severe. This year, the Climate Commission continued to work with contractors to identify nature-based solutions, and plans are being created to pursue relocating offshore sand deposits back to the beach. Additionally, Commission staff have attended community meetings and events to receive feedback on the community's vision for the beach park. Within the next few months, there will be a community planting day to place native plants along the shoreline, which will result in slower erosion rates and community stewardship of the area.



## e. Commission Member Initiatives

**This year each Climate Commission Member Organization has advanced efforts in their own respective sectors towards climate action, resilience, and sustainability. Collaboration throughout State and County offices has resulted in measurable steps to achieve Hawai'i's High-Impact Actions.**

**i. The Senate Committee on Agriculture & Environment** continues to focus on legislative priorities including food systems, tourism management, invasive species control, waste management, and renewable energy. The committee hosted a senators' retreat this year to encourage elected representatives to focus on sustainable priorities moving into the 2024 legislative session.

**ii. The Senate Committee on Water & Land** continued its focus this year on advocating for legislation that promotes strong public infrastructure, aquatic resource preservation, public park improvements, housing, and equity.

**iii. The House Committee on Energy & Environmental Protection** has worked closely with CCMAC this year to define and work towards priorities pertaining to conservation, clean energy, waste management, transportation, sea level rise, and more. It advocated for many positive legislative bills this year and will continue to do so into the 2024 legislative session.

**iv. The House Committee on Water & Land** has prioritized its focus on disaster response and resilience. In this year's legislative session, the committee advocated for legislation related to extreme weather preparedness, preservation of land and ocean resources, zoning, and permitting. The committee is also exploring potential new legislation to consolidate the statewide permitting system, which will ease management and enforcement of conservation efforts, and possibly pave the way for a "green fee" system that will redirect tourist revenue towards the sustainable upkeep of Hawai'i's natural resources.

**v. The Department of Land and Natural Resources** has implemented a number of projects that increase the natural environment's resilience to climate change. DLNR's Commission on Water Resource Management and Hawai'i Drought Council worked to predict drought seasons, develop guidelines on water conservation, monitor water quality, and manage risk for areas most likely to be impacted by water shortages. Addressing sea level rise has also been a priority. This year, DLNR was awarded a coral mitigation measure to build artificial reefs, which is a proven way to mitigate wave action in nearshore waters. DLNR has also worked to promote and enforce shoreline building regulations, including the use of illegal shoreline hardening such as seawalls, which worsen costal erosion. Discussion about further means which may be necessary to adapt to sea level rise in the future, such as managed retreat and relocating roads in costal areas, have begun as well. Additionally, DLNR's conservation efforts have protected native plant and animal species in the face of climate change impacts, and advanced reforestation which sequesters carbon and mitigates rising temperatures alongside preserving Hawai'i's native ecosystems. Among DLNR's most notable conservation efforts this year has been the Birds Not Mosquitos project[9], a collaboration of State, Federal, and non-profit partners, with the aim of preventing avian malaria spread by invasive mosquito populations. Pilot projects have begun with the release of male mosquitos infected with a naturally occurring "birth control" virus into Maui's native forests. Since climate change is increasing temperatures in mountainous regions and therefore enlarging the habitat in which mosquitos can live, this technique will potentially save many forest bird species from extinction and prevent the spread of vector-bone disease in human populations.

**vi. The Department of Business, Economic Development, & Tourism** oversaw several organizations this year that have done important work in climate action, notably the Hawai'i Green Infrastructure Authority (HIGA), the Hawai'i State Energy Office (HSEO), the Office of Planning & Sustainable Development (OPSD) and within it the Coastal Zone Management Program (CZM) and the Hawai'i Tourism Authority (HTA). OPSD, CZM, and HTA are represented on the Commission as well.

> **a. HGIA**'s Hawai'i Green Bank supports Hawai'i's mission to achieve 100% renewable energy by 2045. This year, they continued the administration of programs aimed at making clean energy investment accessible and affordable to Hawaii's underserved ratepayers, including solar contracting, energy efficiency financing, and the HI-CAP program providing capital assistance to small businesses, start-ups, and entrepreneurs.

HGIA also administered the Green Energy Money Saver (GEMS) program, which provides financing on clean energy improvements including solar PV, solar thermal and PV water heaters, and heat pump water heaters to low- and moderate- income households.

