

Recovery Act Energy Efficiency and Conservation Block Grant

Department of Energy – National Energy Technology Laboratory
CFDA 81.128 - DE-FOA-0000013

County of Hawai`i Department of Research and Development
Draft Summary of EECBG Application Submitted June 24, 2009

County of Hawai`i Allocation: \$737,800
Project Period: Three years

The County has requested that the entire funding be released in year one of the three-year project period for maximum economic impact in the County.

CURRENT STATUS:

- This is a draft summary of the original application submitted June 24, 2009.
- On June 25, 2009, the original application deadline, the Department of Energy extended the deadline to October 10, 2009.
- As of July 27, 2009, it is unknown when funds will be released and the Department of Research and Development has not yet received word whether or not the proposed projects will be funded as presented. This draft summary is subject to change pending receipt of DOE recommended program amendments.

SUMMARY:

The County will use EECBG funds to implement four EECBG activities that advance the County's comprehensive sustainability initiatives.

Three years of planning has enabled Hawai`i County to maximize its allocation of EECBG program funding. In 2006, the County funded an Energy Baseline Analysis followed by a Hawai`i County Energy Sustainability Plan in 2007. In 2008, the Mayor's Energy Advisory Commission was established to make prioritized recommendations for implementation of the 2007 plan.

The County of Hawai`i has joined with the State's Hawai`i Energy Initiative, committing to the reduction of fossil-fuel energy consumption from 70 percent of the total energy used on the island to 30 percent by 2030. In addition, the County has a Zero Waste Policy/Implementation Plan and the Mayor's Green Team consisting of county employees who are leading by example to save on energy consumption.

The application proposed four separate activities under one Energy Efficiency and Conservation Strategy.

1. Hawai`i County Street Light Retrofit to Energy Efficient LED Lamps (\$500,000)
2. Residential Green Retrofit and Energy Efficiency Training Program (\$100,000)
3. Government Operations Energy Sustainability Management System (\$87,800)
4. County of Hawai`i Financing Package for Energy Efficiency and Renewable Energy Projects (\$50,000)

ACTIVITY 1

\$500,000: Hawai'i County Street Light Retrofit to Energy Efficient LED Lamps

*Proposed number of jobs created or saved: 6**

Activity 1, Summary

The Department of Public Works Traffic Division will improve the County's energy efficiency by replacing approximately four hundred (400) out of a total inventory of approximately seven thousand (7,000) low pressure sodium chloride bulbs with energy-efficient light emitting diode (LED) lamps with dark sky cut-off shields. The Department recently replaced traffic signal lights with LED bulbs and will complement that work and ensure equitable distribution of Recovery Act EECBG funding by installing the new fixtures at locations near intersections around the island. Using EECBG funding will jump-start the Department's current unfunded Capital Improvement Project request to replace all of the county's street lights with LED fixtures.

This activity aligns with the County's Energy Sustainability Plan recommendation number 8.6, which states the "the County should encourage the replacement of conventional light by LED bulbs and cutoff light fixtures." The new fixtures will realize a minimum 50% energy savings for the County.

Activity 1, Use of Funds

Approximately \$400,000 will be used to purchase fixtures, and \$100,000 will be used for installation. Cost per fixture is estimated at \$1,000; only at the time of purchase will Traffic Division be able to provide the actual cost. This variable is due primarily to two factors: (1) frequently increasing technology of LED Street Lights; and (2) shipping costs.

Traffic Division has a standing price-term contract with a Contractor at Bacon-Davis wages who will install the new fixtures. The County of Hawai'i is leveraging the salary and benefits package of the Energy Specialist within the Department of Research and Development over the course of the three-year project. The Energy Specialist will collect required data from Traffic Division, and assume grant-management and reporting responsibilities in addition to overall EECBG program oversight.

Activity 1, Time Line

Upon receipt of EECBG funds, Public Works Traffic Division will submit a code amendment to the County Council to allow substitution of LED lights. Within three months after code amendment, Traffic Division will begin purchasing process for the new lamps. The project will be completed within 36 months.

Activity 1, Energy Saved

The County has a negotiated rate with the utility company at 77.8 KWH per month per 180 watt street light at signalized intersections. Traffic Division estimates that the new fixtures will realize a minimum 50% energy savings over the existing low pressure sodium chloride bulbs. The project will also provide the County savings in maintenance and transportation costs. Currently the Traffic Division must allocate 3- to 5-days for staff to replace a street light depending on the location. With the switch to LED fixtures which dim over time, there will be no need for "emergency" calls; instead a much more efficient regular maintenance program will be implemented.

