

**State of Hawaii
Department of Labor & Industrial Relations
Office of Community Services**

**In Partner With The
Department of Hawaiian Home Lands**

Request for Proposals

RFP No.: OCS LBR 903–20

**Solar Water Heater System and Compact Fluorescent Light
Program Services for Hawaiian Home Lands' Residences**

The American Recovery and Reinvestment Act of 2009

December 18, 2009

Note: If this RFP was downloaded from the State Procurement Office RFP Website each applicant must provide contact information to the RFP contact person for this RFP to be notified of any changes. For your convenience, you may download the RFP Interest Form (<http://www4.hawaii.gov/spoh/frpinterest.doc>), complete and e-mail or mail to the RFP contact person. The State shall not be responsible for any missing addenda, attachments or other information regarding the RFP if a proposal is submitted from an incomplete RFP.



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Program Services for Hawaiian Home Lands' Residences
The American Recovery and Reinvestment Act of 2009

RFP Number: OCS LBR 903-20



LINDA LINGLE
GOVERNOR



DARWIN L. D. CHING
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DEPUTY DIRECTOR

SAM AIONA
EXECUTIVE DIRECTOR

**STATE OF HAWAII
DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
OFFICE OF COMMUNITY SERVICES**

830 PUNCHBOWL STREET, ROOM 420
HONOLULU, HAWAII 96813
<http://hawaii.gov/labor/>
Phone: (808) 586-8675 / Fax: (808) 586-8685
Email: dlir.ocs@hawaii.gov

December 18, 2009

Dear Applicant:

**SUBJECT: REQUEST FOR PROPOSAL (RFP) FOR LBR 903-20
SOLAR WATER HEATER SYSTEM AND COMPACT
FLUORESCENT LIGHT PROGRAM SERVICES FOR
HAWAIIAN HOME LANDS' RESIDENCES – THE AMERICAN
RECOVERY AND REINVESTMENT ACT OF 2009**

The Department of Labor and Industrial Relations (DLIR), Office of Community Services (OCS), in partnership with the Department of Hawaiian Home Lands, is soliciting proposals from qualified applicants to procure subgrantees of the Energy Efficiency and Conservation Block Grant (EECBG) program for Hawaii in relation to Public Law 111-5, the American Recovery and Reinvestment Act (ARRA) of 2009. The Act gives preferences to activities that can be started and completed expeditiously with special consideration to projects promoting and enhancing job creation, preservation, and economic recovery.

The purpose of the EECBG program is to: 1) Reduce fossil fuel emissions in a manner that is environmentally sustainable and, to the maximum extent practicable, maximize benefits for local and regional communities; 2) Reduce the total energy use of the eligible entities; and 3) Improve energy efficiency in the building, transportation, and other appropriate sectors. The goal of the program is to use ARRA funds administered through the U.S. Department of Energy to contract for the installation of energy devices and energy conservation education. Installation services include Compact Fluorescent Lights (CFL) and solar water heater systems for eligible low-income native Hawaiian Home Lands' residences including those on agricultural and pastoral lots.

All prospective applicants are hereby notified that this RFP for competitive purchase of services is issued under the provisions of the Hawaii Revised Statutes, Chapter 103F and its administrative rules.

The enclosed materials outline the application requirements of these RFPs. Included for your use are the administrative requirements, service specifications, proposal applications, budget instructions, as well as other reference materials. Prior to application submittal, it is imperative that the applicants closely review all information and follow detailed instructions provided.

Hand deliveries will be accepted at DLIR-OCS until January 19, 2010, 4:30 p.m., Hawaii Standard Time (HST). Mail-ins must be postmarked by the United States Postal Service (USPS) no later than January 19, 2010, and received by DLIR-OCS no later than ten days from the submittal deadline. Hand deliveries as well as mail-ins will be accepted at the following address:

Office of Community Services
830 Punchbowl Street, Room 420
Honolulu, Hawaii 96813

Proposals postmarked after January 19, 2010, or hand delivered after 4:30 p.m. H.S.T. on January 19, 2010, **shall be considered late and rejected**. There are no exceptions to this requirement. Proposals delivered by facsimile transmission or e-mail will not be accepted. One original and five copies of the proposal are required.

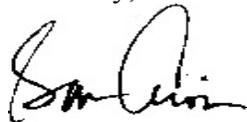
DLIR-OCS will conduct an orientation session on December 23, 2009, from 10:00 a.m. to 12:00 noon, at 830 Punchbowl Street, Room 420, Honolulu, Hawaii. All prospective applicants are strongly encouraged to attend the session.

The deadline for submission of written questions is 4:30 p.m. H.S.T. on Monday, January 4, 2010. DLIR-OCS will address all written questions with a written response by Monday, January 11, 2010. Written questions may be submitted to DLIR-OCS by facsimile or e-mail. However, all applicants who submit written questions by facsimile or e-mail bears the full and exclusive responsibility for assuring the complete, correctly formatted, and timely transmission of their questions.

All applicants will be notified in writing regarding DLIR-OCS' decision on his/her proposal(s) in early February 2010. Primary contracts are expected to be in effect from March 15, 2010 to September 30, 2010. Any questions or inquiries regarding this RFP should be directed to the RFP Contact Person, Keith Nakano, by mail at 830 Punchbowl Street, Room 420, Honolulu, Hawaii 96813, e-mail: keith.m.nakano@hawaii.gov, telephone: (808) 586-8675, or facsimile: (808) 586-8685.

Thank you for your interest in applying and for working with us to provide quality services.

Sincerely,



SAM AIONA
Executive Director

AN EQUAL OPPORTUNITY AGENCY

PROPOSAL MAIL-IN AND DELIVERY INFORMATION SHEET

**NUMBER OF COPIES TO BE SUBMITTED: ONE ORIGINAL & FIVE COPIES
ADDITIONAL COPIES MAY BE REQUESTED**

ALL MAIL-INS SHALL BE POSTMARKED BY THE UNITED STATES POSTAL SERVICE (USPS) NO LATER THAN **January 19, 2010**, and received by the state purchasing agency **no later than 10 days from the submittal deadline.**

All Mail-ins

*Department of Labor & Industrial
Relations (DLIR)*
Office of Community Services
Ke'elikolani Building
830 Punchbowl Street, Room 420
Honolulu, Hawaii 96813

DLIR-OCS RFP COORDINATOR

Keith Nakano, Program Specialist
Phone: (808) 586-8675
Facsimile: (808) 586-8685
E-mail: keith.m.nakano@hawaii.gov

ALL HAND DELIVERIES SHALL BE ACCEPTED AT THE FOLLOWING SITE UNTIL **4:30 P.M., Hawaii Standard Time (HST), January 19, 2010.** Deliveries by private mail services such as FEDEX shall be considered hand deliveries. Hand deliveries shall not be accepted if received after 4:30 p.m., January 19, 2010.

