

Mayor's Energy Advisory Commission Final Report to Mayor Harry Kim

Executive Summary

I. Background

a. Formation and Membership of the Mayor's Energy Advisory Commission

The Hawai'i County Mayor's Energy Advisory Commission (EAC) was established by the Mayor, pursuant to Article 11, Section 4-4 of the Hawai'i County Charter, as amended (2000 Edition). The purpose of the commission was to continue the momentum created by the completion of the Hawai'i County Energy Sustainability Plan (HCESP) dated October, 2007 and to advise the Mayor on the implementation of the HCESP.

Commissioners were selected and appointed to represent a diversity of interests and knowledge related to energy, sustainability and Hawai'i Island's natural resources and energy infrastructure.

The five (5) commissioners appointed to the EAC were as follows:

- Jacqui Hoover, Commission Chair, Hawai'i Leeward Planning Conference, President
- Michael Kramer, Commission Vice-Chair, Natural Investments LLC, Managing Partner and Director of Social Research
- Riley Smith, P.E., Clearcom, Vice-President – Construction
- Steve Burns, HECO, Senior Technical Services Engineer
- Richard Ha, Hamakua Springs Country Farms, President

b. Hawai'i County Energy Sustainability Plan

In recognition of Hawai'i County's dependency on fossil fuels, the Hawai'i County Council and the Hawai'i County Department of Research and Development determine that it would be advantageous to develop a plan to transition the island from fossil fuel use for transportation and electrical generation to a system based on greater efficiency and renewable energy. With funding provided by the Council and the Department, the Hawai'i County Energy Sustainability Plan (HCESP) was initiated. The primary joint contributors included the Kohala Center, the Yale School of Forestry and Environmental Studies, and the Department of Research and Development. The HCESP was completed in October, 2007 and accepted by the Mayor and County Council in early 2008.

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The HCESP included a broad evaluation of the county's energy supply and demand. Energy generation was projected for the future under a "business as usual" scenario, and under an aggressive scenario in which greater efficiency and a diverse menu of renewable energy actions could be implemented. While the HCESP made many recommendations, it really served as an initial roadmap for the county's future efforts to wean itself from the current fossil-fuel-based energy structure.

As a result, it was unclear which initiatives should be pursued earliest (because they had the most immediate effectiveness), how easily initiatives could be implemented, what the costs (social, economic, environmental, etc.) were for the initiatives, etc. Therefore, the EAC was formed to begin the process of moving the recommendations of the HCESP to the next step, implementation.

c. Mission of the Commission

The mission of the EAC is to support the implementation of the HCESP, including the identification of priority initiatives, evaluation of required resources, establishment of benchmarks and timelines, and practical strategies toward action. Where appropriate, the EAC has referenced complementary studies, research, documents, plans and initiatives from other places that could serve as an example for Hawai'i County.

d. How the EAC's Committees Were Formed

Early on in the process, it became apparent that since a wide range of issues were covered by the HCESP, it would be easier to recommend specific initiatives in this final report if the issues covered by the HCESP were divided up into five subject areas, to be investigated by five (5) committees made up of no more than two (2) members each (to provide for compliance with Hawai'i's Sunshine Law). Therefore, each committee consisted of a chairperson plus an additional EAC member as finalized during the July 3, 2008 EAC meeting. (See Section g below).

e. What the Committees Developed

Each committee worked independently of the rest of the EAC to evaluate the recommendations within the HCESP that fell under its purview and to prioritize those measures that could have the most benefit to the county, along with any additional concepts that were not formally presented in the HCESP itself. Much of this effort took place with the recognition that the commission had a limited duration, and it was unclear if the next administration would continue the EAC in some form.

Through an iterative process, each committee presented recommendations to the EAC as a whole, and ideas were vetted and modified through dialogue at the EAC meetings. The five (5) individual reports that follow this Executive Summary are the product of the committees' work and reflect the approval of the EAC as a whole.

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Water Supply and Use Committee: The Water Supply and Use Committee report (attached) recognizes the high level of energy expended for pumping water by the County Department of Water Supply, private water systems, and, to a limited extent, individual property owners on catchment. The Department of Agriculture and potential developers of “pumped hydro” systems were considered as well. The Committee’s report considers a range of policies that could be promoted to deploy conservation programs and promote renewable resources for pumping. The goal would be to reduce the consumption of fossil-fuel-based power with each type of water provider.

Transportation/Biofuels Committee: The Transportation/Biofuels Committee report (attached) recommends a number of actions that Hawai`i County can pursue to advocate and promote development of biofuels in Hawai`i County (specifically via the BioEnergy Master Plan process already underway) while being cognizant of the potential impacts and concerns related to food security. The committee also recommends alternative transportation technologies and new efficiency measures for our transportation infrastructure. Finally, additional measures not considered in the HCESP are suggested.

Buildings Committee: The Building Committee report (attached) recognizes that the key to the public adoption of conservation practices rests with the County taking a far more proactive role to educate citizens and design and build professionals on the cost-saving steps they can take to reduce energy use. The report identifies a range of code changes, educational initiatives, financial incentives, ordinances, and staff capacity needs that Hawai`i County could implement to significantly reduce its energy use, thereby saving a substantial amount of money while extending the availability of energy resources in the next 30 years.

Utilities: The Utilities Committee report (attached) considered a range of endorsements or support actions that Hawai`i County can advocate to move the island and state forward in encouraging the utilities’ implementation of renewable energy generation. Many of these policies run in tandem with recent state-level actions under the Hawai`i Clean Energy Initiative. The report also encourages investigating rebates, tax credits and financing programs to encourage greater use of solar energy generation, with the caveat that the financial implications of such programs be considered fully before they are adopted. Finally, public outreach efforts are promoted.

