

**Statement of
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Department of Business, Economic Development and Tourism
and
Energy Resources Coordinator, State of Hawaii
Before the Committee on Appropriations
United States Senate
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Hawaii State Capitol**

INTRODUCTION

Aloha Chairman Inouye and members of the Senate Appropriations Committee. Thank you for the opportunity to provide these comments on the progress of Hawaii's implementation of energy funding from the American Recovery and Reinvestment Act (ARRA or Recovery Act).

The Recovery Act energy formula funding and competitive grant funding opportunities come at uniquely opportune time for Hawaii.

In 2006, through Governor Linda Lingle's "Energy for Tomorrow" initiative, Hawaii embarked on the path to fundamentally transform its energy systems. In January 2008, the Hawaii Clean Energy Initiative (HCEI) was launched in partnership with the US Department of Energy. As you well know, Hawaii depends on foreign fossil fuels to meet over 90% of its energy needs, leaving Hawaii vulnerable to supply disruptions and adversely impacted by volatile global energy prices. HCEI's goal is a 70% clean energy economy by 2030 and its' achievement will require the transformation of the public regulatory and policy framework and of the private institutions and business models that drive energy generation, transmission, delivery and use.

Hawaii's success in achieving the HCEI goal will not only attain energy security, independence and economic vitality for the state and its residents, but serve as a model of energy system transformation for other states, regions and nations as well.

As Energy for Tomorrow and HCEI preceded ARRA, we view its energy funding through the prism of those two initiatives. ARRA energy funding provides Hawaii an opportunity to catalyze concrete action on what heretofore have only been plans and to accelerate work on plans already in implementation. In general, Hawaii's plan is to deploy Recovery Act energy formula grant funds to support Hawaii's energy transformation already underway.

My comments will cover only the Hawaii Recovery Act energy formula grants. Others will cover the ARRA energy competitive grant opportunities.

RECOVERY ACT HAWAII ENERGY FUNDING

In summary, the following energy formula grants are allocated to Hawaii:

- ▶ \$25.93 million to the State Energy Program
- ▶ \$15.07 million through Energy Efficiency and Conservation Block Grants (\$5.5 million directly to counties, \$9.6 million to the State)
- ▶ \$4.04 million through the Weatherization Assistance Program
- ▶ \$782,000 for State Electricity Regulators Assistance
- ▶ \$318,000 for Enhancing State Government Energy Assurance Capabilities and Planning for Smart Grid Resiliency
- ▶ \$1.236 million for State Energy Efficient Appliance Rebate Program

In total, Hawaii expects to receive \$47.38 million through these formula energy grants.

ENERGY EXPENDITURE PLANNING

From the very beginning of our planning for ARRA funding, the direction from the DOE and the Chair of your Committee was very clear about requiring a thoughtful, strategic and responsible expenditure plan linked and targeted to the Act's purposes¹.

For Hawaii, the comprehensive planning and substantively analytical approach employed by HCEI, supported by the national laboratories and other contractors, and the input from dozens of energy sector stakeholders, including state legislators, involved in HCEI's Technical Working Groups, provided the thoughtful and strategic framework within which responsible expenditure of Recovery Act funding could be planned.

Hawaii planning for ARRA funding expenditure plan included:

- Specific attention to the DOE's and national laboratories' annual operating plans to ensure proper coordination and complementarity with HCEI federal expenditures;
- Reference to availability of technical support from the national laboratories;
- February to July 2009, meetings held with energy sector stakeholders to obtain input on spending priorities;
- Input and guidance from HCEI Technical Working Groups and from HCEI partner projects; and
- Effort to "leverage" programs and mechanisms already in place in order to speed deployment of the funds into the market, including a April meeting with Hawaii's

¹ "[T]o preserve and create jobs and promote economic recovery; to assist those most impacted by the recession; to provide investments needed to increase economic efficiency by spurring technological advances in science and health; to invest in transportation, environmental protection, and other infrastructure that will provide long-term economic benefits; and, to stabilize State and local government budgets, in order to minimize and avoid reductions in essential services and counterproductive state and local tax increases."

principal energy community agencies and organizations already funding energy projects². Result is a “landscape” of existing initiatives into which ARRA funding could be deployed.

The result, we believe, is an expenditure plan which –

- Integrates multiple Hawaii energy sectors across multiple ARRA formula funding sources;
- Is consistent with and embedded in the HCEI strategic framework;
- Has the benefit of stakeholder, including federal partner, technical and policy input;
- Is capable of efficient and effective implementation; and
- Balances direct immediate impact and longer-term indirect impact.

The initial SEP submission, in March 2009, was approved by Governor Linda Lingle, as was the final SEP submission in May 2009.

EXPENDITURE PLAN & AMOUNTS RECEIVED TO-DATE

Under the Hawaii expenditure plan, attached hereto, the State Energy Office intends to pursue 25 programs funded by 6 formula grants. In general terms:

- \$27,652,685 is allocated to 13 programs for energy efficiency;
- \$6,650,000 is allocated to 8 programs for renewable energy, including 5 specifically in support of the undersea cable;
- \$4,250,000 is allocated to 2 programs for transportation; and

² Briefings were provided by the Department of Defense, the University of Hawaii, the Pacific International Center for High Technology Research, the electric and gas utilities, and state agencies including the Department of Accounting and General Services and the Department of Hawaiian Home Lands, among others.

- \$1,100,000 is allocated to 2 programs for energy assurance.

The SEP allows some flexibility to reallocate funding under certain circumstances.

We note to-date, out of the expected \$47.38 million in formula grants, \$14,985,730 has actually been released to Hawaii, as follows:

- \$12.96 million, or 50% of the State Energy Program, released on July 10, 2009; and
- \$2.02 million, or 50% of the Weatherization Assistance Program, released on August 12, 2009.