Drop-off Site

*Department of Labor & Industrial
Relations (DLIR)*
Office of Community Services
Ke'elikolani Building
830 Punchbowl Street, Room 420
Honolulu, Hawaii 96813

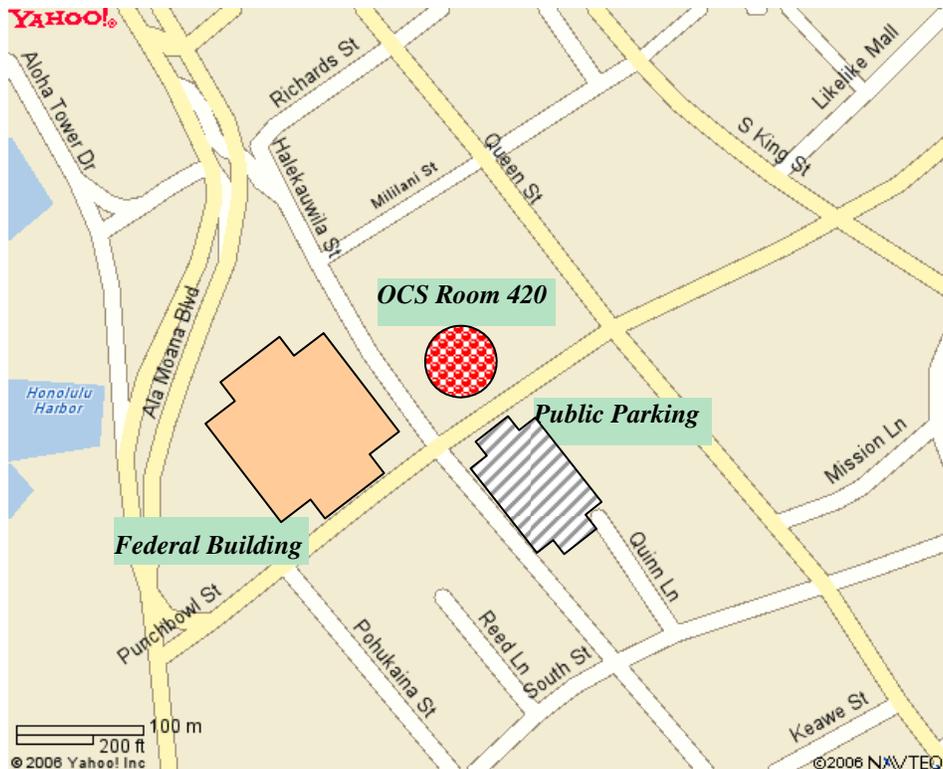
RFP ORIENTATION SESSION

All prospective applicants are invited and encouraged to attend the following scheduled informational session. At this meeting, DLIR-OCS staff will present the proposal application requirements, service specifications and be available to respond to questions.

PLACE: KE'ELIKOLANI BUILDING, OCS CONFERENCE ROOM,
830 PUNCHBOWL STREET, ROOM 420, HONOLULU

DATE: WEDNESDAY, DECEMBER 23, 2009

TIME: 10:00 A.M. - 12:00 NOON



If you are unable to attend these sessions, alternative arrangements may be requested. Should you have any questions contact Keith Nakano at (808) 586-8675.

DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
OFFICE OF COMMUNITY SERVICES
In Partner with the Department of Hawaiian Home Lands

**Solar Water Heater System and Compact Fluorescent Light
Program Services for Hawaiian Home Lands' Residences
The American Recovery and Reinvestment Act of 2009**

REQUEST FOR PROPOSAL NUMBER: OCS LBR 903-20

IMPORTANT DATES*

Public Notice Announcing Request for Proposals	December 18, 2009
Distribution of Request for Proposals	December 18, 2009
Orientation Session (Honolulu)	December 23, 2009
Deadline for Submission of Written Questions	January 4, 2010
Response to Written Questions	January 11, 2010
Proposal Submittal Deadline	January 19, 2010
Proposal Evaluation Period	January 20 – February 2, 2010
Provider Selection and Notice of Award Notice of Statement of Findings and Decisions	On or About February 4, 2010
Contract Terms Finalized	Approx. February 15, 2010
Contract Start Date**	On or About March 15, 2010

* This schedule of activities is provided for planning purposes only. DLIR-OCS reserves the right to cancel any activity or modify the schedule at any time.

** Funds need to be contracted and obligated by March 31, 2010.

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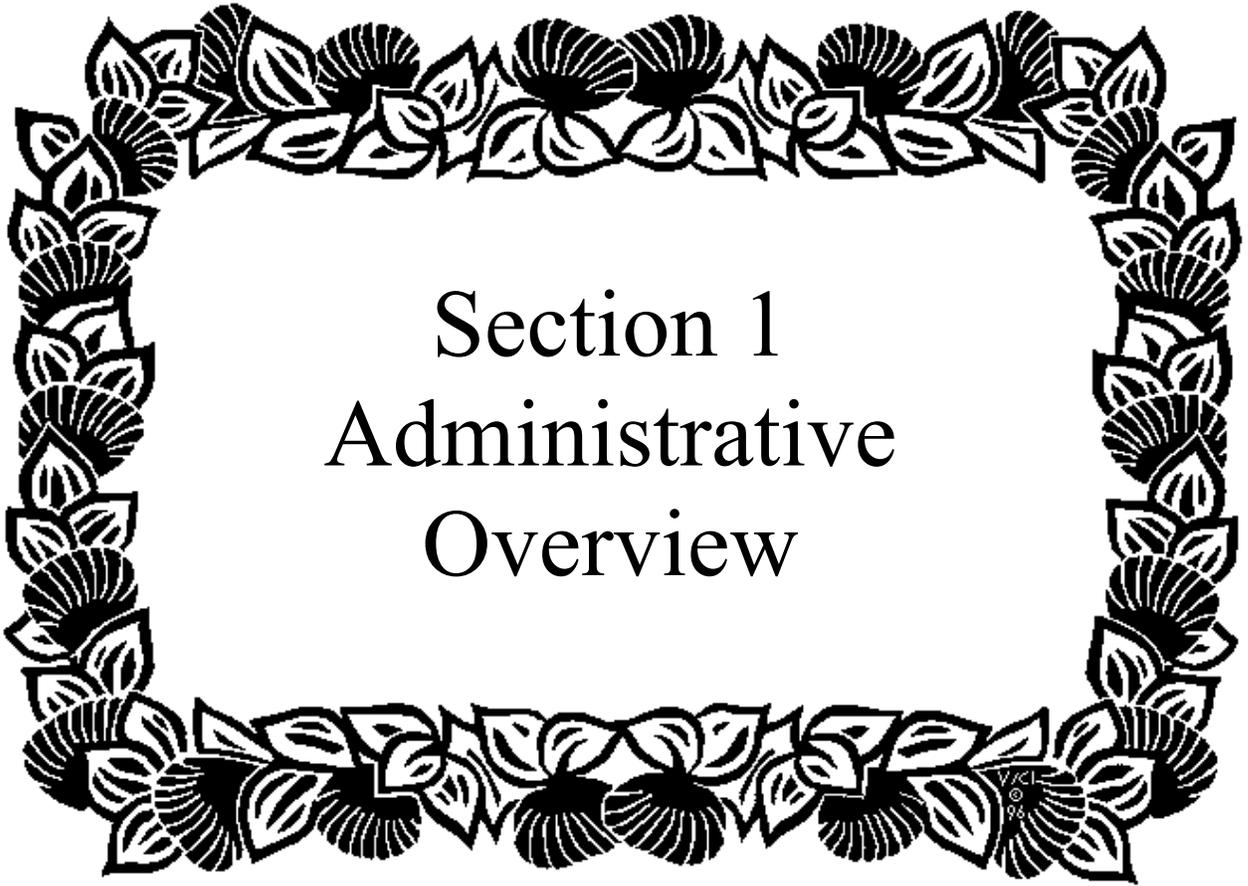
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Section 1
Administrative
Overview

Section 1 Administrative Overview

Each applicant is encouraged to thoroughly read all sections of this RFP. While sections such as the administrative overview may appear similar among RFPs, state purchasing agencies may add additional information as applicable. It is the responsibility of the applicant to understand the requirements of *each* RFP.

