

The Kaua'i Energy Sustainability Plan Final Report Executive Summary



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EXECUTIVE SUMMARY

The *Kaua`i Energy Sustainability Plan (KESP)* represents the work of SENTECH Hawai`i and its partners during the period of February 2009 through early 2010. This section of the report, the Executive Summary, provides a high-level summary of the nine report sections that follow.

SECTION 1: DEFINING THE PURPOSE OF THE KAUA`I ENERGY SUSTAINABILITY PLAN

The *Kaua`i Energy Sustainability Plan (KESP)* integrates the results of fifteen stakeholder and community engagement meetings with objective energy analysis, culminating in specific recommendations and general considerations. The KESP was developed for the County of Kaua`i, as a result of a competitive solicitation awarded by the County of Kaua`i to the *SENTECH Hawai`i Team*, consisting of:

- SENTECH Hawai`i, LLC
- Kaua`i Planning Action & Alliance (KPAA), and
- Maurice Kaya, LLC.

The purpose of the KESP is to ensure maximum energy efficiency and conservation while facilitating Kaua`i's production and use of local, sustainable energy resources in place of imported oil by the year 2030. Certain definitions and principles were applied by the SENTECH Hawai`i Team to further refine the purpose.

The Natural Step provides an objective, scientific foundation for defining the term "sustainability". That definition is as follows:

- Nature is not subject to systematically increasing:
 - Concentrations of substances extracted from the Earth's crust,
 - Concentrations of substances produced by society, or
 - Degradation by physical means and, in that society,
- People are not subject to conditions that systematically undermine their capacity to meet their needs.

Kaua`i can use the definition to help guide it when making difficult decisions regarding energy sustainability.

The Team also adhered to the following guiding principles based on its stakeholder and public meetings, objective energy analysis, and follow-on community input:

- Community priorities and acceptance
- Sound scientific principles and analysis
- Available energy resources
- Commercial, least-cost technologies
- Reduce demand, increase supply of local & sustainable energy/fuels.

SECTION 2: ESTABLISHING VISION, GOALS, AND OBJECTIVES THROUGH COMMUNITY ENGAGEMENT

Every community and stakeholder group was presented with a draft vision statement for Kaua`i that was discussed and updated based on their input. The vision is intended to be a far-sighted statement that captures the many hopes expressed by the community and stakeholders. After the final meeting, the following *Vision of Energy Sustainability for Kaua`i* endured:

On Kaua`i in 2030, we have achieved 100% local energy sustainability and we have...

- Maintained the beauty of our “garden island” and our rural lifestyle.
- Incorporated sustainability and smart growth principles into our land use plans.
- Built a strong, sustainable green economy with green job opportunities.
- Utilized land efficiently for agriculture and renewable energy production.
- Educated our citizens on energy conservation and efficiency and for green job opportunities.
- Reduced our energy demand through conservation and efficiencies.
- Determined the new and emerging technologies best suited to Kaua`i.
- Achieved self-reliance in renewable energy and fuel production for electricity and transportation, while protecting our endangered wildlife.
- Considered social equity and cultural impacts when siting new energy facilities.
- Established an effective multi-modal transportation system that shifts use from cars to mass transit and non-motorized modes.
- Followed existing and crafted new county, state and federal legislation regulations to help meet our electricity and ground transportation needs.

Based on feedback from the Kaua`i community, it wants to set new standards of clean, sustainable energy in the KESP. The community has indicated that it wants to achieve 100% local energy sustainability by 2030.

From understanding many of the technical, economic, marketplace, policy/regulatory, and environmental factors affecting energy, the SENTECH Hawai`i Team presented the major findings from Stakeholder and Community Meetings, along with the preliminary Plan elements including the *Kaua`i Energy Sustainability Goals and Objectives Statement*:

Kaua`i, in both the Ground Transportation and Electricity Sectors will...

1. Reduce demand through energy conservation and efficiency
2. Increase clean energy supply
3. Make energy delivery more efficient

...to meet the Goal of 100% Local Energy Sustainability by 2030.