**b. HSEO** has implemented multiple projects this year that advance the transition to renewable energy. Programs have provided energy grid support, tax credits and incentives, and financial assistance to organizations and community members to improve their energy infrastructure and reduce emissions. In collaboration with the KUPU 'Aina Corps, HSEO also completed another successful year of its Clean Energy Wayfinders Program[10], which is the first program of its kind to bridge the gap between government and communities by equipping young people with the training and skills to conduct outreach on clean energy in their communities and involve stakeholder voices in the decisions that affect them. HSEO is also in the process of creating a Statewide Decarbonization Strategy[11] which will focus on climate change mitigation, best practice methodology, inform decision-making across the state, and will be a gateway to further federal funding opportunities. The Decarbonization Strategy will be completed alongside the Climate Commission's Priority Climate Action Plan (PCAP) and will work in tandem with it throughout the process of securing climate mitigation project funding from the EPA.

**c. OPSD** made significant progress in 2023 with its work in sea level rise preparedness. In collaboration with the Community Development Authority, OPSD updated development codes in Kaka'ako to report on sea level rise impacts, which will increase resiliency for future developments and become a pilot example for policies on other coastal communities. OPSD also continued a major study on sea level rise in Waikiki, which assesses sea level rise in state facilities and analyzes risk assessment tools being used around the country to prioritize risk management for flooding and groundwater. This study will also be a valuable tool in future climate adaptation efforts. OPSD has also developed a framework for potential policies on managed retreat, which provides valuable insight on factors for policy makers to consider should managed retreat legislation be enacted in the future. DBEDT's work through these organizations is essential as a growing number of communities are seeking ways to make the transition to clean energy and prepare for impacts of climate change in the near future.

**1.** The **CZM** completed vital work in preserving coastal areas through continued implementation of the 2020 Ocean Resources Management Plan.[12] This year, CZM released Phase 1 of its methodology for the regional shoreline management initiative to the public, which explores improving shoreline management, including proactive planning for nature-based solutions to sea level rise. CZM developed a comprehensive informational resource identifying shoreline adaption options in Hawai'i, the potential costs, involved agencies, and duration of the adaptation action. They also received CIP for continued work under Act 178, SLH and are in the process of drafting an RFP to develop a standardized vulnerability assessment process for Hawai'i's communities. The CZM Coastal Management Fellow continues refining data for the analysis to identify block group level data for at-risk vulnerable communities statewide. CZM works closely with community members and with county planning departments to determine shoreline management responsibility, develop innovative solutions to mitigate coastal erosion risk, and ensure an equitable response. Further information on the CZM program's work can be found at: FAI - Development & Coastal Hazards | ORMP Dashboard (arcgis.com).

**d. The HTA** has identified four priority "pillars" in its 2020-2025 strategic plan of Natural Resources, Hawaiian Culture, Community, and Brand Marketing.[13] Under the pillar of Natural Resources, HTA has demonstrated a commitment to protecting Hawai'i's land, waters, and wildlife, and making the tourism industry more resilient to climate change. Since the 2018 ban on non-reef safe sunscreen, HTA has worked to ensure that signage is posted to educate tourists about this at the most heavily visited snorkeling sites, and enforced through tour companies, preventing further coral reef pollution. HTA has also worked on "destination management" to limit the number of visitors at over-touristed locations such as Diamond Head, Hanauma Bay, 'Iao Valley, and Ha'ena State Park, helping to prevent erosion and the spread of invasive species that can be worsened by climate change. HTA has also supported many tourism-related businesses in joining the Hawai'i Green Business Program, which ensures that their partners are taking active steps to conserve water and energy, reduce waste, and transition to renewables. Continuing efforts will help the tourist industry to become more sustainable and benefit local communities throughout climate change related challenges.

**vii. The Board of Agriculture** has put effort this year into exploring the future impacts of climate change on animal health and aquaculture, including loko i'a (fishponds), and advocating for policy addressing heat stress on animals. The Department of Agriculture is also in the process of pursuing an Affordable Clean Energy Grant through the USDA's Rural Energy for America Program. The application will be submitted by the end of 2023, and if granted, would help to supply clean energy resources to local farms and food hubs, aiding the transition to renewables and increasing local food systems' resiliency to climate change. The Board of Agriculture is committed to supporting agriculture, including aquaculture, through climate smart programs that provide resources to farmers, ranchers, growers, and value-added producers.

**viii. The Office of Hawaiian Affairs** has administered a number of programs that increase community resiliency in areas such as economic well-being, education, quality housing, improved health outcomes, and the preservation of water and land, especially cultural sites and burials that are considered sacred to Native Hawaiians. As the impacts of climate change worsen, it will be important to connect these areas more closely with climate work and ensure that OHA's programs have the support they need and collaboration across sectors.