I. Procurement Timetable*

Note that the procurement timetable represents the State's best estimated schedule. Contract start dates may be subject to the issuance of a notice to proceed.

<u>Activity</u>	<u>Scheduled Date</u>
Public notice announcing RFP	December 18, 2009
Distribution of RFP	December 18, 2009
RFP orientation session (Honolulu)	December 23, 2009
Deadline for submission of written questions for written responses	January 4, 2010
State purchasing agency's response to applicants' written questions	January 11, 2010
Discussions with applicant prior to proposal submittal deadline (optional)	December 18, 2009 – January 19, 2010, as needed
Proposal submittal deadline	January 19, 2010
Discussions with applicant after proposal submittal deadline (optional)	January 20 – February 2, 2010, as needed
Final revised proposals (optional)	January 25 - 28, 2010, as needed
Proposal evaluation period	January 20 – February 2, 2010 as needed
Provider selection/Notice of statement of findings and decision	On or about February 4, 2010
Contract terms finalized	Approx. February 15, 2010
Contract start date**	On or about March 15, 2010

* This timetable of activities is provided for planning purposes only. DLIR-OCS reserves the right to cancel any activity or modify the timetable at any time.

** Funds need to be contracted and obligated by March 31, 2010.

II. Website Reference

The State Procurement Office (SPO) website is <http://hawaii.gov/spo/>

	For	Click
1	Procurement of Health and Human Services	"Health and Human Services, Chapter 103F, HRS..."
2	RFP website	"Health and Human Services, Ch. 103F..." and "The RFP Website" (located under Quicklinks)
3	Hawaii Administrative Rules (HAR) for Procurement of Health and Human Services	"Statutes and Rules" and "Procurement of Health and Human Services"
4	Forms	"Health and Human Services, Ch. 103F..." and "For Private Providers" and "Forms"
5	Cost Principles	"Health and Human Services, Ch. 103F..." and "For Private Providers" and "Cost Principles"
6	Standard Contract - General Conditions	"Health and Human Services, Ch. 103F..." "For Private Providers" and "Contract Template – General Conditions"
7	Protest Forms/Procedures	"Health and Human Services, Ch. 103F..." and "For Private Providers" and "Protests"

Non-SPO websites

(Please note: website addresses may change from time to time. If a link is not active, try the State of Hawaii website at <http://hawaii.gov>)

	For	Go to
8	Tax Clearance Forms (Department of Taxation Website)	http://www.hawaii.gov/tax/ click "Forms"
9	Wages and Labor Law Compliance, Section 103-055, HRS, (Hawaii State Legislature website)	http://www.capitol.hawaii.gov/ click "Bill Status and Documents" and "Browse the HRS Sections."
10	Department of Commerce and Consumer Affairs, Business Registration	http://www.hawaii.gov/dcca click "Business Registration"
11	Campaign Spending Commission	http://hawaii.gov.campaign

III. Authority

This RFP is issued under the provisions of the Hawaii Revised Statutes (HRS), Chapter 103F and its administrative rules. Each prospective applicant is charged with presumptive knowledge of all requirements of the cited authorities. Submission of a valid executed proposal by any prospective applicant shall constitute admission of such knowledge on the part of such prospective applicant.

IV. RFP Organization

This RFP is organized into five sections:

Section 1, Administrative Overview: Provides applicant with an overview of the procurement process.

Section 2, Service Specifications: Provides applicant with a general description of the tasks to be performed, delineates applicant responsibilities, and defines deliverables (as applicable).

Section 3, Proposal Application Instructions: Describes the required format and content for the proposal application.

Section 4, Proposal Evaluation: Describes how proposals will be evaluated by the state purchasing agency.

Section 5, Attachments: Provides applicant with information and forms necessary to complete the application.

V. Contracting Office

The Contracting Office is responsible for overseeing the contracts resulting from this RFP, including system operations, fiscal agent operations, monitoring and assessing provider performance. The Contracting Office is:

Office of Community Services
Department of Labor and Industrial Relations, State of Hawaii
830 Punchbowl Street, Room 420
Honolulu, Hawaii 96813
Phone: (808) 586-8675 Fax: (808) 586-8685

VI. Orientation

An orientation session for applicants in reference to the RFP will be held as follows:

Date: December 23, 2009 **Time:** 10:00 a.m. to 12:00 Noon
Location: Keelikolani Building – OCS Conference Room
830 Punchbowl Street, Room 420, Honolulu, Hawaii

Each applicant is encouraged to submit written questions to DLIR-OCS prior to the orientation session. Impromptu questions will be permitted and spontaneous answers provided at the orientation session at the state purchasing agency's discretion. However, answers provided during the orientation session are only intended as general direction and may not represent the State purchasing agency's position. Formal official responses will be provided in writing. To ensure a written response, any oral questions should be submitted in writing following the close of the orientation, but no later than the submittal deadline for written questions indicated in the next paragraph (VII. Submission of Questions).

VII. Submission of Questions

The applicant may submit written questions to the RFP Contact Person identified in Section 2 of this RFP. All written questions will receive a written response from the state purchasing agency.

Deadline for submission of written questions:

Date: January 4, 2010. **Time:** 4:30 p.m. HST

State agency responses to applicant written questions will be provided by:

Date: January 11, 2010.

VIII. Submission of Proposals

A. Forms/Formats

Forms, with the exception of program specific requirements, may be found on the State Procurement Office website (See page 1-2, Website Reference). Refer to the Proposal Application Checklist for the location of program specific forms.

1. Proposal Application Identification (Form SPO-H-200) – Provides applicant proposal identification.

2. Proposal Application Checklist – Provides applicants with information on where to obtain the required forms; information on program specific requirements; which forms are required and the order in which all components should be assembled and submitted to the state purchasing agency.

3. Table of Contents – A sample table of contents for proposals is located in Section 5, Attachments. This is a sample and meant as a guide. The table of contents may vary depending on the RFP.

4. Proposal Application (Form SPO-H-200A) – Applicant shall submit comprehensive narratives that addresses all of the proposal requirements contained in Section 3 of this RFP, including a cost proposal/budget if required.