SECTION 3: GROUND TRANSPORTATION SECTOR ENERGY ANALYSIS

Current and Projected Energy Demand, as well as Current and Projected Supply, are detailed in this section based on best available data. Recommendations for the Ground Transportation Sector are based on outcomes of the community engagement, as well as this energy analysis.

SECTION 4: GROUND TRANSPORTATION SECTOR RECOMMENDATIONS

As the SENTECH Hawai`i Team worked with stakeholders and the public in developing these recommendations, the following highlights became apparent:

- Greater impact from **demand reduction** (bus, efficient vehicles, etc.) will be achieved in this sector.
- **Increased supply** will be trickier due to land costs and availability.
- Lowered level of *Fossil Fuel Tax* will translate to a lower energy sustainability goal.
- At some point, refineries may switch to 100% “drop-in” biofuels, which could become a tipping point for Kaua`i to become completely reliant on biofuels such as locally produced ethanol, biodiesel, and Straight Vegetable Oil (SVO).

The following tables provide an overview of Recommendations 4.1-4.7 for the Ground Transportation sector.

Implementation of Recommendation 4.1: To Reduce Consumption of Fossil Fuels, Pass 2% Fossil Fuel Tax

Recommended Action	Costs	Responsible Parties	Timeline
Levy 2% tax on gasoline and diesel from imported oil to build <i>Alternative Ground Transportation Modes & Fuels Fund</i> .	NA	<ul style="list-style-type: none"> • Kaua`i County Council • Kaua`i Tax Department 	2010-2011
Administer <i>Alternative Ground Transportation Modes & Fuels Fund</i> , funded by 5% fee which would also allow community outreach and education activities by the Sustainable Energy Team.	\$2,130,000	<ul style="list-style-type: none"> • Sustainable Energy Team 	2011-2028

Implementation of Recommendation 4.2: To Reduce Consumption of Fossil Fuels, Improve Kaua`i Bus System

Recommended Action	Costs	Responsible Parties	Timeline
Extend service and range, add surfboard racks, add wireless Internet to 20 buses for 5 years, build 5 Park-and-Rides, and build 10 shelters.	\$3,300,000	<ul style="list-style-type: none"> • Kaua`i County Council • Kaua`i Tax Department • Kaua`i Office of Economic Development 	2010-2012

Implementation of Recommendation 4.3: To Reduce Consumption of Fossil Fuels, Offer Hybrid Electric Vehicle Incentives

Recommended Action	Costs	Responsible Parties	Timeline
Support \$2,500 HEV incentive program for 5,000 cars. Incentives offered through and administered by auto dealers.	\$12,500,000	<ul style="list-style-type: none"> • Kaua`i County Council • Kaua`i Tax Department • Auto dealers 	2012-2017

Implementation of Recommendation 4.4: To Reduce Consumption of Fossil Fuels, Support “As Needed” Visitor Vehicle Rentals

Recommended Action	Costs	Responsible Parties	Timeline
Develop and release competitive solicitation to develop hourly visitor vehicle rental program with preferences given to efficient vehicles such as EVs, HEVs, and those using locally grown biofuels such as ethanol and biodiesel.	\$2,000,000	<ul style="list-style-type: none"> • Kaua`i County Council 	2018-2019

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Implementation of Recommendation 4.5: To Increase Renewable Fuel Production/Use, Purchase 5 Vegetable Oil Presses to Allow Small Farmers to Produce Straight Vegetable Oil

Recommended Action	Costs	Responsible Parties	Timeline
Purchase 5 multi-oil crop presses @ \$2,000 apiece that can be shared across 5 neighborhoods to allow small farmers and agricultural condos to produce a small amount of Straight Vegetable Oil for niche markets.	\$10,000	<ul style="list-style-type: none"> Kaua`i County Council 	2015-2020 (depends on when crops are grown)

Implementation of Recommendation 4.6: To Increase Renewable Fuel Production/Use, Offer Incentives to Convert Gasoline Vehicles to Gasoline/Ethanol Flex Fuel Vehicles

Recommended Action	Costs	Responsible Parties	Timeline
Offer \$2,000 incentives for 5,000 vehicles, once funds are available. Auto dealers would work with the County to administer the incentives.	\$10,000,000	<ul style="list-style-type: none"> Kaua`i Office of Economic Development Vehicle dealers 	2015-2030 (depending on availability of ethanol)