Applications for the Energy Efficiency and Conservation Block Grants and the Energy Efficient Appliance Rebate Program have been submitted. The DOE is in process of reviewing these applications, together with thousands from across the nation.

PROGRAMS IMPLEMENTED TO-DATE

As noted above, the state has to-date received close to \$15 million of these formula funds, the first portion approved about one month ago and the second portion two weeks ago.

Due to the planning that has already gone into the expenditure plan, last week we signed an agreement with the Public Utilities Commission to allocate a total of \$10.4 million from the funding to be received under the State Energy Plan, the state's portion of the Block Grant and the appliance rebate program to SAIC, the newly established energy efficiency utility, for a range of residential and commercial building energy efficiency programs.

Over the next 2 to 4 weeks, we anticipate issuing RFPs or other solicitations for \$4,740,000 in 5 contracts associated with the interisland cable and \$1,200,000 in 5 contracts for energy efficiency projects.

ANTICIPATED RESULTS AND IMPACT

We believe that Hawaii's ARRA expenditure plan contains both short- and long-term and direct and indirect impacts.

An example of direct short-term impact is funding for direct energy efficiency and conservation retrofits of low-income homes. An example of an indirect long-term impact would be ARRA funding facilitation of the inter-island cable, which could lead to between 400 MW to 1 Gigawatt of renewable energy generation and transmission among the Hawaii islands.

Based on our current analysis, implementation of the projects in the expenditure plan will achieve:

- 515 jobs using the DOE's standard formula of \$92,000 per job created.
- Over 5000 residences, mostly lower-income, impacted by the plan's energy efficiency programs, with \$77.5 million in savings for the residents over the lifecycle of the retrofits. This does not yet factor in imported oil displaced or carbon emissions abated, which will be calculated based on actual characteristics of the residences retrofitted and submitted as part of the ARRA reporting requirements.

- 5 million square feet of business and government buildings achieving an average of 30% in energy saving. Again, this does not yet factor-in imported oil displaced or carbon emissions abated.
- “Tipping” co-investment in renewable projects to (i) accelerate 3 to 4 renewable energy projects, putting up to 20 MW renewable energy projects on line and producing up to 6,000 MWH a year of renewable energy, and (ii) create a regional energy cooling project which will save over 100,000 MWH and \$25 million annually in air conditioning costs for the visitor sector, Hawaii's largest industry.
- In transportation, early adoption of 650 alternate fuel vehicles, including electric vehicles, and 650 charging stations, leading to Hawaii's position as ideal market for major automobile companies to deploy and scale-up new advanced fuel efficient vehicles.
- 1,500 engineers and architects trained to facilitate Hawaii's clean energy future. Significant indirect impact by these trained professionals is anticipated in the form of design and engineering of highly energy efficient retrofits or new projects for Hawaii.
- ARRA funding facilitation of the interisland cable could result in up to 1 Gigawatt of renewable energy project generation and transmission among the Hawaii islands, with total private sector project investment aggregating over \$1.5 billion. This project, with the initially associated windfarms, will avoid a projected \$5.7 billion in fossil fuel costs for generating electricity over 20 years. The value of energy security achieved cannot easily be calculated.

INTERISLAND CABLE

One of the major strategic components of the HCEI is the development and construction of an interisland grid system, including an undersea transmission cable, which would integrate the generation and grid systems among the Hawaii islands, starting with Oahu, Molokai and Lanai. To achieve the goal of 70% clean energy by 2030, Hawaii needs to develop all the renewable resources available. Wind power is abundant on the neighbor islands, with a combined total state-wide potential in excess of 1,000 MW. The interisland system will allow these abundant natural energy resources to be tapped and transmitted to where the loads are.

In short, an interisland grid system will move Hawaii toward reliance on indigenous resources, independence from foreign oil and energy security.

The proposed undersea transmission cable portion of this major infrastructure project will consist of approximately 70-mile long cable that initially integrates the proposed 200 MW wind farm on Lanai and the

200 MW wind farm on Molokai with the electric transmission systems on the islands of Oahu, Molokai and Lanai. Transmission systems similar to the one proposed has been in existence for many years in Europe, Asia, and U.S. mainland. However, this project is unique in the amount of intermittent renewable energy it seeks to integrate into an existing island electrical grid system.

Because the scale of renewable energy being proposed for this system, a significant amount of work is under way to determine its viability from technical, engineering, environmental and business and financial perspectives.

From the technical perspective, the State Energy Office, U.S. Department of Energy, National Renewable Energy Laboratory and Hawaiian Electric Company (HECO)

formed a technical review committee to determine the feasibility of transmitting and integrating 400 MW of wind energy from Molokai and Lanai into the electrical grid on Oahu. This committee is comprised of engineering and power transmission experts from around the world specializing in undersea power transmission, wind power integration, and renewable energy development. This group has determined that transmitting this much electricity across these distances undersea is feasible for Hawaii, and is now working on the details of what system upgrades HECO needs to undertake in order to accept this much renewable energy into its system. We expect to see a final report from this technical committee by the end of this year describing engineering steps and solutions to make this cable a reality.

As a first step in determining if this proposed system is possible from an environmental perspective, the State Energy Office contracted with the University of Hawaii College of Ocean, Earth Science and Technology (SOEST) to perform an extensive ocean floor survey between the islands of Oahu, Molokai, Lanai, and Maui. The survey assessed ocean floor topography, ocean floor make-up, reef systems, and whale sanctuary areas using side-scan sonar and video camera to determine what impact the cable may have on the ocean environment. The results of the survey are still being compiled, but the initial results show that it is feasible to lay a power transmission cable between the islands of Hawaii with limited impact to the whale sanctuary and reef systems.

The next step is to begin the biological and cultural studies required in an environmental impact analysis and study (EIS) to have a better understanding of the impacts and mitigation of the proposed cable system on Hawaii's environment. DBEDT plans to hire an environmental consulting firm in September and to begin work on the environmental analysis and EIS in October of this year.