Planning Considerations Committee: The Planning Considerations Committee report (attached) recommends planning efforts under a near-term (1-2 year), mid-term (3-7 year) and longer-term (8-15 year) timeframe. The broad intent of the Planning Considerations Committee was to lay out a planning framework (also attached) and to provide useful resources for the development of a comprehensive energy sustainability plan for Hawai`i County. The development of the framework is intended to provide recommended guidelines for how to pursue and target the achievement of energy sustainability for Hawai`i Island. While the HCESP provides a very comprehensive list of fossil fuel reduction initiatives that could be pursued, additional planning details are required to transform the HCESP into a comprehensive energy sustainability plan for Hawai`i County.

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Some of these added planning details include a clear acknowledgement regarding the basis or need for sustainability planning as well as an understanding of the benefits achieved by this pursuit; the recommended community-based planning approaches to use in developing a comprehensive energy sustainability plan; a characterization of the urgency of this effort in relation to the current planning environment and the associated overarching influences to be observed in the planning process; the justification for a firm planning schedule, an associated action plan with implementation timeline, and progress/success measurement mechanisms; a review of best practices in energy sustainability from other areas of the world; identification of acceptable growth impact mitigation strategies; identification of possible funding options and manpower requirements including collaboration options; and other critical planning details that are essential to consider in the development of a comprehensive energy sustainability plan for Hawai'i County.

Because of the severe time limitations involved for this Commission's term and consequently for development of detailed and extensive reports and recommendations, the recommendations being presented should be acknowledged as being preliminary in nature. It should also be acknowledged that the work of an Energy Advisory Commission has really just begun, especially with regard to the potential for the achievement of energy sustainability within Hawai'i County. The completion of the Energy Sustainability Planning Considerations Report should be regarded as an activity to be pursued within the next Administration in facilitating the development of a comprehensive energy sustainability plan for Hawai'i County. At the same time, this document should be considered a living document that is intended to evolve over time as new technologies, approaches, and ideas become available as well as more time being available for enhanced and enlarged participation in its development.

f. Length of the Commission's Term

The EAC met for a total of 10 meetings between its initial convening meeting on June 5, 2008 and its final meeting on November 14, 2008. Earlier in the process, meetings were held roughly once a month, but were then held roughly once a week during the final month so as to complete this report in time for the Mayor to review it.

g. Committee Chairs and Co-Chairs

The Committees were as follows:

Committee Name	Chair	Commission Member
Water Supply and Use/Other	Riley Smith	Jacqui Hoover
Transportation/Biofuels	Richard Ha	Riley Smith
Building	Michael Kramer	Steve Burns
Utilities/Efficiency/Renewables/Electricity Generation	Jacqui Hoover	Michael Kramer
Planning Considerations	Steve Burns	Richard Ha

Executive Summary

II. Recommendations

The Commission has made numerous recommendations, found in the individual Committee Reports that follow this summary.

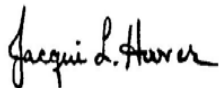
The primary general recommendation to come out of the EAC is to continue this Commission in its present form or to convene a new body under the new administration, and to provide funding and staff support. While five (5) months was enough time to complete initial prioritization of actions from the plan, the other aspects of the Commission's duties and responsibilities:

- Developing a strategy to implement the priorities identified;
- Assessing potential collaborators and other needed resources;
- Making funding recommendations; and
- Incorporating complementary plans, studies, and initiatives;

were not possible for the EAC to address with much depth in such a short period of time. In addition, while the EAC vetted numerous concepts in the HCESP down to those thought to be realistic and achievable, the EAC did not analyze them to a depth required to move them to implementation. For this reason, the EAC believes the outgoing Mayor should recommend to the incoming Mayor that the Commission be reconvened under the next administration.

On behalf of the Mayor's Energy Advisory Commission members, we would like to thank you for the opportunity to serve and advance energy initiative in the County of Hawai'i.

Sincerely,



Jacqui Hoover
Commission Chair

**Hawai`i County Energy Advisory Commission
Water Supply & Use Committee**

Final Report and Recommendations

November 6, 2008

Policies

I. Municipal Water System/Department of Water Supply

- a. Maintain existing program to identify/repair water leaks (refer to DWS Energy Costs report, dated 8/08 addressing; additional transmission main metering equipment, automated meter reading equipment, additional permalog leak detectors).
- b. Where practicable install photovoltaic power systems at pump stations.
- c. Promote current conservation policies and public conservation education, and consider new strategies for public outreach including and not limited to, bill inserts.
- d. Develop and implement demand side management strategies such as, inverted pricing structure to penalize excessive usage.
- e. Develop high level aquifer/water sources, utilize in line generators and distribute water to customers at lower elevations
- f. Pursue Federal funding opportunities (USDA, RUS – Water, USGS) for infrastructure and source development.
- g. Utilize in line hydro generators, where there are high level sources, servicing lower elevation customers.

II. Private Water Systems/PUC Regulated

Consider and promote strategies:

- a. Rainwater harvesting
- b. Water reuse/dual water systems
- c. Inverted pricing structure to penalize excessive usage
- d. Pursue Federal Department of Energy funding programs

III. Private Water Systems/non PUC Regulated (Individual catchment systems)

- a. Support public education for private catchment users including and not limited to, collaborative efforts with public and private sector entities to develop a list of technologies and other information for distribution to and inclusion in public outreach and education program(s) on catchment systems.

Chapter 1 – Water Supply/Use

IV. State Department of Agriculture

- a. Cooperate with agricultural needs, during drought conditions.