** Job estimates calculated using the EECBG Estimated Benefits Calculator provided by DOE
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ACTIVITY 2

\$100,000: Residential Green Retrofit and Energy Efficiency Training Program

*Proposed number of jobs created or saved: 2**

Activity 2, Summary:

The County of Hawai'i Department of Research and Development will contract to develop and implement two interrelated activities known collectively as the Hawai'i County Residential Green Retrofit and Energy Efficiency Training Program. The goals of the program are to: 1) Reduce energy consumption by 25% in 50 existing residential homes; and, 2) Establish a local market for energy efficiency improvements by providing education and training programs on energy-efficiency measures to 100 homeowners.

On average, Hawaii's electric power costs are three times the cost on the mainland, placing an untenable burden on low- and moderate-income families. Hawaii has high levels of solar insolation year round; yet, high up-front costs and lack of incentives have limited the adoption of solar water heaters and other technologies in the past. Solar thermal technology can save up to 30% on a residential electric bill and other energy efficiency technologies can reduce energy bills even further. The Residential Green Retrofit and Energy Efficiency Training Program is a project that will realize economic and environmental savings for resident of Hawai'i County in the near term.

Activity 2, Use of Funds:

A total of \$100,000 in EECBG funding will support this program with \$50,000 for contractor services for the Residential Green Retrofit program and \$50,000 for contractor services for the Energy Efficiency Training Program. The Department of Research and Development will leverage the annual salary and benefits package of its Energy Specialist who will manage this program.

Program metrics will include: number of homes audited, size of homes audited, family profiles of the 50 homes receiving energy audits, recommendations for energy efficient/renewable energy systems, installation of renewable energy/energy efficiency technology; number and types of financial incentives program utilized; kWh saved; average dollars saved; number of workshops/training sessions conducted; and number of residents trained.

Activity 2 Part 1, Reduce energy consumption in existing homes:

The Residential Green Retrofit Program demonstrates the County's involvement with and commitment to our citizens. The program will fully develop an implementation strategy and coordinate the delivery of services, educational programs and cost-effective strategies that encourage low- and moderate-income homeowners to install solar water heaters and low-cost energy efficiency retrofits and technologies. This initiative will include energy audits, recommendations, funding vehicles and other support to a minimum of 50 individual homeowners. Partners in this program will include the local electric utility, public utility commission, non-profit organizations, and local contractors. The selected contractor will have experience in the delivery of energy efficiency programs to the residential sector, including the ability to provide basic economic analyses in a format that is understandable to the layperson.

Activity 2 Part 2, Establish an educational program:

The Energy Efficiency Training Program will recruit, prepare and train homeowners to conduct basic energy audits, identify energy efficiency measures, and identify numerous financial incentives for energy efficiency improvements that are currently available. Through existing partnerships among industry, nonprofit services and organizations and the community college, a minimum of 100 local residents will be trained. The selected contractor will have proven ability to develop and deliver educational training programs in the field of energy audits and energy efficient and renewable energy resources for the residential sector.

Activity 2 Timeline by project phase:

- Phase 1: Within three months of receipt of funding, the Department of Research and Development will establish a working group/committee that will provide program guidance. Existing partnerships will be tapped to maximize resources, impact and stakeholder collaboration.
- Phase II: Within six months of receipt of funding, the Department of Research and Development and the established working group will finalize the Residential Green Retrofit Program and the Energy Efficiency Training Program for the Residential Sector, develop the contractor scope of work for both programs, and select contractor(s) per the Hawai'i State Procurement Code.
- Phase III: Within 90 days of completion of Phase II and continuing for the next 24 months, implement the program and conduct an evaluation program of continuous monitoring, verification and inspection.

ACTIVITY 3

\$ 87,800: Government Operations Energy Sustainability Management System

*Proposed number of jobs created or saved: 2**

Activity 3, Summary:

The County of Hawai'i will institutionalize a County Government Operations Energy Sustainability Management System using the ICLEI Local Government Operations Protocol, and The Natural Step Planning Framework. The resulting Government Operations Energy Sustainability Management System will support the County's efforts to achieve its goal of 70% renewable energy and fuels by 2030. Some preliminary work toward that end has already been initiated by the Mayor's Green Team.

This activity aligns with the body of recommendations coming from the Mayor's Energy Advisory Commission "Planning Considerations Committee" meeting of November 5, 2008, which suggested that the County of Hawai'i implement an Energy Sustainability Planning Framework. County personnel will be trained to track green house gas emissions and monitor the County's progress toward energy sustainability. Saving energy, saving the environment, and saving money will become institutionalized in government operations.

Activity 3, Use of Funds:

The Department of Research and Development will use the \$87,800 in EECBG funding to procure a technical consultant to provide the expertise, guidance and customized training services required to implement this initiative. The County is leveraging its new Energy Audit for County Facilities contract, ICLEI membership fee, and Natural Step Training licenses along with the annual salary and benefits

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package for the Department of Research and Development Energy Specialist who will manage all EECBG projects.