Work has also begun on the overall economic cost/benefit of such a cable system. Together with HECO, the State Energy Office has had numerous discussions with developers and investors in similar grid system projects, including undersea cables, around the world covering business and financial parameters of such projects. In the next several months, groups of developers and investors will be invited to Hawaii to provide more detailed information, including business and financial models, on how these projects were done elsewhere.

Together with the on-going technical and engineering and environmental analysis, the information gathered on the economic cost and benefit will guide a future formal solicitation of a developer for the interisland grid project.

ARRA funding through the SEP will enable the state to fund up-front technical and environmental assessments, including the extensive EIS process. By so doing, ARRA funding will reduce timeline for developing and implementing the interisland grid plan.

CHALLENGES

The Recovery Act has the potential to significant assist Hawaii in achieving its clean energy future. The State Energy Office is committed to the thoughtful, strategic, efficient and effective deployment of the Recovery Act funding.

However, based on information obtained to-date, existing federal requirements such as the Davis-Bacon Act and the Buy American Act which heretofore have not been applied to energy grants, may now have applicability as the scope of grants have expanded beyond historical parameters. Such additional requirements may add to the complexity of deploying the funding into the markets.

The Office of Management and Budget has issued Initial Implementing Guidance and most grant funding opportunity announcements have reference to "OMB will be issuing additional guidance concerning the Act as appropriate." The OMB series "Implementing Guidance for the Reports on Use of Funds Pursuant to the American Reinvestment and Recovery Act of 2009" is divided into 7 parts; the training tape is 14 hours long. We understand this level of detail is necessary due to new ARRA processing and reporting requirements, but uncertainty and complexity have added to the workload and processing time for getting funding to sub-recipients and vendors for execution.

Current reporting period for ARRA is quarterly, beginning with initial reports on October 10, 2009. We understand from various federal agencies that monthly reports are being considered. We believe monthly reporting will reduce the effectiveness and increase the administrative burden, diverting funding from projects without an appropriate increase in transparency and accountability. We would respectfully recommend that reporting remain on a quarterly basis.

Thank you for the opportunity of providing these comments.

WRITTEN INFORMATION SUBMISSION
from
STATE ENERGY OFFICE,
STATE OF HAWAII DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM
for
COMMITTEE ON APPROPRIATIONS
UNITED STATES SENATE
AUGUST 24, 2009

The State Energy Office of the State of Hawaii Department of Business, Economic Development & Tourism appreciates the opportunity to submit to the Committee on Appropriations of the United States Senate the below information on Hawaii's plans for and status of expenditures of energy funding under the American Recovery and Reinvestment Act of 2009 (ARRA).

This submission and the Department's oral comments will cover only the energy formula grant portions of ARRA. Competitive energy grant opportunities will be covered by others before your Committee, including the U.S. Department of Energy

This submission is organized into the following sections:

- Section 1: Hawaii's Total Energy Formula Funding under the American Recovery and Reinvestment Act of 2009
- Section 2: Strategic Approach for Building the Expenditure Plan
- Section 3: Formula Funding Expenditure Project Plan and Status

Hawaii ARRA Energy Formula Grants Summary

1. Hawaii’s Total Energy *Formula Funding* under American Recovery and Reinvestment Act of 2009 (ARRA)

Formula Energy ARRA Solicitations	Reference Number	HI Amount
Recovery Act – Energy Efficiency and Conservation Block Grants – Formula Grants	DE-FOA-0000013	\$15.07M to state & counties
Weatherization Formula Grants - Recovery Act	DE-FOA-0000051	\$4.04M
Recovery Act - State Energy Program	DE-FOA-0000052	\$25.93M
Enhancing State Government Energy Assurance Capabilities and Planning for Smart Grid Resiliency	DE-FOA-0000091	\$318K
State Electricity Regulators Assistance	DE-FOA-0000100	\$782K
State Energy Efficient Appliance Rebate Program	DE-FOA-0000119	\$1.236M
Total Formula Funding		\$47.38M

The purposes of ARRA energy funding are “[T]o preserve and create jobs and promote economic recovery; to assist those most impacted by the recession; to provide investments needed to increase economic efficiency by spurring technological advances in science and health; to invest in transportation, environmental protection, and other infrastructure that will provide long-term economic benefits; and, to stabilize State and local government budgets, in order to minimize and avoid reductions in essential services and counterproductive state and local tax increases.”

1.1. ARRA – Energy Efficiency and Conservation Block Grants (EECBG) (DE-FOA-0000013)

1.1.1. Purpose: The purpose of the EECBG program is to assist eligible entities in creating and implementing strategies to achieve the following:

- Reduce fossil fuel emissions in a manner that is environmentally sustainable and, to the maximum extent practicable, maximize benefits for local and regional communities;
- Reduce the total energy use of the eligible entities; and
- Improve energy efficiency in the building sector, the transportation sector, and other appropriate sectors.

1.1.2. Status: Unlike SEP, for which the DOE had 56 grants to award, the EECBG program has over 2000 grants to award. Hawaii’s state and four county submissions have been received and are being reviewed by the DOE. No monies have been released; no date for release has yet been communicated.

Hawaii ARRA Energy Formula Grants Summary

1.2. Weatherization Formula Grants - Recovery Act (DE-FOA-0000051)

- 1.2.1. Purpose: The Weatherization Assistance Program (WAP) objective is to increase the energy efficiency of dwellings owned or occupied by low-income persons, reduce their total residential expenditures, and improve their health and safety. The WAP priority population is persons who are particularly vulnerable such as the elderly, persons with disabilities, families with children, high residential energy users, and households with high-energy burdens.
- 1.2.2. Status: The Hawaii WAP was awarded to the 50% level on August 12, 2009.