V. Pumped Hydro

- a. Cooperate with private developers of alternative power sources to convert from intermittent to firm power.

**Mayor’s Energy Advisory Commission
Transportation and BioFuels Committee**

Final Report and Recommendations

November 6, 2008

The State of Hawaii has signed a Memorandum of Understanding with the U.S. Department of Energy that serves as the foundation of the state’s Clean Energy Initiative. Recent announcements of public-private sector collaborations including work with Hawaii Electric Company and affiliates in the bioenergy arena are tied to this initiative. The state is simultaneously undertaking development of a BioEnergy Master Plan that again involves both public and private sector resources.

In October 2008, The Hawaii Science & Technology Institute released a report titled “Innovation and Technology in Hawaii: An Economic and Workforce Profile” that summarizes an “assessment of the workforce needs... as a companion to an analysis of the emerging industries in the state’s technology sector.”¹

Many of the state’s initiatives are based on recognition of “the importance of innovation as a mechanism for creating a more productive and prosperous economy.”²

“Private-sector innovation thrives in places where knowledge creation, entrepreneurship, and risk-taking are valued, and where a creative and talented workforce is available. However, the public-sector also plays an important role in nurturing an environment that encourages innovation and takes advantage of opportunities emerging from businesses, colleges and universities, and public and private research laboratories. This can and should be done through the public-sector’s central role in education and workforce development, infrastructure provision, taxation, and regulation, land management and planning, and economic development. However, crafting effective and broad-based economic development strategies requires an in-depth understanding of the role of innovation in Hawaii’s economy.”³

As such, the commission recommends that the County of Hawaii support clean energy initiative outcomes through actions such as, including and not limited to,

- a. Participation in discussions and advocacy for representation from both public and private sector Hawaii County stakeholder interests on state task force and other working and policy groups in discussing and drafting public policy, including and not

¹ Innovation and Technology in Hawaii: An Economic and Workforce Profile. Prepared for the Hawaii Science & Technology Institute. Prepared by the Center for Regional Economic Competitiveness. October 2008. Available on-line at http://www.hiscitech.org/_data/n_0001/resources/live/Innovation+Tech+Hawaii+Report+Sept30.pdf

² *ibid.*

³ *ibid.*

Chapter 2 – Transportation/BioFuels

limited to development of the Hawaii BioEnergy Master Plan and related land use and management in Hawaii County;

- b. Identify impacts to Hawaii County by state initiatives and measures for mitigation (e.g., should biofuel crops grown & processed on Hawaii Island for export to other islands be subject to a special tax/fee to support remediation and/or infrastructure repairs and maintenance?);
- c. Researching and supporting technologies that support Hawaii Clean Energy Initiatives and make sense as part of the “tool box” for energy self-sufficiency and sustainability in Hawaii;
- d. Supporting and developing policies and initiatives that will assist in establishing and maintaining an environment “where knowledge creation, entrepreneurship, and risk-taking are valued” and which allow private-sector innovation to thrive;
- e. Establishing and supporting programs to provide relevant training and other workforce development opportunities;
- f. Consideration and establishment of public-private sector workforce development and job placement opportunities;
- g. Researching sources of and securing funding through public and private sources to support aforementioned tasks;
- h. Comprehensive review of policies and support for biofuel and food security initiatives as identified in future 2009 Hawai`i County Agricultural Development Plan that strive for a balance including and not limited to, as related to land use.

Pg 139. Recommendation 8.5. For vehicles purchased for the County fleet, require that an increasing share of new light duty vehicles meet energy efficient vehicle standards set by HRS 103D-412. It is recommended that the county implement this policy as soon as practicable.

Concurrently, the commission recommends that new technologies and vehicles for public transit such as for example including and not limited to hybrid and/or alternative fuel buses be considered and where practical, be integrated into the public transit fleet as soon as practicable. These efforts shall include relevant inter-agency (Departments of Transit, Research & Development, Planning, etc) discussions be undertaken to identify all relevant tasks including and not limited to, financing, infrastructure, environmental studies, planning and engineering, etc.

Where practical, the County should review and advocate for and seek implementation of financing and smart growth tools including and not limited to Transportation Development Districts. County facilities are being designed to comply as much as possible with U.S. Green

Chapter 2 – Transportation/BioFuels

Building standards and the Mayor's Energy Advisory Commission recommends that Hawai'i County design facilities that make provisions to include electric vehicle charging stations. Continue low cost and free public transit programs. The County should also continue support for and expand opportunities for shared ride and park and ride programs including the development and implementation of a clearinghouse where residents can register to participate and identify in such programs.

It is recommended that Hawai'i County consider and implement a demonstration pilot program for clean energy public transit, including research and efforts to secure funds for a clean energy public transit vehicle. Financing should be sought from multiple sources both public and private. The County facilities should also include U.S. Green Building Standard electric vehicle charging stations, where appropriate and feasible based on cost-benefit analysis.

Hawai'i County should conduct a study of other alternative transportation including and not limited to, water taxi.

Pg 143. Recommendation 8.7. Evaluate new technologies and related costs including and not limited to photovoltaic and/or LED installations to power the county's streetlights and traffic signals. It is recommended that the county choose the best practice under the circumstances.

Transportation. Private sector: Hawai'i County to advocate, support, and/or develop and implement energy sustainability education programs. In addition to seeking federal financing opportunities through including and not limited to such sources as Rural Development; Department of Transportation; Department of Energy to support public transit, infrastructure, public education and outreach, sustainability, security, etc., the County should identify and consider other public and private sectors sources of financing and collaboration.