B. Program Specific Requirements

Program specific requirements are included in Sections 2, Service Specifications and Section 3, Proposal Application Instructions, as applicable. If required, Federal and/or State certifications are listed on the Proposal Application Checklist located in Section 5.

C. Multiple or Alternate Proposals

Multiple or alternate proposals shall not be accepted unless specifically provided for in Section 2 of this RFP. In the event alternate proposals are not accepted and an applicant submits alternate proposals, but clearly indicates a primary proposal, it shall be considered for award as though it were the only proposal submitted by the applicant.

D. Tax Clearance

Pursuant to HRS Section 103-53, as a prerequisite to entering into contracts of \$25,000 or more, providers shall be required to submit a tax clearance certificate issued by the Hawaii State Department of Taxation (DOTAX) and the Internal Revenue Service (IRS). The certificate shall have an original green certified copy stamp and shall be valid for six (6) months from the most recent approval stamp date on the certificate. Tax clearance applications may be obtained from the Department of Taxation website. (Refer to this section's part II. Website Reference.)

E. Wages and Labor Law Compliance

If applicable, by submitting a proposal, the applicant certifies that the applicant is in compliance with HRS Section 103-55, Wages, hours, and working conditions of employees of Contractors performing services. Refer to HRS Section 103-55, at the Hawaii State Legislature website. (See part II, Website Reference.) Applicant shall also comply with HRS Chapter 104 (thus making applicant compliant with Davis-Bacon wage rate requirements.

1. Compliance with all Applicable State Business and Employment Laws – All providers shall comply with all laws governing entities doing business in the State. Prior to contracting, owners of all forms of business doing business in the state except sole proprietorships, charitable organizations unincorporated associations and foreign insurance companies be registered and in good standing with the Department of Commerce and Consumer Affairs (DCCA), Business Registration Division. Foreign insurance companies must register with DCCA, Insurance Division. More information is on the DCCA website. (See part II, Website Reference.)

F. Hawaii Compliance Express (HCE)

Providers may register with HCE for online proof of DOTAX and IRS tax clearance Department of Labor and Industrial Relations (DLIR) labor law compliance, and DCCA good standing compliance. There is a nominal annual fee for the service. The "Certificate of Vendor Compliance" issued online through HCE provides the registered provider's current compliance status as of the issuance date, and is accepted for both contracting and final payment purposes. Refer to this section's part II. Website Reference for HCE's website address.

G. Campaign Contributions by State and County Contractors

Contractors are hereby notified of the applicability of Section 11-205.5, HRS, which states that campaign contributions are prohibited from specified State or county government Contractors during the term of the contract if the Contractors are paid with funds appropriated by a legislative body. For more information, FAQs are available at the Campaign Spending Commission website (See part II, Website Reference).

H. Confidential Information

If an applicant believes any portion of a proposal contains information that should be withheld as confidential, the applicant shall request in writing nondisclosure of designated proprietary data to be confidential and provide justification to support confidentiality. Such data shall accompany the proposal, be clearly marked, and shall be readily separable from the proposal to facilitate eventual public inspection of the non-confidential sections of the proposal.

Note that price is not considered confidential and will not be withheld.

I. Confidentiality of Personal Information.

Act 10 relating to personal information was enacted in the 2008 special legislative session. As a result, the Attorney General's General Conditions of Form AG Form 103F, *Confidentiality of Personal Information*, has been amended to include Section 8 regarding protection of the use and disclosure of personal information administered by the agencies and given to third parties.

J. Proposal Submittal

All mail-ins shall be postmarked by the United States Postal System (USPS) and received by the State purchasing agency no later than the submittal deadline indicated on the attached Proposal Mail-in and Delivery Information Sheet. All hand deliveries shall be received by the State purchasing agency by the date and time designated on the Proposal Mail-In and Delivery Information Sheet. Proposals shall be rejected when:

1. Postmarked after the designated date; or
2. Postmarked by the designated date but not received within 10 days from the submittal deadline; or
3. If hand delivered, received after the designated date and time.

The number of copies required is indicated on the Proposal Mail-In and Delivery Information Sheet. Deliveries by private mail services such as FEDEX shall be considered hand deliveries and shall be rejected if received after the submittal deadline. Dated USPS shipping labels are not considered postmarks.

Faxed proposals and/or submission of proposals on diskette/compact disc or transmission by e-mail, website or other electronic means are not permitted.

IX. Discussions with Applicants

A. Prior to Submittal Deadline

Discussions may be conducted with potential applicants to promote understanding of the purchasing agency's requirements.

B. After Proposal Submittal Deadline

Discussions may be conducted with applicants whose proposals are determined to be reasonably susceptible of being selected for award, but proposals may be accepted without discussions, in accordance Section 3-143-403, HAR.

X. Opening of Proposals

Upon receipt of proposal by a state purchasing agency at a designated location, proposals, modifications to proposals, and withdrawals of proposals shall be date-stamped, and when possible, time-stamped. All documents so received shall be held in a secure place by the state purchasing agency and not examined for evaluation purposes until the submittal deadline. Procurement files shall be open to public inspection after a contract has been awarded and executed by all parties.

XI. Additional Materials and Documentation

Upon request from the state purchasing agency, each applicant shall submit any additional materials and documentation reasonably required by the state purchasing agency in its evaluation of the proposals.

XII. RFP Amendments

The State reserves the right to amend this RFP at any time prior to the closing date for the final revised proposals.

XIII. Final Revised Proposals

If requested, final revised proposals shall be submitted in the manner, and by the date and time specified by the state purchasing agency. If a final revised proposal is not submitted, the previous submittal shall be construed as the applicant's best and final offer/proposal. *The applicant shall submit **only** the section(s) of the proposal that are amended, along with the Proposal Application Identification Form (SPO-H-200).* After final revised proposals are received, final evaluations will be conducted for an award.

XIV. Cancellation of Request for Proposal

The RFP may be canceled and any or all proposals may be rejected in whole or in part, when it is determined to be in the best interests of the State.

XV. Costs for Proposal Preparation

Any costs incurred by an applicant in preparing or submitting a proposal are the applicant's sole responsibility.

XVI. Provider Participation in Planning

Provider participation in a state purchasing agency's efforts to plan for or to purchase health and human services prior to the state purchasing agency's release of a RFP, including the sharing of information on community needs, best practices, and provider's resources, shall not disqualify providers from submitting proposals if conducted in accordance with sections 3-142-202, and 3-142-203.

XVII. Rejection of Proposals

The State reserves the right to consider as acceptable only those proposals submitted in accordance with all requirements set forth in this RFP and which demonstrate an understanding of the problems involved and comply with the service specifications. Any proposal offering any other set of terms and conditions contradictory to those included in this RFP may be rejected without further notice.

A proposal may be automatically rejected for any one or more of the following reasons:

- A.** Rejection for failure to cooperate or deal in good faith (HAR Section 3-141-201)
- B.** Rejection for inadequate accounting system (HAR Section 3-141-202)
- C.** Late proposals (HAR Section 3-143-603)
- D.** Inadequate response to request for proposals (HAR Section 3-143-609)
- E.** Proposal not responsive (HAR Section 3-143-610(a)(1))
- F.** Applicant not responsible (Section 3-143-610(a)(2))

XVIII. Notice of Award

A statement of findings and decision shall be provided to all applicants by mail upon completion of the evaluation of competitive purchase of service proposals.