1.3. ARRA – State Energy Program (DE-FOA-0000052)

- 1.3.1. Goals: The existing goals of the long-standing State Energy Program (SEP) are to:
- Increase energy efficiency to reduce energy costs and consumption for consumers, businesses and government;
 - Reduce reliance on imported energy;
 - Improve the reliability of electricity and fuel supply and the delivery of energy services; and
 - Reduce the impacts of energy production and use on the environment.

The goals of the additional ARRA funds allocated to the SEP are to:

- Stimulate the creation or increased retention of jobs;
 - Save energy (kWH/therms/gallons/BTUs/etc.);
 - Increase energy generation from renewable sources; and
 - Reduce greenhouse gas emissions
- 1.3.2. Status: Hawaii's SEP initial proposal, consisting of the required list of projected activities, was submitted to the Department of Energy on March 20, 2009. The initial award of 10% of the projected Hawaii ARRA SEP amount was received on April 21, 2009. The state's Comprehensive Application was submitted May 23, 2009. 50% of the state's award was received on July 10, 2009.

1.4. Recovery Act - Enhancing State Government Energy Assurance Capabilities and Planning for Smart Grid Resiliency (DE-FOA-0000091)

- 1.4.1. Purpose: The following activities shall be addressed when structuring projects under this funding opportunity:
- Create in-house expertise at the State level on energy assurance planning and resiliency, focusing on Smart Grid.
 - Develop new, or refine existing, Energy Assurance Plans to incorporate response actions to new energy portfolios, including Smart Grid technologies.
 - Revise appropriate State policies, procedures and practices to reflect the Energy Assurance Plans.

Hawaii ARRA Energy Formula Grants Summary

- Develop and initiate a process or mechanism for tracking the duration, response, restoration and recovery time of energy supply disruption events.
- Train appropriate personnel on energy infrastructure and supply systems and the content and execution of energy assurance plans.
- Conduct energy emergency exercises (intra and interstate) to evaluate the effectiveness of the energy assurance plans.

1.4.2. Status: Hawaii's Energy Assurance proposal was submitted to the Department of Energy on July 27, 2009. Award has been announced, but not yet received.

1.5. State Electricity Regulators Assistance Funding (DE-FOA-0000100)

1.5.1. Purpose: ARRA funding for electricity sector activities and initiatives will significantly affect utility investment in the electric power sector. State Public Utility Commissions will be involved in implementing key facets of ARRA electricity-related initiatives. To ensure that PUCs can meet the increased demands caused by the increased workload required to fully address the electricity sector initiatives included in the ARRA, DOE intends to make funding available to PUCs to hire additional staff so they can ensure appropriate technical expertise will be dedicated to regulatory activities pertaining to ARRA electricity-related initiatives.

The intent of the funds made available through the ARRA State Electricity Regulators Assistance Initiative is to supplement, not supplant, normal state appropriations for PUC staffing, expressly for the purpose of addressing the significant increase in PUC workload created by ARRA electricity-related initiatives.

1.5.2. Status: The SERAF Proposal is due August 31, 2009. The Public Utilities Commission (PUC) will be applying for this grant, and the State Energy Office is coordinating with the PUC.

1.6. Recovery Act - State Energy Efficient Appliance Rebate Program (DE-FOA-0000119)

1.6.1. Purpose: The Appliance Rebate Program Objectives are:

- Save energy by encouraging appliance replacement through consumer rebates
- Make rebates available to consumers
- Enhance existing rebate programs by leveraging ENERGY STAR national partner relationships and local program infrastructure
- Keep administrative costs low while adhering to monitoring and evaluation requirements
- Promote state and national tracking and accountability
- Use existing ENERGY STAR consumer education and outreach materials

1.6.2. Status: Hawaii's Energy STAR initial proposal was submitted to the Department of Energy on 31 Jul 09. The Comprehensive Application is due October 15, 2009. 10% award is expected September 30, 2009, with final award expected November 30, 2009.

Hawaii ARRA Energy Formula Grants Summary

2. Strategic Approach for Building the Expenditure Plan

In January 2008, the State of Hawaii, in partnership with the U.S. Department of Energy (DOE), announced a historic initiative with the objective of achieving a fundamental transformation of the state's energy system. The Hawaii Clean Energy Initiative (HCEI) set the ambitious goal of moving Hawaii to 70% clean energy by 2030. The comprehensive thinking, analysis and planning to achieve this 70% clean energy objective preceded ARRA and has been underway for the last 20 months. The HCEI objective and related activities and projects provided the overarching policy and implementation framework for planning the expenditure of ARRA's energy funding. In turn, the ARRA energy funding has the potential to catalyze significant progress in many of the components of HCEI. Achieving this alignment required discussion among the HCEI partners and stakeholders.

Hawaii's ARRA funding expenditure plan was developed after broad consultation to ensure that it supplemented HCEI and other related initiatives already underway.

Specific attention was paid to the DOE's and national laboratories' annual operating plans to ensure that the state's spending plan complemented but did not duplicate intended federal expenditures. Beginning in February and continuing through July 2009, meetings were held with energy sector stakeholders to request input on priorities and to build awareness of the spending plans. The plan also received input and guidance from HCEI Working Groups' recommendations and from HCEI partner projects. Potential technical support from the national laboratories was also factored in.

Central to this planning effort was focus on augmenting programs and processes already in place in order to speed deployment of the funds into the market. In April, meeting of Hawaii's key energy community members and agencies which are funding energy projects was held to construct a "landscape" of existing initiatives into which ARRA funding could be deployed. Briefings were provided by the Department of Defense, the University of Hawaii, the Pacific International Center for High Technology Research, electric and gas utilities, and state agencies such as the Department of Accounting and General Services and the Department of Hawaiian Home Lands, among others. The existing goals and budgets of these agencies were taken into consideration when drafting the ARRA plan in order to avoid redundant efforts.