The County of Hawaii may also wish to consider initiatives and incentives that encourage the purchase such as including and not limited reduced vehicle registration/licensing fees.

- Note: An example of how failure to undertake the recommended comprehensive analysis can lead to severe inadvertent consequences is a law passed in 2007 in Arizona that was intended to help mitigate air pollution, global warming, etc. by extending tax credits to purchasers of **new** vehicles equal to the expense of adding an alternative-fuel tank, plus 30 percent of the vehicles total cost. The language designating "new" vehicles was inadvertently omitted before the bill was passed and the costs of the program originally estimated at \$10 million skyrocketed to exposure in excess of \$600 million to the State of Arizona (which was ultimately reduced to \$200 million when the law was changed in 2008).

ADDITIONAL RECOMMENDATIONS:

- I. The County of Hawai'i should develop and implement public education and outreach programs that provide information relevant to peak oil, County fuel

Chapter 2 – Transportation/BioFuels

supply and sources; County (island) reserves and capacity (e.g. # of days of petroleum on island); and recommendations on how residents can support County energy self-sufficiency and sustainability initiatives;

- II. The County of Hawai'i should consider review of relevant sectors and impacts including and not limited to those undertaken by the Portland Peak Oil Task Force which considered Transportation and Land Use as one of four key sectors to review and sought answers to the following key questions:
 - a. How will freight move?
 - b. How will people get to work?
 - c. How will land use be affected?
 - d. How can land use help?

And also considered the following key impacts:

- e. Freight cost increase result in a shift in mode of shipping – less air and trucking, more rail and boat
 - f. Less driving, demand for alternative transportation
 - g. Road maintenance costs increase – asphalt more costly
 - h. Airlines first to feel impacts – energy costs up 100%, fuel represents more than 30% of airline operating costs, 70% of flights are discretionary
 - i. Tourism identified as early casualty as discretionary spending cut
 - j. People and Businesses relocate
 - k. Increased density, mixed use development
- III. The County of Hawai'i should integrate considerations of food and water security into discussions and policies on energy security.

**Mayor’s Energy Advisory Commission
Building Subcommittee**

Final Policy Recommendation

November 5, 2008

Hawai`i County must assert its leadership in the realm of energy efficiency, as well over half the sustainability targets articulated in the Hawai`i County Energy Sustainability Plan (10/07) derive from conservation and efficiency efforts. Such measures pertain not only to County facilities, but also to residences and commercial facilities governed by County building codes. In addition, the key to the public adoption of conservation practices rests with the County taking a far more proactive role to educate citizens and design and build professionals on the cost-saving steps they can take to reduce energy use. Through code changes, educational initiatives, and financial incentives, the island can significantly reduce its energy use, thereby saving a substantial amount of money while extending the availability of energy resources in the next 30 years.

The Energy Advisory Commission recommends that Hawai`i County immediately pursue the following strategies identified in the 2007 Plan:

- I. Adopt the IECC-2006 Model Energy Code.** While the Hawai`i State Building Council works through its modifications suited to Hawai`i, we should adopt this internationally-recognized standard immediately, as its provisions will have an immediate positive impact. Once the State Building Code modifies the Code to suit Hawai`i climactic characteristics, the administration can re-examine the new code and make changes as necessary. Once adopted, the state will require each county to adopt the IECC-2006 or a more stringent version within 2 years. While the Hawai`i County Building Division is concerned about the added costs of energy efficiency and its specific impact on low-income residents, the Commission believes that incentives and education could sufficiently address these concerns by highlighting the true life-cycle costs and payback periods of the various strategies recommended, which ultimately will result in significant cost savings to County residents and businesses. While the State Building Council is currently modifying the IECC-2006 code, the Commission recommends that the Administration assure that the following specific policies are included as amendments to the adoption of the IECC-2006 Code for new construction:
 - a. End exemption status for new residential buildings
 - b. Require buildings 5000 sq ft or larger to follow the commercial code
 - c. Require proper roof ventilation, i.e. perimeter and ridge ventilation
 - d. Require radiant heat barriers at roof sheathing.
 - e. Require at least 4’ roof overhang
 - f. Require R-19 roof insulation for air-conditioned homes and those below 800 foot elevation
 - g. Require natural light in every room, with active lights for backup use.

Chapter 3 – Building

Fund via resources from vacant positions - to conduct a complete analysis of County-owned facility conditions, including an assessment of their remaining lifespans, and calculate the ROI for immediate replacement of more efficient materials and equipment such as the building envelope, lighting systems, air conditioning, attic ventilation and insulation

- d. Assist residential and commercial building owners in conducting green facility retrofits in accordance with IECC-2066, Hawai`i BuiltGreen, and Energy Star

VIII. The Department of Research & Development should increase its capacity to coordinate the development of new energy efficient policies and practices.

- a. Analyze feasibility of the following Report recommendations:
 - i. Develop financial incentive program in conjunction with the Finance Department in the areas of permitting fee reductions and property tax credits for highly energy efficient buildings and commercial rainwater harvesting and storm water irrigation piping, while developing a County renewable energy loan fund that loans homeowners money for PV and solar hot water system purchases and uses property tax mechanism for loan payment (a la City of Berkeley)
 - ii. Establish a sustainability impact fee ordinance that establishes a fund collected from builders and developers of new projects that ignore energy efficiency measures, as determined by an Energy Footprint scale such as Home Performance with Energy Star or Hawai`i BuiltGreen®
 - iii. Coordinate advocacy on how the new Public Benefit Fund (formerly managed by the utility but soon to be administered by a third party) should be used, such as:
 1. train contractors as energy auditors and subsidize the preliminary home or business audit; contractors would produce cost estimates with payback periods for retrofit and be eligible for implementation of these measures
 2. help builders pay for green certifications and ratings
 3. train building engineers as certified energy efficiency building operators
 4. pay consumers the price difference for Energy Star appliances
 5. offer staggered rebates over a 5-year period to homeowners whose homes meet high standards of energy efficiency
 6. pay commissioning agents for all new large construction projects to document compliance with code criteria
- b. Administer public energy conservation program