The technical consultant, selected through an RFP process will:

1. Assist in the development of a detailed GHG Emission Inventory to meet the Local Government Operations protocol;
2. Review and analyze energy audit results; and integrate analysis with other existing energy plans and studies;
3. Build the capacity of county government employees to develop and monitor the Energy Sustainability Management System themselves by providing Energy Sustainability Management System workshops and training opportunities.

Under the direction of the Department of Research and Development's Energy Specialist, the technical consultant will work closely with the Mayor's Green Team in developing the management system. The Green Team has already begun collecting preliminary government operations energy costs and greenhouse gas emissions data, and has developed six Government Operation Energy Sustainability Focus Area working groups:

- Clean Energy, Efficient Buildings
- Clean Energy, Efficient Street Lighting
- Clean Energy, Clean Water
- County Fleet, Employee Commute
- Resource Management
- Education, Training and Outreach

With direct assistance from the technical consultant, and using data already collected, the Green Team Focus Area working groups will develop an Asset Inventory of existing policies, networks, resources, and plans; conduct a detailed 2007 Baseline Analysis and GHG Emissions Analysis using the 2009 ICLEI Clean Air and Climate Protection Software; and create Strategic Goals, Actions and Benchmarks. The Natural Step Planning Framework will be utilized to develop and integrate multiple research policies and planning documents for government operations. The Natural Step Planning Framework consists of four cyclical phases: (I) Awareness and Common Language; (II) Baseline Analysis; (III) compelling Vision; and (IV) Down to Action.

Action 3, Timeline:

The RFP and contracting process is expected to take approximately three months, with an executed contract in place by January 2010. The contract term will be 12 months.

ACTIVITY 4

\$ 50,000: County of Hawai'i Financing Package for Energy Efficiency and Renewable Energy Projects

*Proposed number of jobs created or saved: 2**

Activity 4, Summary:

The County of Hawai'i will develop a comprehensive financing package that recommends appropriate funding mechanisms for County energy efficiency (EE) and renewable energy (RE) capital improvement

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projects. The initiative's overall goal is to provide the key financial analyses that will allow the County to maximize the reduction in energy use and expenditures for specific buildings and facilities, while maximizing environmental benefits.

This Financing Package activity is Phase II of the County's four-phase process to retrofit all possible County buildings and facilities with RE or EE systems and will complement and build upon Phase I summarized below:

1. Phase I: Energy Audit of County Buildings and Facilities; a local contractor will begin conducting audits by June 30, 2009. When completed, a building profile, description of current energy use, recommended retrofits and general cost estimates will be delivered to the County.
2. Phase II: The Financing Package will initiate the funding process for the recommendations made in Phase I.
3. Phase III: Bidding and contracting for funded improvements will begin.
4. Phase IV: Implementation of the Energy Reinvestment Program designed during Phase II begins.

This activity helps the County meet the following energy goals:

- Meets the goals of the County's Energy Program to facilitate the implementation of EE retrofits of County facilities;
- Meets the goals of the Mayor's Energy Advisory Commission's Sustainability Planning Framework to identify and secure funding currently available for energy initiatives; and
- Meets the County and State's goals for 70% of all energy resources to be derived from RE and EE sources by 2030.

Additionally, County personnel will be able to work directly under expert guidance of a contracted professional with a background in both energy and finance, and gain much needed technical know-how in this intersect. Moreover, it will afford the opportunity to build a sustainable program in which energy savings will be reinvested into additional energy-savings projects.

Activity 4, Use of Funds:

The Department of Research and Development will use \$50,000 in EECBG funding contract with a technical consultant who will deliver a comprehensive package that:

- Provides the necessary analyses of energy system cost factors and related financial information to support the County's decision-making as to the most appropriate financing vehicle; be it a QEGB or other type of bond float, third party contract for services or other funding vehicle(s);
- Provides completed and ready-to-submit financial packages where applicable;
- Provides the framework for a County of Hawai'i Reinvestment Program through which one-half of all energy savings generated from the deployment of new RE and EE systems will fund additional RE and EE improvements for the remaining county facilities. Total savings and reinvestment is estimated to be in the millions of dollars, an amount of leverage as yet incalculable.

The selected consultant will have credentials and experience in structuring and funding RE and EE projects, municipal bond analysis and financing. The County will leverage the salary and benefits package for the Department of Research and Development Energy Specialist, who will also manage this program.

The County will evaluate the success of the Financing based upon its ability to secure appropriate funding for RE and EE systems within two years. Additionally, the evaluation will continue over a period

of years following the close of Phase II with respect to the success of Phase IV, which is implementation of the initiative to reinvest up to one-half of energy savings back into additional RE and EE systems.

Activity 4 Timeline:

The contract term will be 12-months. The scope of work relies on the outcomes of Phase I already underway and on the County Green Team's work in the Government Operations Energy Sustainability Management System Technical Assistance Program activity. The overall project time line is two years to allow for evaluation of the project's effectiveness.