The objective has been to create a plan which integrated multiple Hawaii energy sectors, each of which has multiple formula funding sources. Planning and analysis focused on identifying opportunities to enhance projects which fit Hawaii's strategic plan, which have a sound basis and rationale, and which can be implemented quickly to obtain measurable results. The complexity of Hawaii's energy system and programs makes a comprehensive effort challenging, but a thoughtful and inclusive approach, such as what was undertaken in developing this plan, is essential to its success.

The initial SEP submission, in March 2009, was approved by Governor Lingle, as was the final SEP submission in May. The SEP allows some flexibility to reallocate funding under certain circumstances.

Hawaii ARRA Energy Formula Grants Summary

3. Formula Funding Project Expenditure Plan and Status

Formula Funding Project Spending Plan Summary	
Efficiency Programs	\$27,652,685
Renewable Programs	\$6,650,000
Transportation Programs	\$4,250,000
Energy Assurance Programs	\$1,100,000

3.1. Energy Efficiency

3.1.1. A total of **\$6,500,000 of ARRA SEP funding** will be allocated to a Government and Residential Efficiency Program (GREP) that targets energy efficiency retrofits for state, county, and residential buildings. This includes upgrading energy efficiency measures such as lighting, solar water heating, and metering devices to inform occupants of their energy consumption on an instantaneous basis. Of this \$6,500,000, \$6,200,000 is allocated to the new Public Benefits Fund Administrator (PBFA) Hawaii Energy Efficiency Program (HEEP) programs for Honolulu, Hawaii, and Maui counties, and \$300,000 is allocated to the Kauai Island Utility Cooperative (KIUC) for the county of Kauai. Specific breakdown as follows:

3.1.1.1. **\$762,500 of ARRA SEP funding** will be allocated for the Commercial and Industrial Customized Rebate (CICR) program of the HEEP, a flexible program appropriate for the government (state and county) portion of this ARRA SEP funding. This program objective is to provide rebates for bundled technologies customized for specific customer needs. The customized approach also will allow rebates for technologies not on the standard list (such as efficient air conditioning equipment) of technologies. This funding will “buy-down” a portion of costs for government and create jobs in the construction and remodeling trade sectors. Importantly, the ARRA SEP amount will be matched by approximately \$2.2 million non-federal funds from the PBFA.

CICR – Non-Profit & Government Direct Install Lighting Program
Project Description
Direct Install of Office Lighting Retrofits to Government Organizations
1. Retrofit of up to 15 Fixtures with Low-Wattage T8s & High Performance ballasts per project
2. Installation of 2 LED Exit Signs
RFP will be issued to Trade Allies to find and install equipment to qualify participants. Media announcements will be made to find qualified participants.

Energy Savings		
kW	kWh	
346	1,642,323	First Year
	30,600,881	Life of the measure

Cost Savings		
\$	0.19 / kWh	Per Electrical Unit Cost (July 2009)
\$	313,684	Annual Energy Cost Savings
\$	5,844,768	Lifecycle Energy Cost Savings

Hawaii ARRA Energy Formula Grants Summary

Cost Effectiveness	
\$ 0.3714	\$ / kWh First Year Saved
29,930,665	BTU Saved / \$1K Spent (>10 Mil.)
\$ 610,000	Purchases Motivated
\$ 0.0278	\$ / kWh Life of Measures
76,474,826	Life of Measures BTU Saved / \$1K Spent (>10 Mil.)

Budget	
\$ 762,500	ARRA SEP Funding
\$ 87,143	Hawaii Energy Efficiency Program Incentive Expenditure
\$ 2,100,000	Hawaii Energy Efficiency Program Match
\$ 2,949,643	Total Program Spend

Employment	
9.2	FTE Jobs Created
	1 job per 92K ARRA funding per DOE job creation formula

3.1.1.2. **\$5,437,500 ARRA SEP funding** allocated to the Energy Solutions for HEEP’s Home (ESH) program, targeted at the residential sector. Its purpose is to encourage residential customers to reduce their home electricity consumption by increasing efficiency through audits, equipment tune ups and the replacement of older, less efficient appliances with more energy efficient models, including ENERGY STAR® rated lighting, cooling and other appliances. This program will directly reduce energy costs for consumers.

REWH - Residential Solar Water Heater Revolving Fund Low Interest Loan
Project Description
Zero down, \$58 per Month, 48 Month Loans for Solar Water heaters
1. Family Sizes of 4 or more
2. 90% (\$4,095) of Federal and State Tax Refund used as Payback Balloon Payment at 12th Month.
3. During delivery, install Energy Savings package of water and lighting efficiency devices
4. 1.5% Interest to cover Bank Administration Cost
5. \$7,000 average System cost; 550 solar water systems installed via initial funding; 3,918 solar water systems over life of the program
6. Initial loans by PBFA will total \$3,850,000; with expected (10%) defaulted loans, expect to be able to loan out \$27,400,000 over life of program

ESH - Residential Home Usage Monitoring Systems
Project Description
1. Direct Install Home Usage Wireless Monitors
2. Statistically selected homes in Hawaii
3. Installation of Energy Savings package of 5 CFLs, 1 LED, 2 Showerheads, 3 Aerators

Hawaii ARRA Energy Formula Grants Summary

Energy Savings		
kW	kWh	
437	2,761,695	First Year
2,331	85,576,136	Measure Lifecycle Savings

3.1.1.3. **\$300,000 of ARRA SEP funding** is allocated to KIUC for customer energy efficiency rebate programs for the County of Kauai for government and residential programs on Kauai. This expenditure is expected to have an equivalent impact as funding expended via the PBFA in 3.1.1.2 and 3.1.1.3.