Chapter 3 – Building

- i. Produce yellow Energy Star label for all appliances sold on the island that contains Hawai`i utility rate information, or produce a poster that retailers would be obligated to post adjacent to appliances that shows the actual electricity rates and cost savings associated with Energy Star appliances in Hawai`i
 - ii. Publish best practices guidelines for green building and energy efficiency; maintain information clearinghouse and resource/consultant directory database on website
 - iii. Conduct workshops that encourage homeowners to adopt Hawai`i BuiltGreen Self-Certification Checklist
 - iv. Distribute list of all financial energy efficiency incentives available at all levels of government
 - c. Administer professional green building training program
 - i. Produce best practices guidelines and cost-benefit analysis for building green building and implementing energy efficiency measures
 - ii. Conduct trainings for builders on green building strategies using Energy Star planning tools; encourage builders to become LEED certified
 - iii. Certify builders who use Energy Star or Hawai`i BuiltGreen standards so each home doesn't have to be rated, but the development or project can be rated.
 - d. Implement County personnel training program on energy saving behaviors
 - e. Staff Energy Advisory Commission
 - f. Seek funding from the following sources to support these various efforts:
 - i. Hawai`i Clean Energy Initiative
 - ii. NELHA's energy-related industries
 - iii. The geothermal royalty
- IX. Support real estate professionals** in establishment of "Eco-broker" designation and establishment of "green MLS" for the island
- X. Support Hawai`i Community College** in adding green building and energy efficiency educational offerings in building and trades program
- XI. Support schools and hospitals** in establishment of building efficiency program
 - a. Continue to expand energy conservation curriculum in schools

**Mayor’s Energy Advisory Commission
Utilities Committee Report**

Final Report and Recommendations

November 6, 2008

Of the recommendations made in the report titled Analysis and Recommendations for the Hawai`i County Energy Sustainability Plan (HHCESP) dated October 3, 2007, the following are recommendations of endorsement/support actions that can be acted upon immediately by the County of Hawai`i Administration:

I. Competitive Bidding (Page 35 of HCESP)

- a. Recommendation 3.8: Enforce the use of competitive bidding for non-fossil fuel generation by encouraging the Public Utilities Commission (PUC) to deny waivers. Incorporate timetables to allow bidding on new projects into the IRP-4.

II. Avoided Cost (Page 37 of HCESP)

- a. Recommendation 3.9: Support ongoing PUC efforts to delink avoided costs paid to renewable independent power producers from the cost of fuel.

III. Utility Risk Sharing (Page 38 of HCESP)

- a. Recommendation 3.10: Encourage the PUC to incorporate utility risk sharing through modification of the energy cost adjustment clause.

IV. Renewable Portfolio Standard (Page 40 of HCESP)

- a. Recommendation 3.12: Support efforts to amend the definition of renewable energy in the Renewable Portfolio Standard to separate and create independent standards for renewable generation and energy efficiency.

V. Renewable Portfolio Standard (Page 43 of HCESP)

- a. Recommendation 3.13: Endorse action by the PUC Hawai`i Natural Energy Institute, and the peer reviewers to set goals for the Renewable Portfolio Standard that are high enough to encourage increased renewable generation.

VI. Integrated Resource Planning-3

Chapter 4 - Utilities

- a. Recommendation 3.15: Support the incorporation of a more ambitious renewable energy target into the preferred option of the IRP-3. {Note: As IRP-4 is underway, support incorporation of more ambitious renewable energy target into IRP-4 outcomes}.

VII. Section 3. Electricity Supply – Centralized: Current Electricity Use and Future Scenarios

- a. Note that the recommendations made in Section 3 of the HCESP focus primarily on HELCO and PUC issues. As the County has limited influence over decision making in these matters and issues identified are handled primarily through the Integrated Resource Plan (IRP) process, the County is strongly urged to recognize that engagement with and comments to the PUC offer the most direct avenue for advocacy by the County in the noted areas of concern.

VIII. Section 4. Supply – Decentralized

- a. 4.1 Solar Energy (pp 48-49)
 - b. Recommend that the County consider additional Rebates, tax credits and financing programs. In doing so, the County should review and consider programs that have been introduced in other jurisdictions such as including and not limited to solar energy initiatives introduced and adopted by the City of Berkeley, California including establishment of Berkeley FIRST (Financing Initiative for Renewable and Solar Technology). Such initiatives have been undertaken by the City of Berkeley through the establishment of a Sustainable Energy and Development division of the City's Planning and Development Department. Additional information on FIRST and other City of Berkeley energy sustainability and financing initiatives is available on-line at: <http://www.cityofberkeley.info/SubUnitHome.aspx?id=15404>.
 - i. As part of this recommendation, the County should ensure that a comprehensive analysis of the actual costs and benefits of the proposed economic incentives should be undertaken to ensure that all pros and cons, and enabling legislative language are carefully reviewed and understood before any new incentives are implemented.
 1. **Note:** As an example of how failure to undertake the recommended comprehensive analysis can lead to severe inadvertent consequences, consider a law that was passed in 2007 in Arizona that was intended to help mitigate air pollution, global warming, etc. by extending tax credits to purchasers of *new* vehicles equal to the expense of

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2. adding an alternative-fuel tank, plus 30 percent of the vehicles total cost. The language designating “new” vehicles was inadvertently omitted before the bill was passed and the costs of the program originally estimated at \$10 million skyrocketed to exposure in excess of \$600 million to the State of Arizona (which was ultimately reduced to \$200 million when the law was changed in 2008).
- ii. Recommend that County consider a more streamlined (i.e. easier) and expedited process to secure permit approval for and inspection of a “standard” solar water heater system.
 - iii. Recommend that County consider third party procurement, installation, repairs & maintenance program for solar heater systems and other alternative energy infrastructure (NELHA Gateway/HELCO template as example) – third party receives incentives.
1. This may already be in place as it is the commission’s understanding that a PV project connected to the West Hawai`i Civic Center is modeled as a 3rd party procurement process.