Any agreement arising out of this solicitation is subject to the approval of the Department of the Attorney General as to form, and to all further approvals, including the approval of the Governor, required by statute, regulation, rule, order or other directive.

No work is to be undertaken by the awardee prior to the contract commencement date. The State of Hawaii is not liable for any costs incurred prior to the official starting date.

XIX. Protests

Any applicant may file a protest against the awarding of the contract. The Notice of Protest form, SPO-H-801, is available on the SPO website (See paragraph II, Website Reference). Only the following matters may be protested:

- A. A state purchasing agency's failure to follow procedures established by Chapter 103F of the Hawaii Revised Statutes.
- B. A state purchasing agency's failure to follow any rule pursuant to Chapter 103F of the Hawaii Revised Statutes.
- C. A state purchasing agency's failure to follow any procedure, requirement, or evaluation criterion in a request for proposal issued by the state purchasing agency.

The Notice of Protest shall be postmarked by USPS or hand delivered to 1) the head of the state purchasing agency conducting the protested procurement and 2) the procurement officer who is conducting the procurement (as indicated below) within five working days of the postmark of the Notice of Findings and Decision sent to the protestor. Delivery services other than USPS shall be considered hand deliveries and considered submitted on the date of actual receipt by the state purchasing agency.

Head of State Purchasing Agency	Procurement Officer
Name: <i>Mr. Darwin Ching</i>	Name: <i>Mr. Patrick Fukuki</i>
Title: <i>Director</i>	Title: <i>Business Management Officer</i>
Business and Mailing Address: <i>830 Punchbowl Street, Room 321 Honolulu, Hawaii 96813</i>	Business and Mailing Address: <i>830 Punchbowl Street, Room 309 Honolulu, Hawaii 96813</i>

XX. Availability of Funds

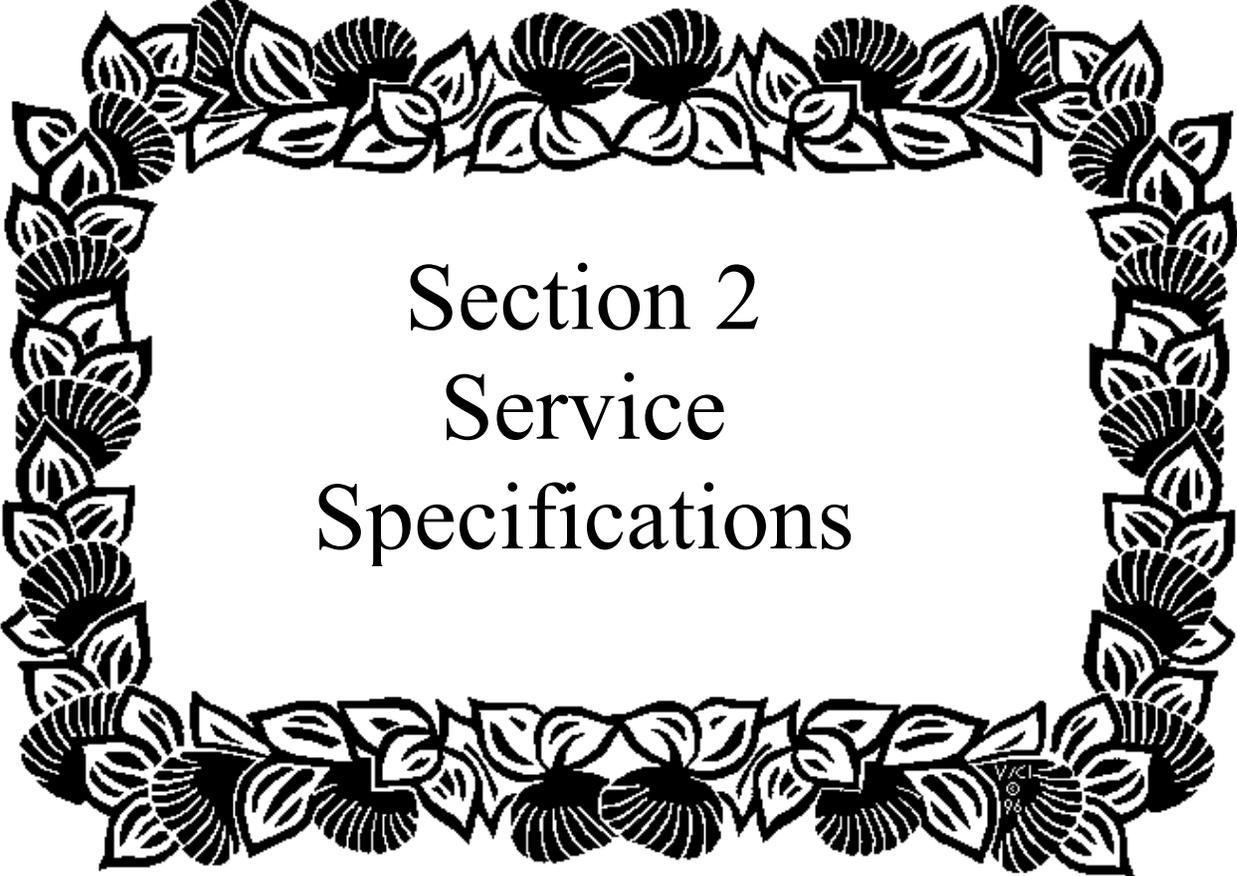
The award of a contract and any allowed renewal or extension thereof, is subject to allotments to be made by the Director of Budget and Finance, State of Hawaii, pursuant to Chapter 37, Hawaii Revised Statutes, and subject to the availability of State and/or Federal funds.

XXI. General and Special Conditions of Contract

The general conditions that will be imposed contractually are on the SPO website (see paragraph II, Website Reference). Special conditions may also be imposed contractually by the state purchasing agency, as deemed necessary.

XXII. Cost Principles

To promote uniform purchasing practices among state purchasing agencies procuring health and human services under Chapter 103F, HRS, state purchasing agencies will utilize standard cost principles outlined in Form SPO-H-201 which is available on the SPO website (see paragraph II, Website Reference). Nothing in this section shall be construed to create an exemption from any cost principle arising under federal law.



Section 2
Service
Specifications

Section 2

Service Specifications

Program Title: Solar Water Heater System and Compact Fluorescent Light Program Services on Hawaiian Home Lands' Residences, The American Recovery and Reinvestment Act of 2009

I. Introduction

A. Overview, Purposes or Need

Hawaii, the most oil-dependent of the 50 states, relies on imported petroleum for about 90 percent of its primary energy. Most of this oil is from foreign nations, with a growing percentage from the Middle East. Hawaii residents pay among the nation's highest prices for electricity and fuel. It's up to us to improve energy efficiency; make better use of our renewable resources; and plan now for increased energy security and preparedness.