**ix. The Department of Hawaiian Home Lands (DHHL)** has secured a federal grant to implement a shoreline erosion management plan and develop a community resilience plan for homestead communities located along Molokai's southern coast. DHHL has also supported homesteaders in creating focus groups on sustainability and developing community-led solutions. The DHHL and OPSD-CZM received competitive funding for an initiative to seek opportunities to consider CZM shoreline regulatory processes for at-risk DHHL areas. Additionally, DHHL received $500,000 in appropriations this year to investigate geothermal energy sources on Big Island, which if done in a culturally appropriate manner, has potential as a renewable energy alternative. Supporting Hawaiian communities at the frontline of climate change impacts and protecting cultural resources and sacred sites will become an important priority as sea levels rise, and DHHL's early and ongoing efforts will be a solid foundation for adaptation.

**x. The Department of Transportation** was allocated funding this year to complete adaptation plans for the state's highways, airports, and harbors. In 2023, Harbors applied for over $30 million in federal grant funds to support more efficient port operations that reduce congestion, idling trucks, and harmful emissions. Harbors is also leveraging the state appropriation it received for its climate adaptation plan to get additional federal funds for a statewide resilience improvement plan aimed at addressing sea-level rise impacts through 2100. This plan will be a tool for both Harbors and neighboring land owners to identify vulnerabilities, coordinate improvements, and develop practical solutions that improve resilience for our interconnected infrastructure. Airports hired a Climate Resiliency Manager to coordinate and oversee climate change mitigation and adaptation matters and is developing a Climate Adaptation Action Plan for the State's 15 airports and a Sea Level Rise Adaptation Plan. Airports is also implementing measures to address tide-induced flooding vulnerabilities at the Daniel K. Inouye International Airport (HNL) in Honolulu to mitigate against anticipated sea level rise concerns. For the seventh consecutive year, HNL has achieved Level 2 Airports Carbon Accreditation from the Airports Council International Organization for its carbon management towards reducing its carbon footprint. The Hawaii Department of Transportation (HDOT) has established a number of policies and goals aligned with the Commission's work, and each modal operation makes progress toward key benchmarks. Since transportation is the largest source of GHG emissions in Hawai'i, DOT's work is essential in addressing decarbonization and increasing clean, affordable transportation options for Hawai'i's communities. Although airlines are privately owned, DOT works closely with them to explore options for emission reduction from planes, such as conditioned air practices at airports, plastic reduction, and using low-carbon materials in production. At HNL, Kahului, and Lihue Airports, airlines have installed Ground Power Units and Pre-Conditioned Air units that allow aircraft to turn of their engines while parked at the gates. HDOT is working with the airlines on converting their Ground Support Equipment to electric, as well as working with the rental car companies to install charging stations as rental car companies look to convert their vehicle and bus fleet to electric. HDOT is also making progress on its service contract to electrify the state's light duty vehicle fleet, as well as improving community infrastructure to make EV ownership a more feasible option for Hawai'i residents. In addition, DOT has administered the Hawai'i Electric Bike and Moped Rebate program,

which provides rebates up to $500 to eligible residents for purchasing an electric bicycle or moped. Over 700 people took advantage of the program this year. Additionally, DOT continued the administration of its Safe Routes to School program, which provides resources and facilitates street and safety improvements to make it possible for children to walk, bike, and use other modes of active transportation to get to school.[15] Since transportation is the largest source of GHG emissions in Hawai'i, DOT's work is essential in addressing decarbonization and increasing clean, affordable transportation options for Hawai'i's communities.

**xi. The Department of Health** made great strides this year with the launch of its Climate Change and Health Program.[16] This includes the hiring of a full-time Climate Change and Health Coordinator and the establishment of the Climate Change and Health Working Group. The Working Group brings together relevant State and County departments, public health researchers, medical practitioners, community members, and organizations to discuss current research and best practices on climate change related health impacts including air pollution and increasing allergens, extreme heat, drought, environmental degradation, wildfire & wildfire smoke, degraded living conditions & social inequities, risk of invasive vectors, food system impacts, severe weather & floods, water quality impacts, and mental health impacts. The Climate Change and Health Program has also published an online portal, with accessible information for health professionals and for the public about the public health risks of climate change. With the expansion of the program, DOH will continue to update the portal with more current information and resources. This year, in coordination with the Climate and Health Working Group, DOH also began an intensive Statewide climate change & health vulnerability assessment, modeled after the CDC's BRACE Framework. The goal of this vulnerability assessment is to identify potential public health risks from climate change in Hawai'i with an eye towards developing policy and public health interventions to reduce morbidity and mortality from these risks. DOH has also initiated a study on heat-related illnesses in Hawai'i. The data from this study will help assess the potential future need for adaptation resources such as community cooling centers, subsidies for air conditioning, or extreme heat advisories and guidelines for residents and visitors not acclimated to high temperatures. Additionally, DOH has been working with the Climate Commission on a current statewide greenhouse gas assessment that will be completed in March 2024 and will shed light on opportunities to