IX. Public Involvement and Outreach

- b. Recommend both public meetings and inclusion of energy planning in the Community Development Planning (CDP) process – While this does not yield immediate results, it does provide the opportunity for the County to keep public engaged and focused on energy as a comprehensive community issue while also providing a credible avenue for public input and comment.

X. COUNTY OF HAWAI`I participation in State of Hawai`i Sustainable Development and Energy Initiatives and Policy-Making Efforts.

- a. Recommend that the County of Hawai`i advocate for comprehensive stakeholder process and ensure County of Hawai`i representation that includes and is not limited to representation by the local utility (HELCO) in all State initiatives related to energy sustainability, infrastructure, policy, etc. that have impact at the County level. For example, recent discussions about a connected electricity grid throughout the State of Hawai`i may include consequences to residents of the County (Island) of Hawai`i that should be considered and discussed by County (Island) stakeholders to ensure such consequences are considered comprehensively and to allow for necessary mitigation measures to be considered and integrated into resulting initiatives, plans, policies, etc.

**Mayor’s Energy Advisory Commission
Planning Considerations Committee**

Final Report and Recommendations

November 6, 2008

I. Background

This report is the product of the Planning Considerations Committee, one of the five investigative committees established under the Mayor’s Energy Advisory Commission.

Some of these added planning details include a clear acknowledgement regarding the basis or need for sustainability planning as well as an understanding of the benefits achieved by this pursuit; the recommended community-based planning approaches to use in developing a comprehensive energy sustainability plan; a characterization of the urgency of this effort in relation to the current planning environment and the associated overarching influences to be observed in the planning process; the justification for a firm planning schedule, an associated action plan with implementation timeline, and progress/success measurement mechanisms; a review of best practices in energy sustainability from other areas of the world; identification of acceptable growth impact mitigation strategies; identification of possible funding options and manpower requirements including collaboration options; and other critical planning details that are essential to consider in the development of a comprehensive energy sustainability plan for Hawai’i County.

With four months available to develop this Planning Considerations Committee Report before the end of the administration’s and Commission’s term, an approach was selected that involved a network of advisors. Not only did this approach provide a representative example of a broader community-based planning process (which is an approach recommendation of the report), but it enabled the committee to avail itself of informed and critical advice available through a cross-section of our professional and interested community members.

Because of the severe time limitations involved for this Commission’s term and consequently for development of detailed and extensive reports and recommendations, the recommendations being presented should be acknowledged as being preliminary in nature. It should also be acknowledged that the work of an Energy Advisory Commission has really just begun, especially with regard to the potential for the achievement of energy sustainability within Hawai’i County. The completion of the Energy Sustainability Planning Considerations Report should be regarded as an activity to be pursued within the next Administration in facilitating the development of a comprehensive energy sustainability plan for Hawai’i County. At the same time, this document should be considered a living document that is intended to evolve over time as new technologies, approaches, and ideas become available as well as more time being available for enhanced and enlarged participation in its development.

Chapter 5 – Planning Considerations

II. Recommendations

The recommendations of this Planning Considerations Committee are presented here. They are grouped into near-term (1 – 2 years), mid-term (3 – 7 years), and longer-term (8 – 15 years) recommended activities.

Near-Term (1 – 2 years):

- a. Create and formalize a firm goal and vision for the achievement of energy sustainability within Hawai`i County and commit to a plan of action to achieve it.
- b. Implement the preliminary priority initiatives identified within the final report dated November 14, 2008 submitted by the Energy Advisory Commission.
- c. Institutionalize and fund a body within Hawai`i County Government to develop and implement the Comprehensive Hawai`i County Energy Sustainability Master Plan, to further develop sustainability strategies, and to advance supportive policies and regulation to ensure that the plan is complied with.
- d. Begin development of a formal Energy Sustainability Plan for Hawai`i County with firm timetables, and when completed institutionalize it with the rule of law.
 1. Finalize the Energy Sustainability Planning Considerations Framework to provide and highlight the recommended essential planning approaches and details required for the development of a comprehensive energy sustainability plan for Hawai`i County. (Proposed Framework follows.)
 2. Identify a preliminary timetable for the achievement of energy sustainability, critical sign posts for plan adaptation, and milestones to be achieved.
 3. Review and consider appropriate lead times for mid and longer-term plan details and initiatives. Identify specific critical implementation initiatives for the mid and longer term periods and discuss options for their more immediate implementation and the evolution process to be employed for their continual refinement.
- e. Establish new and/or redescribe/reassign existing Hawai`i County positions relating to sustainability educational outreach activities and/or explore collaborative opportunities with other organizations or institutions to pursue this objective.
- f. Begin collaboration with other agencies, organizations, other planning processes, and individuals to enlarge the planning and implementation prospects.