Hawaii's energy policy seeks to ensure dependable, efficient, and economical energy; increased energy self-sufficiency; greater energy security; and reduction of greenhouse gas emissions.

Public Law 111-5, the American Recovery and Reinvestment Act of 2009 (ARRA), was signed into law by President Obama on February 17, 2009. The ARRA's purposes are, "to 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."

The U.S. Department of Energy (DOE) in relation to Public Law 111-5, ARRA of 2009 issued/awarded through formula-based grants additional Energy Efficiency and Conservation Block Grants (EECBG) to the State of Hawaii, Department of Business, Economic Development and Tourism (DBEDT) – Strategic Industries Division which serves as the Hawaii State Energy Office. The purpose of the EECBG program is to: 1) Reduce fossil fuel emissions in a manner that is environmentally sustainable and, to the maximum extent practicable, maximize benefits for local and regional communities; 2) Reduce the total energy use of the eligible entities; and 3) Improve energy efficiency in the building, transportation, and other appropriate sectors. These grants to states assist in designing, developing, and implementing renewable energy and energy efficiency programs.

The DHHL mission statement states: "To effectively manage the Hawaiian Home Lands trust and develop and deliver lands to native Hawaiians. DHHL with its partners works toward developing self-sufficient and healthy communities."

DLIR-OCS shall implement the State DHHL Energy Efficiency Program as prepared, submitted and as approved by USDOE, as part of the State of Hawaii grant application for the EECBG Program. This RFP is to use EECBG-ARRA funds and addresses the need to contract for the installation of energy saving devices and energy conservation education. Installation services include solar water heater systems and compact fluorescent light (CFLs) for eligible low-income Hawaiian Home lands' residences including those on agricultural and pastoral lots.

B. Planning Activities Conducted in Preparation for this RFP

Pursuant to the Hawaii Administrative Rules § 3-142-301 State Agency Planning Activities, DLIR-OCS conducted planning activities, including but not limited to the following:

1. Took into account the views of provider organizations on how to improve service specifications to better achieve mandated goals. A request for information was utilized as provided in Section § 3-142-202;
2. Analyzed information from program monitoring and evaluation reports of provider organizations from similar programs;
3. Analyzed socio-economic and health data for trends to determine demand factors;
4. Considered the views of service recipients and community advocacy organizations on conditions affecting the achievement of mandated goals; and
5. Requested information from other state agencies on services to the same target population or on cooperative strategies to progress toward achieving a shared goal.

C. Description of the Goals of the Services

The goals of these services are to enable eligible low-income Hawaiian Home Lands' residents to: receive energy conservation education and obtain cost savings through a reduction in their home energy consumption.

D. Description of the Target Population

A dwelling unit shall be eligible for energy assistance if the household resides on DHHL property and if the residents are of native Hawaiian ethnicity. A native Hawaiian is defined by DHHL as "any descendant of not less than one-half part of the blood of the races inhabiting the Hawaiian Islands previous to 1778." This translates to a blood quantum of at least 50 percent Hawaiian.

The income eligibility for these services is low-income native Hawaiians whose family household income is at or below 200 percent of the applicable Federal Poverty Guidelines for Hawaii. For purposes of this contract, "family household" shall be defined as a group of people related by birth, marriage, or adoption and residing together. To measure family household income, the pre-tax money receipts of all family household members over the age of 15 are combined for a stated calendar year.

Providers must maintain proper documentation to demonstrate that program participants meet this income eligibility requirement. Further details regarding documentation are provided in Section 2, III. A.

Priority is given to identifying and providing energy assistance to low-income elderly persons, persons with disabilities, families with children, high residential energy users, and households with a high energy burden.

At the discretion of DLIR-OCS, should a suitable number of low-income clientele not qualify for these services, awardees will be allowed to intake eligible native Hawaiians residing on DHHL property and disregard the 200 percent Federal Poverty Guidelines for Hawaii (FPGLH). Until then, native Hawaiians applying for this program shall meet the 200 percent FPGLH income limit.

E. Geographic Coverage of Service

Service areas include DHHL residences within the counties of Honolulu, Hawaii, Maui and Kauai.

The applicant shall demonstrate capability to provide the required services in the areas for which it applies.

The applicant is responsible for identifying clearly the geographic areas that it proposes to serve.

F. Probable Funding Amounts, Source, and Period of Availability

Subject to the availability of funds, \$3,000,000 of Federal ARRA funds is suggested to be awarded through this RFP. The contract period is expected to be March 15, 2010 to September 30, 2010, with the possibility of two twelve-month extension(s) until September 30, 2012 subject to sub-grantee performance. Funding is anticipated to be from Federal sources, though the source of funding may be subject to change prior to the effective date and over the life of the contract(s).

Funds are available for obligation until March 31, 2010.

All projects (State DHHL Energy Efficiency Program) receiving financial assistance from USDOE must be reviewed under the National Environmental Policy Act (NEPA) of 1969 – 42 U.S.C. Section 4321 et seq. The NEPA process could delay the award process; applicants may be restricted to use of funds for planning purposes only until the NEPA process is complete.

Funding will be allocated based on proposals submitted.

For the duration of the contract period, the suggested funding amounts for services are:

City and County of Honolulu	\$1,312,500
Hawaii County	\$ 562,500
Maui County	\$ 562,500
Kauai County	\$ 562,500

The actual funding amounts by county may differ from the suggested funding amounts above. The applicant is encouraged to apply for the funding amount it determines is needed to provide the required services in the areas for which it applies.

Initial contracts awarded as a result of this solicitation will be effective up to September 30, 2010. Subsequent supplemental agreements may be subject to renegotiation based upon the availability of funds, the continued need for services, and the State's determination of provider's first year program performance.

II. General Requirements

A. Specific Qualifications of Requirements, Including but Not Limited to, Licensure or Accreditation

1. The applicant must be a public, private or nonprofit entity.
2. The applicant shall hold all licenses, permits, and accreditations, and meet all standards required by applicable federal, state and county laws, ordinances, codes and rules to provide services. The applicant shall also be in good standing with required licensing bodies, and in compliance with professional standards and requirements.
3. A minimum of one-year of experience of working with low-income native Hawaiians and solar water system Contractors in Hawaii is preferred.
4. The removal and installation of water heaters should comply with all local building codes and permit requirements. Work may need to be performed by a licensed Contractor. Replacement solar water heaters must comply with residential standards and specifications given for each county (See Section 5, Attachment D).

The applicant shall have the Solar Water Heater System and CFL Program Services in operation and begin providing services beginning March 15, 2010. The program may be extended for two years, as needed.

5. The applicant shall comply with Chapter 103F, HRS Cost Principles for Purchases of Health and Human Services identified in SPO-H-201 (Effective 10/1/98), which can be found on the SPO website (See Section 1, page 1-2, Website Reference). Costs must be allowable in accordance with the applicable Federal cost principles.

6. The applicant must provide reasonable accommodations to assure capacity to deliver services to those clients with limited physical limitations.

7. The applicant must assure and be responsible for the continuity of service activities in the event of staff illness, medical emergencies, vacancies, or other situations that result in program resources that are less than proposed and contracted for. The provider must not require nor depend on the State agency's staff to provide service activities in the event that program resources are not available due to the above situations.