Implementation of Recommendation 4.7: To Increase Renewable Energy Use for Ground Transportation, Offer PHEV Incentives and Support Night-Time Charging Infrastructure

Recommended Action	Costs	Responsible Parties	Timeline
\$5,000 PHEV incentive program for 2,000 PHEVs and residential chargers programmed to only charge at night	\$10,000,000	<ul style="list-style-type: none"> Kaua`i Office of Economic Development Vehicle dealers 	2015-2030
Support Smart Grid charging infrastructure	\$2,500,000	<ul style="list-style-type: none"> KIUC 	2015-2030

Further details, including the rationale for each recommendation, impact, and related policies, can be found in Section 4.

SECTION 5: ELECTRICITY SECTOR ENERGY ANALYSIS

Current and Projected Energy Demand, as well as Current and Projected Supply, are detailed in this section based on best available data. Recommendations for the Electricity Sector are based on outcomes of the community engagement, as well as this energy analysis.

SECTION 6: ELECTRICITY SECTOR RECOMMENDATIONS

As the SENTECH Hawai`i Team worked with stakeholders and the public in developing these recommendations, the following highlights became apparent:

- Greater impact from **increased supply** of sustainable electricity could be achieved—and the community can still realistically reach 100% energy sustainability.
- **Demand reduction** is essentially less of an opportunity since homeowners don’t use much electricity, solar water heating is widespread, and it is fairly difficult to influence many small business owners.
- Success in reaching the 100% energy sustainability goal is highly dependent on community acceptance of higher upfront costs for long-term benefits.

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The following tables provide an overview of Recommendations 6.1–6.3 for the Electricity sector.

Implementation of Recommendation 6.1: To Decrease Electricity Demand, Divert 7.5% of KIUC Franchise Tax to Enable County to Lead Energy Efficiency Initiatives

Recommended Action	Costs	Amount of Funds Raised
6.1: Divert 7.5% of KIUC Franchise Tax to allow County to Lead Energy Efficiency Efforts	County to fund Energy Manager, and Facilities Specialist in OED by temporary diversion of KIUC Franchise Tax. County to work with HI State Legislature to permanently raise KIUC Franchise Tax.	\$255,000/year
6.2: Permanently Raise KIUC Franchise Tax to Mandate <i>Open Source Project Development Process</i> for Large-Scale Renewable Energy	<ul style="list-style-type: none"> County to fund Renewable Energy Project Facilitator in OED County to conduct Environmental Impact Assessments <i>Sustainable Energy Team</i> to conduct community outreach. 	<ul style="list-style-type: none"> \$150,000/year \$150,000/year \$300,000/year
6.3: Property Assessed Clean Energy Bonds for Distributed Energy	County to fund PACE Bonds Manager in Real Property office.	\$122,500/year

Implementation of Recommendation 6.2: To Increase Large-Scale Renewable Energy, Increase KIUC Franchise Tax by 30% to Facilitate Open Source Project Development Process

Recommended Action	Costs	Responsible Parties	Timeline
Work with the Hawai`i State Legislature and Hawai`i Public Utilities Commission to permanently raise the KIUC Franchise Tax paid to the County by 30% to solidify funding needed to help the community achieve its renewable energy goals.	NA	<ul style="list-style-type: none"> Kaua`i County Council KIUC Hawai`i State Legislature Hawai`i Public Utilities Commission 	2010-2012
Enable the Sustainable Energy Team to conduct community outreach, including assessing which projects the community would resist or accept.	\$150,000/year	<ul style="list-style-type: none"> Kaua`i County Office of Economic Development Sustainable Energy Team 	2012-2030
Create and fund a Renewable Energy Facilitator position in the Office of Economic Development, modeled after DBEDT’s position which focuses on helping developers navigate the permitting process, provide general guidance on financing, etc.	\$150,000/year	<ul style="list-style-type: none"> Kaua`i County Office of Economic Development 	2012-2030
Have the ability to conduct 2-3 high priority Environmental Impact Assessments/year by qualified consultants.	\$300,000/year	<ul style="list-style-type: none"> Kaua`i County Office of Economic Development Environmental impact consultants 	2012-2030