Using existing programs speeds the time of getting funding into the marketplace and communities, and leverages the contract and infrastructure already in place for managing these programs. The Demand Side Management programs are well structured to process SEP funding for efficiency programs; the PUC is very supportive and is amending its contract with the PBFA/SAIC to incorporate ARRA funds for energy efficiency improvements, and supports using the KIUC DSM Program. The PBFA/SAIC also is enthusiastic in implementing these programs. These funds will meet the objectives of ARRA of reducing energy consumption for government, businesses, and residents, as well as creating jobs, especially via CICR.

3.1.2. **\$3,800,000 of Weatherization Assistance Program (WAP) funding** will be combined with **\$500,000 of ARRA SEP funding** and approximately \$250,000 of PBFA funding to “weatherize” low income homes. The State Energy Office has worked with the WAP under the State Department of Labor and Industrial Relations (DLIR) Office of Community Services (OCS) to collaborate with the PUC and Hawaii Energy Efficiency Program to use their current contract with non-profits to install solar water heaters and compact fluorescent lights (CFLs), alongside the audit program conducted by the Hawaii Energy Efficiency Program. OCS’s original contract and program included only Solar Water Heaters and CFLs; the DOE asked for additional measures. HEEP is contributing audits in conjunction with OCS measures, and OCS requested additional support from State Energy Office. Of the list of appliance replacements recommended by DOE, the State Energy Office has recommended OCS focus on Energy Star refrigerators coupled with a mandatory refrigerator disposal program, for simplicity and impact to household energy consumption. This program is expected to “weatherize” a minimum of 750 low income homes. According to OCS, 37% of Hawaii homes are eligible for this benefit, with over 35% average electricity bill savings per household expected.

Hawaii Joint Weatherization Program
Project Description 750 low income homes will receive: <ol style="list-style-type: none"> 1. Solar Water Heater (funded by WAP) 2. Residential lighting efficiency measures (funded by WAP) 3. Residential appliances (funded by SEP) 4. Audit and 1 year verification monitoring (funded by PBFA)

Hawaii ARRA Energy Formula Grants Summary

- 3.1.3. **\$200,000 of ARRA SEP funding** to co-invest in the Waikiki Sea Water Air Conditioning project startup. The start-up phase will focus on Waikiki and will expedite implementation, attract financing, and provide specific information for high efficiency/renewable energy application of sea water air conditioning for Waikiki hotels, the Hawaii Convention Center, and other nearby appropriate facilities. These funds will be 'matched' by an expected \$400,000 of private and other federal funding. Funding this start-up will accelerate this project moving from concept to construction.
- 3.1.4. **\$742,000 ARRA SEP funding** allocated to energy efficiency assistance for local businesses, including in the hotel sector. This program will "buy-down" the up-front costs of local businesses and hotels making decisions on the energy efficient investments. Through contracts with local energy engineering firms, the State Energy Office will provide technical assistance and information on Energy Star, LEED, or general energy efficient practices and equipment. Break-down of this amount is as follows:
- 3.1.4.1. **\$75,000 of ARRA SEP funding** allocated to the Hospitality Energy Star Program to certify and verify Hawaii hotels as Energy Star. This will provide technical assistance to hotels in response to the request of hotel engineers and managers needing guidance to reach Energy Star label, certification and verification as needed; and provided financing information and assistance to drive energy efficiency into the hospitality sector. The Energy Star designation is well-recognized and highlights those hotels conservation measures and provides a competitive impetus for those that have not. Many hotels lack the staffing and expertise to assess energy performance of their properties. Buildings that are certified Energy Star are in the upper 25% nationwide of buildings of similar type. Currently, there are seven hotels with Energy Star awards and nine have participated in the State Energy Office's Green Business Program to incorporate green business practices such as energy efficiency and recycling. These hotels typically save 10-40% on energy use and 20% on water use. Energy Star is a step up from our Green Business Program and requires meeting a national standard on energy efficiency for hotels.

Hawaii Hospitality Energy Star
12 Hotels projected to achieve Energy Star status: 2 million square feet of floor space rated Energy Star (top 25% in country) 1. 10-40% reduction in energy consumption 2. 20% reduction in water consumption

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- 3.1.4.2. **\$367,000 of ARRA SEP funding** allocated to technical assistance for government and businesses. As with the above technical assistance for the Hospitality Energy Star Program described above, this effort will provide technical assistance and training to state and county agencies, nonprofits, and businesses to meet Energy Star Standards to accelerate adoption. Additionally, this effort will include technical assistance and training to building code officials to expedite the adoption of the updated building code, IECC 2009, which we are targeting for 30% above IECC 2006 which was recently adopted by the State Building Code Council. Technical assistance also may be provided to complement GREP and the Hospitality Energy Star Program.

Hawaii Energy Efficiency Technical Assistance

Goal of reaching 30% above IECC 2006 standards over the next 2 years:
15 new construction buildings
15 major renovations
3 million square feet of floor space

- 3.1.4.3. **\$300,000 of ARRA SEP funding** allocated to training and adoption of LEED Standards program, including LEED training for state employees and design professionals, green building technical assistance of state and other projects, data collection and analysis, and case studies development. This program will help accelerate adoption of LEED green building standards. As a result of our conducting training and technical assistance, there are now over 20 LEED Accredited Professionals who have taken the LEED exam, passed, and been credentialed. Previous to our providing training, there was only one state employee who was a LEED Accredited Professional. There are now over 770 LEED APs in Hawaii and 147 LEED registered projects; prior to our providing training to design professionals throughout the state there were only about 50 LEED APs and about 16 LEED registered projects. Therefore, more personnel are knowledgeable in implementing LEED buildings which can be as much as 30% more efficient than buildings not designed to LEED. The estimated outcome of this project will be increasing the number of LEED Accredited Professional to 1500 and 300 LEED registered projects, which will be 30% more energy efficient than today's energy code projects.