8. The applicant must use credible and tested measurement tools to evaluate program effectiveness in achieving outcomes.

9. The applicant shall develop and implement procedures to document clients' Hawaiian Homestead eligibility status for these services.

10. All laborers and mechanics employed by Contractors and subcontractors on projects funded directly by or assisted in whole or in part by and through the Federal Government pursuant to the American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, shall be paid prevailing wages at rates not less than those on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code and shall comply with Chapter 104, HRS.

11. The applicant shall ensure that iron, steel and manufactured goods are produced in the United States.

12. Applicant shall protect whistleblowers and require prompt referral of evidence of a false claim under the False Claims Act or has committed a criminal or civil violation of laws pertaining to fraud, conflict of interest, bribery, gratuity, or similar misconduct to Grantor Office of the Inspector General;

13. In keeping with the ARRA, "[n]one of the funds appropriated or otherwise made available in this Act may be used by any State or local government, or any private entity, for any casino or other gambling establishment, aquarium, zoo, golf course, or swimming pool."

14. Prior to the expenditure of Federal funds to alter any structure or site, the Provider is required to comply with the requirements of Section 106 of the National Historic Preservation Act (NHPA).

15. Providers shall segregate the obligations and expenditures related to ARRA funding. No part of ARRA funds shall be commingled with any other funds or used for a purpose other than making payments for costs allowable for ARRA projects. The ARRA funds can be used in conjunction with other sources of funding as necessary to complete projects, but tracking and reporting must be separate to meet the reporting requirements of the Recovery Act and related guidance. For projects funded by sources other than ARRA, Providers must keep separate records for Recovery Act funds and to ensure those records comply with the requirements of ARRA.

16. Allowing USDOE other Federal agencies or entities, and the State or its respective representative full access to inspect and monitor any subcontractor, their records, files, other documents and participant information as necessary;

17. Upon Provider(s) selection, Provider(s) shall sign required applicable federal forms to be submitted to USDOE, in order for DBEDT-Hawaii State Energy Office to receive approval from USDOE for the DHHL Energy Efficiency Program plan.

18. When a disagreement arises between the Provider and the State in regards to the performance of specific service activities within contracted specifications, the wishes of the State shall prevail. Failure on the part of the Provider to comply shall be deemed cause for corrective action and subject to contractual remedies.

B. Secondary Purchaser Participation
(Refer to § 3-143-608, HAR)

After-the-fact secondary purchases will be allowed. Planned secondary purchases – None.

C. Multiple or Alternate Proposal
(Refer to § 3-143-605, HAR)

Allowed Unallowed

D. Single or Multiple Contracts to Be Awarded
(Refer to § 3-143-206, HAR)

Single Multiple Single & Multiple

A single contract may be awarded to an individual proposal that demonstrates a more efficient and comprehensive administration and program services for multiple counties within the state.

Conversely, multiple contracts may be awarded to each individual proposal that demonstrates a more efficient and comprehensive administration and program services in the county where services will be provided.

Multiple contracts may be awarded to a proposal if the state purchasing agency determines that it is in the best interest of the State for a number of providers as an aggregate, to provide the services required in this RFP, considering the needs, geographical area, population, and services proposed.

E. Single or Multi-Term Contracts to Be Awarded
(Refer to § 3-149-302, HAR)

Single Term (≤ 2 years) Multi-Term (> 2 years)

Initial term of contract: March 15, 2010 - September 30, 2010

Length of each extension: 12 months

Number of possible extensions: 2

Maximum length of contract: Up to September 30, 2012

Conditions for extension: ECCBG contract(s) will terminate on or about September 30, 2010, unless the awardees and DLIR-OCS agree in writing to execute the option(s) of extending the contract prior to the expiration date. The awardees shall include in such notification any price adjustments or provisions to be negotiated. DLIR-OCS shall notify awardees of availability of appropriation at time of negotiation.

The initial period shall commence on the contract start date or Notice to Proceed, whichever is later.

F. RFP Contact Person

The individual listed below is the sole point of contact from the date of release of this RFP until the selection of the winning provider or providers. Written questions should be submitted to the RFP contact person and received on or before the day and time specified in Section I, Paragraph I (Procurement Timetable) of this RFP. Oral questions will be addressed through the deadline for submission proposals.

Sole Point of Contact: Keith Nakano, Program Specialist
Phone: (808) 586-8683
E-mail: keith.m.nakano@hawaii.gov

III. Scope of Work

The scope of work encompasses the following tasks and responsibilities:

A. Service Activities (Minimum and/or Mandatory Tasks and Responsibilities)

In Section 3, IV. of this RFP, the applicant shall describe in detail the target area(s), target population(s), need of the target population(s) in the proposed service area(s), and how applicant would provide the required services.

For each of the milestone payment outcomes listed below, the applicant must be able to provide appropriate documentation verifying that all tasks and activities associated with a particular milestone have successfully been completed.

Exceptions to the minimum requirements for all Milestones may be made on a case-by-case basis with prior written approval from DLIR-OCS.

The required services are:

1. Outreach, Screening, Intake, and Individual Action Plan (Milestone 1)

Outcome: The target population is informed of the services, only income eligible persons are enrolled, and necessary information is obtained on each person enrolled. Benefits of program are clearly explained as well as what is expected from the client and case manager. A tentative individual action plan is developed for and approved by the client.

Services: At a minimum, identifies participant's needs, determines native Hawaiian ethnicity and DHHL and income eligibility, creates an individual action plan, case manager explains program benefits and clarifies case manager's and client's roles.

Minimum Requirements:

- Verification of Income Eligibility (signed by client) (i.e., confirming that client's household is at or below 200 percent of the applicable Federal Poverty Guidelines for Hawaii);
- Verification of native Hawaiian Ethnicity and DHHL Eligibility (signed by client) (i.e., confirming that client's residence is on Hawaiian Homestead Lands); and
- Individual action plan that also certifies that program benefits and case manager's and client's roles were explained by the case manager (signed by client).

2. Energy Audit Process, Savings-to-Investment Ratio (SIR), and Estimated Savings (Milestone 2)

Outcome: Energy audit of home done by a trained inspector. SIRs and estimated savings for CFLs and solar water heater systems calculated from data collected from home energy audit.

Services: Have a trained inspector conduct an energy audit of the home. The energy audit assesses a home's energy use and analyzes which energy conservation measures are best for the home. Inspector will assist client with questionnaire/survey for CFLs and the solar water heater system.

SIR can be used to compare savings to costs of one energy system relative to an alternative energy system. For positive net savings, SIR must be greater than one. The larger the ratio, the greater the savings realized relative to the investment. Data collected during the energy audit will be used to calculate the SIRs for CFLs and the solar water heater system.

Energy savings calculators can then be used to determine specific dollar and energy savings.

Minimum Requirements:

- Copy of home audit signed by the inspector detailing exactly what services were provided, the dates of when the services were provided, and the amount of time spent providing the services.
- Copy of calculated SIRs and estimated energy savings in dollars dated and signed by case manager.