reduce environmental toxins to improve health outcomes. The impacts of climate change on health is an issue that has been historically overlooked. DOH's involvement in statewide climate action is an invaluable resource.

**xii. The Board of Education** has begun to assess risk for schools in coastal areas and create adaptation plans. Efforts have also continued to electrify public school bus fleets through a $4.99 million grant awarded by EPA in 2022.[17] Additionally, pilot programs in several schools have begun to address food waste through source waste reduction and educating students to compost food scraps, which is in turn used to fertilize school and community gardens. All of these efforts have helped to lower the GHG footprint of the public school system, and to help the next generation to become more aware of climate change and sustainability.

**xiii. The City and County of Honolulu** marked a milestone year in 2023 with the opening of the Skyline light metro system. Since June 30th, the rail has served nine stations along nearly 11 miles of track on O'ahu between Halawa and Kapolei, and has helped countless residents to commute to work in a sustainable way that reduces emissions and traffic congestion. The City also released their Climate Ready O'ahu[18] resilience strategy for public comment this year, and will continue work on completing it after the comment phase ends in December. Honolulu City and County has also worked on a Primary Urban Center Development Plan[19] for the City of Honolulu. Additionally, the City has updated its building energy conservation code, worked with the One Water Panel to develop guiding documents for CIP projects, and is working on adaptation projects for flooding and sea level rise in Waikiki and Kalihi Kai. As the impacts of climate change become more visible in urban areas, the City and County of Honolulu will be prepared to respond and adapt adequately and serve as a role model for other coastal cities.

**xix. Maui County** released its Climate Action and Resiliency Plan[20] for public comment this year and expects to complete it after the feedback process. Maui County also launched a groundbreaking fellows program in partnership with other island nations such as Rapa Nui and Fiji to complete voluntary local reviews of indigenous issues from an island perspective. The program focuses on the United Nations' Sustainable Development Goals, and results will be integrated into the 2030 Agenda for Sustainable Development. Additionally, the County hosted Maui Nui Climate Week, which brought information and

resources on climate change to local community members. In the aftermath of the Lahaina wildfires, the County also worked to initiate resiliency hubs within the community, focus on recovery efforts, and make native trees and shrubs available to begin to restore the Lahaina area.

**xx. Hawaii County** completed and adopted its County Integrated Climate Action Plan[21] this year, including its release for public comment and engagement with communities on Hawaii Island. They have released the Draft General Plan 2045[22] as part of the comprehensive review of the General Plan dated 2005, and it incorporates climate change and sustainability policies and actions throughout the plan. The County is drafting amendments to the shoreline setback regulations to include updated data and site-specific analysis with plans for adaptation in 2024. The County also contracted a consultant to analyze flood and erosion control codes, which will provide invaluable information as communities navigate the impacts of sea level rise moving forward.

**xxi. Kaua'i County** finished the community interface stage for the Kaua'i Climate Adaptation Plan[23] this year, and will continue the drafting stage into 2024. Throughout this process, the County has explored policy implications for managed retreat, set aside land for potential land swaps, and paved the way for the transfer of development rights. Kaua'i County was awarded this year's sustainability award for planning departments in recognition of their thorough efforts.

**xxii. The Adjutant General's Office** is involved with climate action work through the Adjutant General Major General Kenneth Hara, who acts in the dual role of directing the Hawai'i Emergency Management Agency (HI-EMA). HI-EMA played an essential role in disaster response and recovery this year in the wake of the wildfires in Lahaina, Kohala, and Mililani. HI-EMA also released the State of Hawai'i 2023 Hazard Mitigation Plan[24] this year, which provides information to community members, leaders, and decision makers on preparedness and response to climate-related natural disasters including floods, hurricanes, infrastructure failure, landslide and rockfall, tsunami, volcanic hazards, wildfires, and windstorms. The importance of disaster preparedness and response was brought to light in 2023 in very severe ways, and HI-EMA's work on the frontlines is vital to protecting Hawai'i's communities as climate-related disasters worsen in future years.