LEED Standards Training Program

Goal of training next generation of architects and engineers for meeting HLS 2009 Act
155 Energy Efficiency Portfolio Standard:
1500 LEED Accredited Professionals
400 LEED registered projects

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- 3.1.5. **\$3,000,000 of ARRA Block Grant funding** allocated to the State of Hawaii Department of Hawaiian Home Lands will implement the "Homestead Energy Program." DHHL anticipates partnering with a community development non-profit that is experienced in assisting DHHL homestead communities. The project will cover 400 homes and will be conducted over a period of 18 months consisting of: Conducting home energy audits and assessments; delivering energy efficiency and conservation education/training; and retrofitting/installing homes with solar water heating systems and CFLs.

EECBG Homestead Energy Program
400 Homestead Homes, each with:
-- Home energy audits
-- Solar Water Heaters
-- CFLs
-- Energy Efficiency and conservation education and training

- 3.1.6. **\$3,000,000 of ARRA Block Grant funding** allocated to the State Department of Accounting and General Services' 10-building, one-million square foot performance contract which is estimated to cost about \$35M to make energy efficiency improvements. The project is designed to increase energy efficiency and building performance, accelerate reducing life cycle costs of operations, improve indoor environmental quality for occupants, address the deferred repair and maintenance backlog of projects, and leverage available annual cash flow from energy savings. The overall project will save about \$73,000,000 over the next 20 years.

EECBG DAGS Performance Contract Augmentation
Funding for \$3M of a \$35M project:
10 buildings
1 million square feet
Over 30% energy savings
\$73,000,000 savings over 20 years

- 3.1.7. **\$3,000,000 of ARRA Block Grant funding** allocated to the Commercial and Industrial Customized Rebate (CICR) program of the HEEP, a flexible program appropriate for the government (state and county) and nonprofit building portion of this Block Grant funding. This program objective is to provide grants for bundled technologies customized for specific customer needs. The customized approach also will allow rebates for technologies not on the standard list (such as efficient air conditioning equipment) of technologies. This funding will reduce costs for non-profits and government agencies and create jobs in the construction and remodeling trade sectors. This ARRA Block Grant funds will also support the City and County of Honolulu, the County of Maui, and the County of Hawaii.

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3.1.8. **\$200,000 of ARRA Block Grant funding** allocated to KIUC through DBEDT to offer the customer energy efficiency rebate programs for the County of Kauai for government and nonprofit buildings on Kauai. These funds are in addition to the \$300,000 KIUC customer energy efficiency project listed in 3.1.1.3, but are included in the negotiations with KIUC and the PUC, and will be added to the project when available.

3.1.9. **\$1,235,985 of the ARRA Energy Star Program funding** allocated to the State Energy Efficient Appliance Rebate Program (**SEEARP**) supporting GREP (see 3.1.1) for Honolulu, Maui, and Hawaii Counties (Kauai is supported by 3.1.8 above). Under GREP, this program will focus on swapping out inefficient home refrigerators (which represent about 14% of residential consumption) and replacing them with high efficiency Energy Star refrigerators. Since many homes have two inefficient refrigerators, our program will offer two for one: customers will turn in both refrigerators for a rebate to purchase an Energy Star refrigerator. Our program will include mandatory recycling so the old refrigerators may not be reused. A home efficiency package of water conservation devices and compact fluorescents will be included. A second major program will include installing two Energy Star ceiling fans in exchange for old air conditioning units. A home efficiency package will be included. Mandatory recycling will also be part of the program.

The Initial Grant Application was submitted online by DBEDT on July 31, 2009, to the USDOE via the Idaho Energy Office. The Comprehensive Application is due on October 15, 2009.

State Energy Efficient Appliance Rebate Program (SEEARP)
\$1,235,985
11.5 million kilowatt hours expected savings annually
106.6 million kilowatt hours over life of project
\$21.3M savings to consumers estimated over the life of the measures
9 jobs created or retained

3.1.10. **\$5,474,700 in County Block Grant Funding (\$737,800 for Hawaii County, \$3,863,700 for Honolulu County, \$267,900 for Kauai County, \$605,300 for Maui County) of ARRA Block Grant funding** will be provided directly to counties for energy efficiency and renewable energy projects in accordance with individual county needs and their individual applications subject to approval by the Department of Energy.

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3.2. Renewable Energy

3.2.1. **\$4,740,000 of ARRA SEP funding** will be used to support the development of an inter-island undersea cable to interconnect the island of Oahu with one or more islands in the County of Maui. This project will require a significant amount of initial investment in the form of studies, data collection, analysis, and outreach, as well as staff with knowledge in permitting, transmission, project management, contracting, and grants. Break-down of contracted amounts is as follows:

3.2.1.1. The Undersea Cable Support - Special Attorney General Contract will aid DBEDT in the development of the interisland cable by advising DBEDT on legal, regulatory, business, financing, and strategic decisions. This funding will reduce risk for the state and consumer, and shorten the timeline for getting the undersea cable in place. ARRA SEP funding of \$200,000 are allocated for this contract.

Cable Special Attorney General
Reduces legal risk for state and consumer in structuring cable contract
Reduce timeline for implementing cable plan of action

3.2.1.2. The Subject Matter Expert Contract will aid DBEDT in the development of the interisland cable by advising DBEDT in financing and procurement issues for the project and providing advice based on experience in development of undersea power transmission cables. This funding will reduce risk for the state and consumer, and shorten the timeline for getting the undersea cable in place. **ARRA SEP funding of \$500,000** are allocated for this contract.

Cable Subject Matter Expert
Reduces technical and contractual risk for state and consumer in structuring cable contract and funding
Reduce timeline for implementing cable plan of action

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- 3.2.1.3. The Request for Information (RFI) Contract will enable DBEDT and the Hawaiian Electric Company (HECO) to collect information regarding the financing and development of the interisland cable via a cable developers' conference. The results of the RFI will be used in the Request for Proposal (RFP) for the interisland cable. This will directly reduce ambiguity and cost for the cable. **ARRA SEP funding of \$50,000** are allocated for this contract.