Chapter 5 – Planning Considerations

Mid-Term (3-7 years):

- a. Formally adopt and implement the Comprehensive Hawai`i County Energy Sustainability Master Plan developed in the near-term period.
- b. Continue with effective collaboration begun in the near-term to implement additional strategies and initiatives related to the achievement of energy sustainability.
- c. Implement applicable plan aspects as dictated by the formalized plan.
- d. Continue to refine the plan as applicable, accounting for new technologies and planning condition changes.

Longer-Term (8 – 15 years):

- a. Continue to refine and implement defined strategies and initiatives.
- b. Continue to enlarge the collaboration with all stakeholders to achieve the required end result of Energy Sustainability for Hawai`i County.

III. Proposed Energy Sustainability Planning Framework

A proposed Energy Sustainability Planning Framework has been developed and is attached hereto. This proposed framework is recommended as one of the significant activities that will assist the County in the development and implementation of a comprehensive energy sustainability plan.

IV. List of Reviewers, Advisors, and Contributors to the Proposed Energy Sustainability Planning Framework:

Elizabeth Cole:	Deputy Director, Kohala Center Aloha Advisory Board member
Martina Kamaka:	M.D. at U.H John A. Burns Medical School and ‘Ano’Ano Aloha Advisory Board member
Warren Karlenzig:	President, Common Current
Kalona Klompenstein:	UHH Student
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Jeanne Maile Lau:	Landscape Architect, VITA Planning and Landscape Design and ‘Ano’Ano Aloha Advisory Board member
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Chapter 5 – Planning Considerations

Ruoyun Sun: Doctor of Architecture, LEED AP Associate and Project Manager, Wimberly Allison Tong & Goo

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Proposed Energy Sustainability Planning Considerations Report Framework

Developed by the Planning Considerations Committee of the Mayor’s Energy Advisory Commission - November, 2008

I. Executive Summary

II. Introduction: Reporting development intent, advisors and contributors, constraints and limitations

III. Planning Framework:

a. The Need for Hawai`i County Energy Sustainability Planning

i. The Planning Context

1. Describe the current planning processes for energy sustainability planning in Hawai`i County.
2. Identify all participants and stakeholders.
3. Identify existing supportive legislation.
4. Identify funding currently available.
5. Describe the alignment with other planning processes that may have an influence on related development issues within Hawai`i County, including the current Community Development Plans (CDPs) from around the island and look for examples related to renewable energy, e.g. creation of green corp., businesses and training. The concept of a Community Based Economic Development (CBED) community-owned renewable energy business and foundation is introduced.

1. Identify other plans and associated energy details that are underway and require some level of alignment, including the current CDPs from around the island and look for examples related to renewable energy, e.g. creation of green corp., businesses and training.
2. Discuss implications of not being aligned and the need for Hawai`i County representation in these other planning processes.

ii. Describe the benefits of having a comprehensive Energy Sustainability Plan for Hawai`i County.

Chapter 5 – Proposed Energy Sustainability Planning Considerations Framework

1. Explain the reasons why an Energy Sustainability Plan is needed as soon as possible. Make reference for Hawai`i being a natural model and inspiration for energy sustainability.
 2. Elaborate on the anticipated positive economic impacts of the economic multiplier effect associated with new related economic activity and appropriately characterize the economic opportunities.
 3. Draw correlation between current CDP processes, e.g. relevance to supporting green and culturally-based goals/objectives of CDP to creating an energy sustainability plan that is attainable to achieve with community ownership and participation, e.g. shared vision and values. Clearly state that CDP's show community(s) willingness to achieve energy sustainability and that the next step is to build community capacity by creating energy sustainability models within each community. Make reference to C. Leading Examples of Energy Sustainability Plans to Draw and Benefit From and E. Planning Considerations.
 4. Draw conclusion that this Energy Sustainability Plan is "traditional" in planning approaches and yet progressive with the intention of using Hawai`i as a model to showcase and provide inspiration for best practices in energy sustainability merged with CBED practices.
- iii. Present the rationale for a separate and unique Energy Sustainability Plan for Hawai`i County.
- iv. Explain why the Yale University student project resulting in that report titled "Analysis and Recommendations for the Hawai`i County Energy Sustainability Plan" (dated October 3, 2007) is a good starting point for an energy sustainability plan and what is needed for it to become complete.

b. The Planning Environment and Justification for Firm Implementation Timelines

- i. Describe the planning environment and overarching influences on the planning process (e.g. peak oil, climate change, integration with other on-going planning, island carrying capacity) and reiterate the rationale for comprehensive plan development.
- ii. Discuss the inclusion of timelines within the planning process
 1. Provide time projections for the planning environment issues and show supporting documentation.
 2. Discuss adaptation lead times and identify critical long-lead-time measures.
 3. Identify signposts to use as a guide in the adaptation process

Chapter 5 – Proposed Energy Sustainability Planning Considerations Framework

4. Develop various scenarios for consideration with an identification of scenario implications. (e.g. worst case peak oil, business as usual, accelerated efficiency and renewable energy development)
5. Discuss the value of incorporating firm timelines (scenario and implementation) into the Energy Sustainability plan and significance of characterizing milestones related to these timelines.
6. Present available timeframe assessments and their relationship to the aggressiveness required for plan implementation.
7. Discuss the role of technology advancement.

c. Leading Examples of Energy Sustainability Plans to Draw and Benefit From

- i. Identify examples of comprehensive Energy Sustainability Planning from other places in the world.
- ii. Identify critical plan details and planning assumptions.
- iii. Identify aspects of these other plans that should be considered for application within Hawai'i County.

d. Continuous Growth and the Achievement of Energy Sustainability

- i. Discuss growth implications with respect to the eventual achievement of energy sustainability (e.g. carrying capacity). Provide examples of traditional cultural values related to preserving natural resources.
- ii. Identify complementary growth impact mitigation strategies that can be aligned with the goal of becoming energy sustainable. (e.g. sustainability impact fees).
- iii. Discuss the implications of implementing or not implementing intentional complementary growth impact mitigation strategies.

e. Planning Considerations

- i. Present Hawaiian culturally-based and other alternative complementary planning processes to consider emulating.
 1. Explain the relevancy of considering a Hawaiian culturally-based Community Based Economic Development Approach and other alternative planning processes as a key approach to achieving and maintaining an energy sustainability plan. Make reference to C.