Implementation of Recommendation 6.3: Participate in PACE Program to Increase Distributed Energy Capacity

Recommended Action	Costs	Responsible Parties	Timeline
Work with the Hawai`i State Legislature and Hawai`i Public Utilities Commission to	NA	<ul style="list-style-type: none"> Kaua`i County Council KIUC 	2010-2012

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permanently raise the KIUC Franchise Tax paid to the County by 30% to solidify funding needed to help the community achieve its renewable energy goals.		<ul style="list-style-type: none"> • Hawai`i State Legislature • Hawai`i Public Utilities Commission 	
Create and fund a PACE Bonds Manager position in the Real Property office.	\$150,000/year	<ul style="list-style-type: none"> • Kaua`i County Office of Economic Development • Real Property office 	2012-2030

Further details including the rationale for each recommendation, impact, and related policies can be found in Section 6.

SECTION 7: WASTE-TO-ENERGY CONSIDERATIONS

The County of Kaua`i’s Integrated Solid Waste Management Plan (ISWMP) update, adopted by the County Council in February 2010, recommends waste-to-energy (WTE) technology among a menu of options for managing the County’s solid waste stream. In addition to reducing the volume of waste processed by up to 90 percent, WTE is an energy source that could have a significant effect on generation capacity. In addition to being identified in the County’s ISWMP, WTE has also been identified by KIUC as one of its top two recommended renewable energy projects.

Although WTE could contribute to Kaua`i’s non-fossil fuel generation mix, there are clearly many questions regarding the use of this technology on Kaua`i which raise doubt as to when, or if, WTE will be implemented. Emerging technologies from nearby O`ahu, Japan, etc. will be examined as “best available technology” solutions.

SECTION 8: WIND ENERGY CONSIDERATIONS

Regardless of the economic and technical benefits of wind, its development on Kaua`i has been essentially put on hold due to federal regulations regarding the endangered Newell Shearwater and other endangered bird and mammal species; some community and local opposition centering on visual impacts; and location (remoteness of the best potential sites). Kaua`i faces more stringent environmental restrictions due to its large populations of endangered avian species compared to the other Hawaiian Islands.

Until and unless some of these or other solutions are realized, alternative wind technologies that may avoid the avian issues can be assessed. The odds of developing offshore wind, because it could mitigate avian concerns on Kaua`i, are not high since its continental shelf does not extend out far enough, according to representatives of wind developers familiar with Kaua`i—but the County and developers should find firm data to confirm or deny this assertion. Another intriguing idea is to place wind turbines out to sea utilizing a floating wind turbine technology, which places the turbines outside of visual impacts and bird migrations.

SECTION 9: RECOMMENDATIONS FOR SUCCESSFUL PLAN IMPLEMENTATION

The Kaua`i Energy Sustainability Plan (KESP) final recommendations were presented to the Kaua`i County Council on April 14, 2010. Next steps could include the following, in part undertaken by the Mayor’s Office and the Kaua`i County Council:

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- Debate
- Craft legislation
- Adopt legislation, e.g. in the form of a resolution
- Work with Finance Department to levy taxes.

While the SENTECH Hawai`i Team does not want to be overly prescriptive in how the citizens of Kaua`i implement the KESP, it would urge the community to consider the following concepts.

There are many stakeholders, vested interests, and strong opinions regarding the reduction of energy demand and the increase of sustainable energy supply on Kaua`i, which could create conflicting or competing interests in regard to the successful implementation of the KESP.

To increase the odds of the successful and timely implementation of the plan, a *Sustainable Energy Team* (SET) should be formed with the following operational parameters:

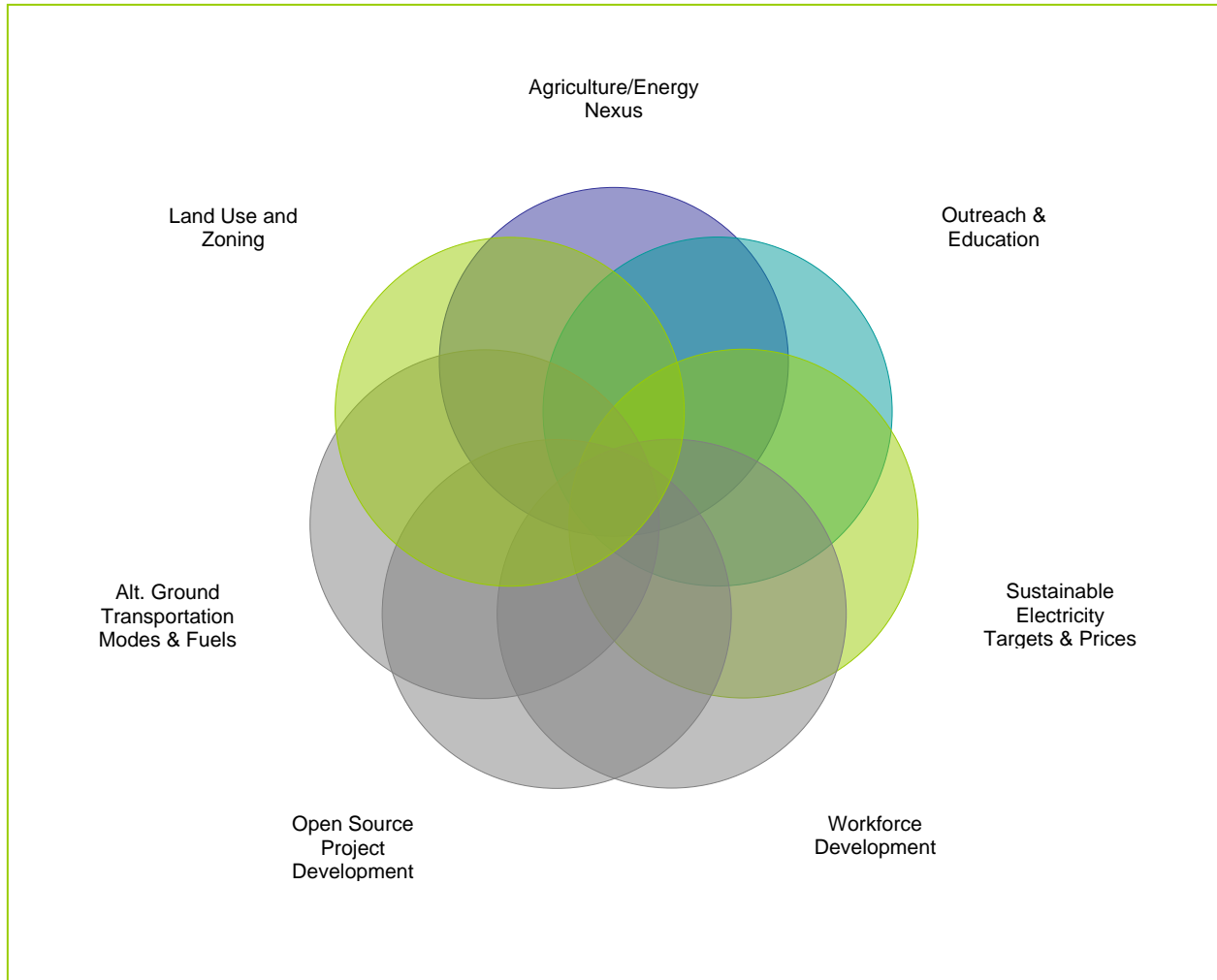
- Meet quarterly to ensure progress
- Report to Mayor's Office
- Funded by County Fossil Fuel Tax + KIUC Franchise Tax Increase
- Facilitated by third party to ensure objectivity.

The SET could be structured along conventional committee lines, e.g.:

- ***Executive Committee***
 - Track funding and expenditures, set course for implementation, conduct outreach
 - Members could include County Office of Economic Development, KIUC, EPAC
- ***Topical Issues Committees***
 - To assess information on special topics, make recommendations to Executive Committee
 - Participants could include KEDB, Farm Bureau, Environmental Groups, Kaua`i Community College, Investment Community, DBEDT, Auto Dealers, Refineries, Developers, Land Owners.

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The following illustration shows topical issues that the SET may want to address and Topical Issue Committees that it may want to form.



More details on these issues and committees can be found in Section 9.