Request For Information
Reduces ambiguity for Request For Proposal
Reduces cost and time to construction of cable

- 3.2.1.4. Request for Proposal (RFP) Contract: DBEDT/HECO will develop the financial, technical, regulatory, and environmental requirements for the interisland cable. **ARRA SEP funding of \$500,000** are allocated for this contract.

Request For Proposal
Ensures legal, procurement, and technical requirements met in RFP solicitation
Reduces risk in solicitation

- 3.2.1.5. The Environmental Impact Statement (EIS) Contract will perform required environmental, cultural, and biological studies required for the development of the EIS for the interisland cable and the required grid upgrades on Oahu; support the drafting of required environmental assessment components; host stakeholder meetings on Molokai, Lanai, Maui, and Oahu. This will directly shorten the critical path for the deployment of the undersea cable. **ARRA SEP funding of \$3,690,000** are allocated for this contract.

Environmental Impact Study
Directly works critical path issues while cable procurement process proceeds
Leverages state policy position for permitting and EIS analysis

- 3.2.2. To meet at least 40% of Hawaii's energy needs with renewable sources (solar, wind, wave, OTEC, geothermal, hydropower, and bioenergy) by 2030, multiple successful projects -- properly sited, cost-effective, effectively permitted and interconnected -- will be needed. For projects to be successful, project developers, decision-makers, regulators, landowners, the media, and the public need access to credible, timely, up-to-date information on Hawaii's resources, barriers, requirements, technologies, expertise, successes, failures, and opportunities.

- 3.2.2.1. **\$375,000 or ARRA SEP funding** for an Online Permitting Systems, contracted with a local professional services provider to develop a coordinated, secure, on-line permitting portal for renewable energy projects. Successful examples exist in other states. Tasks include working with agencies in Federal, State and County government; developing front end and back end infrastructure; testing and implementation. This will provide a simple, easy to understand point of entry for renewable energy project

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developers, and shorten and simplify the permitting process for projects. Portal will provide an automated process for permit selection and coordination.

Online Permitting Portal
Provides automated permit selection and coordination
Simplifies and provides transparency for permitting process for renewables

- 3.2.2.2. **\$200,000 of ARRA SEP funding** allocated for initial funding of the Expedited Permitting Account to support the coordinated permitting process prior to the collection of developer fees. The funds will be used to cover up-front costs for expediting permitting projects including performing required engineering studies, data collection, and site assessments.

Renewable Energy Facilitator Act 207 Initial Funding
Provides initial funding for Act 207 processes
Reduces timeline for initial large renewable processes

- 3.2.2.3. **\$1,135,000 of ARRA SEP funding** will be allocated to renewable energy project funding to accelerate the development of renewable energy projects by: 1) providing funding to “tip” renewable energy projects currently in the pipeline toward accelerated completion; and 2) documenting the projects, to provide information, guidance, and success stories to other project developers and the public.

Renewable Energy Project Funding
Direct acceleration of 3-4 renewable energy projects

3.3. Transportation Energy

Transportation Energy Diversification Program

Long Term Objective: 40% renewable energy by 2030

2012 Objective: at least 650 vehicles and charge stations in use; statewide non-petroleum refueling and recharging networks established; several makes and models of non-gasoline vehicles available

Foundation firmly established for non-petroleum vehicles and fuels

57 jobs created or retained directly through ARRA funding (per DOE job creation formula)

- 3.3.1. **\$3,750,000 of ARRA SEP funding** allocated to transportation energy diversification program to work with government and industry partners to develop a plan for rapid transformation of the energy demands of Hawaii's transportation sector. Grants will be provided to early adopters of commercially available technologies, including vehicles and infrastructure. Act 156 of the 2009 Legislature authorizes such a grant program. Result: 625 vehicle grants (\$5,000 per grant) and chargers (estimated \$1,000 cost per charger) funded. This allocation between grants and charging stations may be adjusted based on the needs of the market in this highly dynamic time for electric and other advanced technology vehicles.
- 3.3.2. **\$500,000 of ARRA SEP funding** allocated to alternative fuel vehicle and state infrastructure project will support State infrastructure and vehicle fleet demonstrations and transformation, providing funds for vehicles and infrastructure. Result: 25 vehicles (with \$19,000 per vehicle) and 25 charge stations (at an estimated \$1,000 per charging station) for the state.

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3.4. Energy Assurance

Energy Assurance Formula Grants
\$1,100,000
Supplements not Supplants current State Energy Office and Public Utility Commission work
Increase expertise in regulatory and energy assurance issues related to Smart Grid
Provides for increased training and staff capability with new technology

- 3.4.1. **\$782,000 provided under State Electricity Regulators Assistance Funding (SERAF)** will improve the State Public Utility Commission’s (PUC’s) ability to gain the expertise required to handle increasingly complex issues associated with Smart Grid technology and the associated regulatory issues. The SERAF program aims to ensure that PUCs can meet the increased demands caused by the increased workloads through the hiring of additional staff. This goes to ensure appropriate technical expertise will be dedicated to regulatory activities pertaining to Recovery Act electricity-related initiatives. The Hawaii PUC will be applying for this grant by the August 31, 2009 due date.
- 3.4.2. **\$318,000 provided under Enhancing State Government Energy Assurance Capabilities and Planning for Smart Grid Resiliency Grant** will create expertise at the State level on energy assurance planning and resiliency, focusing on Smart Grid; support development of energy assurance planning and plans; train personnel on execution of energy assurance plans; and fund energy emergency exercises to evaluate the effectiveness of the energy assurance plans. Hawaii’s Energy Assurance proposal was submitted on July 27, 2009. The awards have been announced, but not yet received.