Hawai'i's military has also taken significant steps this year under the guidance of the Adjutant General's Office. The Hawaii Army National Guard (HIARNG), on behalf of the State of Hawaii Department of Defense, joined the Department of Land and Natural Resources (DLNR) pledge to the 1 Trillion Trees initiative (1t.org) to conserve, restore, and grow trees over the next decade (2020-2030). As part of this initiative, the HIARNG has partnered with the University of Hawaii Hilo (UHH) to develop restoration plots and support Hawaiian communities by providing opportunities for local schools to assist in developing and researching native ecosystems and the importance these ecosystems provide to the community. The HIARNG and UHH have worked closely for over 20 years to protect Hawaii's lowland forests. This partnership has grown to include other State, Federal, and Non-Profit Organizations into a Lowland Wet Forest Working Group (LWFWG). The LWFWG allows multi-agency collaboration to discuss and address climate change concerns and potential solutions, invasive species and control efforts, and native Hawaiian ecosystem restoration efforts.
The Hawaii Air National Guard's 154th Wing, in conjunction with the Hawaii Center for Advanced Transportation Technologies (HCATT), Air Force Research Lab, and the National Guard Bureau have funded the execution of work to turn on the Photovoltaic (solar) panels across the Hawaii Air National Guard (HIANG) Campus on Joint Base Pearl Harbor-Hickam. The activation of the Solar Panels on the HIANG campus will allow, via the new Microgrid electrical utility infrastructure system, for renewable energy resources for a portion of the HIANG's energy requirements, reducing the HIANG's reliance on non-renewable energy sources.

# COMMUNITY ENGAGEMENT AND INFORMATION

**a. Updates and resources.**

Through its climate change portal (climate.hawaii.gov), social media accounts, webinars, presentations, briefings, blogs, and articles, Commission staff and VISTAs provide the latest climate change information to Hawai'i's communities. 2023 highlights include:

**i. Commission Meetings.** This year, all Commission meetings were held in a hybrid format with the option to attend in-person or virtually. All meeting we recorded and made available to the public on the Commission's website[25], and community members had the opportunity to stay informed on the work being performed within the Commission's respective departments, and to submit testimony if they chose.

**ii. Online informational materials.** The climate portal continues to be updated regularly with relevant events, research, and resources. Significant updates in 2023 included a portal on the climate action plans and CPRG grant, a tool to easily locate clean energy assistance/rebate programs by county, and new pages on clean transportation choices and policy recommendations.

**iii. Monthly newsletters.** The Climate Commission continues to publish monthly newsletters to inform subscribers of the Commission's work, opportunities to participate in meetings, and current research and policy updates. It also sometimes features grant opportunities and climate/sustainability job openings with both government and non-profit organizations across the state. Many new people joined the mailing list this year through the Commission website and outreach events.

**iv. Social media.** The Commission's two social media accounts (on Instagram and Facebook) continue to generate activity and engagement.[26],[27] Content this year ranged from events and meeting notices to relevant research and news articles, to informational slides on mitigation and adaptation activities such as waste reduction, safe routes to school, and heat-related illness prevention. Engagement with the Commission's social media this year grew to over 1,500 followers and increased likes and comments.

## b. Outreach

With much risk associated with the pandemic having been controlled, the Climate Commission has resumed in-person community outreach efforts. 2023 was a highlight year with new outreach strategies and events.

**i. Community Climate Fairs.** In May and June of 2023, the Climate Commission hosted its first-ever series of Community Climate Fairs on O'ahu and Hawai'i Island. The events brought together government, non-profit, and community-led organizations with community members to share information and resources on climate change. The events were funded through a grant from the Hawai'i State Energy Office and planned by Climate Ready VISTA Cohort. In total, the fairs brought together over 70 organizations and 300 individuals. Participants reported high levels of engagement and receipt of valuable information about climate change. As an engagement tool, a raffle was held which attendees could enter based on the number of booths they visited, and could win prizes that promoted a sustainable lifestyle, with the grand prize of a new bicycle. This was an important draw for those who might not have otherwise attended climate events. The Commission plans to host additional climate fairs in future years based on this year's success.

**ii. Tabling Events.** In addition to the Climate Fairs, the Climate Commission was able to reach new people by having a presence at community events including the Kaua'i Earth Day celebration, volunteer fairs at the University of Hawai'i, the Honolulu Century Ride, and the Community Resource and Food Distribution Fair at Kuhio Park Terrace. This resulted in many new sign-ups for the Commission newsletter and information and resources on climate change and sustainability distributed to the community.

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