Chapter 5 – Proposed Energy Sustainability Planning Considerations Framework

Leading Examples of Energy Sustainability Plans to Draw and Benefit From.

- ii. Discuss the value of the rule of law with respect to mandating required achievements as part of a critical timeline. Provide examples of creative new forms of action.
- iii. Discuss the coordination with other local planning processes as well as the applicable regulatory requirements of the County, State, and Federal agencies, how to prioritize plan intentions, and the identification of planning trade-offs. Note: CDP's and utility IRP process.
- iv. Outline the recommended approach for the prioritization of initiatives within an Energy Sustainability Plan.
- v. Present options for funding plan development and implementation. Also, identify any existing incentives relating to plan implementation or incentives to be developed. Note: CBED job creation, Green Corps, Community-owned utilities and foundations, etc.
- vi. Discuss manpower requirements for plan development and implementation and identify creative options to explore. Note: CBED Community Asset Mapping/Empowerment issue.
- vii. Present identified planning considerations from the Yale student study "Analysis and Recommendations for the Hawai'i County Energy Sustainability Plan" (dated October 3, 2007).
- viii. Present planning considerations not included in the Yale student study "Analysis and Recommendations for the Hawai'i County Energy Sustainability Plan" (dated October 3, 2007) such as, including and not limited to:
 1. Energy Emergency Preparedness Planning
 2. Growth impact mitigation strategies
- IX. Identify further planning required.
- X. Provide a preliminary recommended planning schedule and identify appropriate planning timeframes.

f. Summary of Next Steps – Action Plan

Near-Term (1 – 2 years):

- i. Create and formalize a firm goal and vision for the achievement of energy sustainability within Hawai`i County and commit to a plan of action to achieve it.
- ii. Implement the preliminary priority initiatives identified within the Report submitted by the County of Hawai`i Mayor’s Advisory Energy Advisory Commission dated November 14, 2008.
- iii. Institutionalize and fund a separate Energy Sustainability body to finalize the development and implementation of the Comprehensive Hawai`i County Energy Sustainability Master Plan, to further develop energy sustainability strategies, and to advance supportive policies and regulation to ensure that the plan is complied with.
- iv. Develop a formal Energy Sustainability Plan for Hawai`i County with firm timetables, and when completed institutionalize it with the rule of law.
 1. Finalize the Energy Sustainability Planning Considerations Report to provide and highlight the recommended essential planning approaches and details required for the development of a comprehensive energy sustainability plan for Hawai`i County. (See Proposed Outline – attached)
 2. Identify a preliminary timetable for the achievement of energy sustainability, critical sign posts for plan adaptation, and milestones to be achieved.
 3. Review and consider appropriate lead times for mid and longer-term plan details and initiatives. Identify specific critical implementation initiatives for the mid and longer term periods and discuss options for their more immediate implementation and the evolution process to be employed for their continual refinement.
- v. Establish new and/or redescribe/reassign existing County positions relating to energy sustainability educational outreach activities and/or explore collaborative opportunities with other organizations or institutions to pursue this objective.

Chapter 5 – Proposed Energy Sustainability Planning Considerations Framework

- vi. Begin collaboration with other agencies, organizations, other planning processes, and individuals to enlarge the planning and implementation prospects.

Mid-Term (3-7 years):

- i. Formally adopt and institutionalize the Energy Sustainability Plan developed in the near-term period.
- ii. Continue with effective collaboration begun in the near-term to implement additional strategies and initiatives related to the achievement of energy sustainability.
- iii. Implement applicable plan aspects as dictated by the formalized plan.
- iv. Continue to refine the plan as applicable, accounting for new technologies and planning condition changes.

Longer-Term (8 – 15 years):

- i. Continue to refine and implement defined strategies and initiatives.
- ii. Continue to enlarge the collaboration with all stakeholders to achieve the required end result of Energy Sustainability for Hawai'i County.

Appendix

1. **DWS** – Department of Water Supply
2. **USDA** – United States Department of Agriculture
3. **RUS** – Rural Utility Service
4. **USGS** – United States Geological Survey
5. **PUC** – Public Utilities Commission
6. **MEAC** – Mayor’s Energy Advisory Commission
7. **LED** – Light Emitting Diode
8. **IECC** – International Energy Conservation Code
9. **R-19 Roof Insulation** – Minimum ceiling insulation required in zones 1 through 4
10. **CFLs** – Compact Fluorescent Light
11. **gpm** – gallon per minute
12. **SEER** – Seasonal Energy Efficiency Ratio
13. **RESNET** – Residential Energy Services Network
14. **ASHRAE/IESNA** – American Society of Heating, Refrigerating and Air-Conditioning Engineers/Illuminating Engineering Society of North America
15. **Cool Roofs** – Reflective surface and coating
16. **LEED** – Leadership in Energy and Environmental Design
17. **ROI** – Return on Investment
18. **PV** – Photo Voltaic
19. **IRP** – International Registration Plan