3. CFLs and Solar Water Heater System Installation Process (Milestone 3)

Outcome: Installation of energy saving devices. Installation services are limited to the following:

- a. Solar water heating system replacements for existing hot water heater to be installed in low-income DHHL homeowner or single family units having a family size of three (3) or more;

- b. Solar water heating system replacements for existing hot water heater to be installed in low-income DHHL multi-family building or dwelling units where 66 percent are income eligible and have a family size of three (3) or more; and
- c. Compact Fluorescent Lights (CFLs) to be installed in low-income homeowner units. Multiple CFL bulb types may be required to better match the type of lights in each dwelling.
- d. Monitoring and quality control of installed energy saving devices.

Services: When the audit is complete, the inspector will explain what work can be performed to the home. Then, a professional Contractor will install the various energy saving measures. When this is complete, the inspector will return to the home to make certain that everything is satisfactory.

Minimum Requirements:

- Copy signed by client verifying receipt and installation of CFLs detailing exactly what services were provided, the dates of when the services were provided, and the amount of time spent providing the services.
- Copy signed by Provider verifying delivery and installation of solar water heater system detailing exactly what services were provided, the dates of when the services were provided, and the amount of time spent providing the services.
- Verification of 100 points solar water heater system inspection by Hawaii Energy or county.

4. Energy Conservation Education (Milestone 4)

Outcome: People-driven energy conservation education and client/consumer satisfaction.

Services: Client education on simple energy saving tips and no-cost to low cost alterations you can do to save energy, via handouts, brochures, individual consultation, and/or videos. Follow-up on client/consumer satisfaction (simple quick survey).

Minimum Requirements:

- Client/consumer satisfaction survey.
- Verification form signed by client certifying receipt of energy education training/materials.

Tracking of energy usage and savings. As feasible, energy usage and savings should be tracked 12 months before and 12 months after installing energy saving measures.

5. Tracking Energy Usage and Savings (Milestone 5)

Outcome: Tracking household energy usage and savings for period 0 – 6 months after installation of CFLs and solar water heater system.

Services: If you can measure it, you can manage it. Obtain client electric billing 12 months prior and 6 months after installation of CFLs and /or solar water heater system.

Minimum Requirements:

- Client electric billing 12 months prior and 6 months after installation of CFLs and/or solar water heater system.

6. Tracking Energy Usage and Savings (Milestone 6)

Outcome: Tracking household energy usage and savings for period 6 – 12 months after installation of CFLs and solar water heater system.

Services: Obtain client electric billing 6 - 12 months after installation of CFLs and /or solar water heater system.

Minimum Requirements:

- Client electric billing 6 - 12 months after installation of CFLs and/or solar water heater system.

Administrative funds shall be limited to ten percent of the requested funding.

An additional five percent of the funding amount is available for Training and Technical Assistance (T&TA). T&TA activities are intended to maintain or increase the efficiency, quality and effectiveness of the program. Such activities should be designed to maximize energy savings, minimize production costs, improve program management and crew/Contractor “quality of work,” and/or reduce the potential for waste, fraud, abuse and mismanagement.

Collaboration and partnerships shall be sought with local utility agencies and other organizations to assist the target population to conserve energy. Applicants are reminded that leveraging remains an important component for EECBG Services.

The applicant shall provide a detailed start-up plan. The plan shall include tasks, activities, personnel, and timeframe. The plan will clearly show how the applicant will have the program established with necessary staffing to meet the anticipated caseload and provide the required services in the applicable geographic areas by March 15, 2010.

B. Management Requirements (Minimum and/or Mandatory Requirements)

1. Personnel – The applicant shall have standards and procedures to ensure that all employees are fully qualified to engage in activities and perform the services required.

The applicant shall have written position descriptions, requirements and qualifications, policies and procedures to ensure that all employees are fully qualified to engage in activities and perform the services required.

2. Administrative – The applicant shall refer to the State DHHL Energy Efficiency Program, specifically relating to EECBG-ARRA funds, for guidance. As stated, priorities for implementing this program shall encompass speed of implementation, reasonable, fair and comparable administrative costs, economic stimulus such as energy savings and job creation, maximum consumer financial benefit, and fraud prevention.

The Office of Management and Budget (OMB) and other federal agencies have issued Implementing Guidance for the Recovery Act. Guidance resources available included, but was not limited to: M-09-10, Initial Implementing Guidance for the American Recovery and

Reinvestment Act of 2009; Federal Acquisition Regulation: FAR Case 2009-009, American Recovery and Reinvestment Act of 2009 (the Recovery Act)—Reporting Requirements issued on March, 12, 2009; White House, Office of the Press Secretary issued on March 20, 2009, a memorandum titled, Ensuring Responsible Spending of Recovery Act Funds. OMB issued on April 3, 2009, M-09-15 Updated Implementing Guidance for ARRA of 2009, the second government-wide guidance that supplements, amends and clarifies the initial guidance issued on February 18, 2009; OMB also issued on April 23, 2009 2 CFR Part 176 Requirements for Implementing Sections 1512, 1605, and 1606 of the ARRA of 2009 for Financial Assistance Awards; Executive Office of the President, OMB, followed this on June 22, 2009 with M-09-21 Implementing Guidance for Reports on Use of Funds Pursuant to the ARRA of 2009, also listed programs subject to recipient funding and included the Recipient Reporting Data Model v2.0.1; Department of Energy Acquisition and Financial Assistance Guide for the American Recovery and Reinvestment Act of 2009 (AS OF May 31, 2009); USDOE issued on August 14, 2009, - Monitoring Plan for WAP, SEP and EECBG; and [Department of Energy Acquisition Regulation \(DEAR\)](#).

Written policies and procedures are required for all of the services including personnel standards, operating procedures, determination of client eligibility, documentation, record keeping, data gathering, reporting, financial administration, quality assurance, monitoring and evaluation.

The applicant is required to have a written outcome-based program plan, and an on-going planning and evaluation process for these services.

3. Quality Assurance and Evaluation Specifications – The applicant shall have a written quality assurance plan, including procedures to assure that its services are provided in conformance with all federal, state and county requirements, the requirements of this RFP and State contracts. The plan shall include procedures to monitor administrative, program and fiscal operations for compliance with all requirements. It shall also provide for procedures to determine whether clients receive consistent, high quality services. The quality assurance plan shall identify roles and responsibilities for on-going implementation.

The applicant shall have a written plan for evaluation of performance in providing the required services, including procedures and methodology to measure, monitor and collect data on outputs and outcomes, and to evaluate the outcomes and other results of its services. The evaluation plan should also include procedures to identify and resolve problems, and make improvements to the program as needed. The evaluation plan should identify staff roles and responsibilities for assuring on-going implementation.

The applicant must also indicate the specific measurement tool(s) and/or procedures that will be utilized to document and verify that each proposed program output and outcome was accomplished.

DLIR-OCS must conduct a comprehensive monitoring of each sub-grantee at least once a year. Annual contract monitoring by DLIR-OCS may include on-site visits with comprehensive evaluation of several areas of performance. The comprehensive monitoring by the State or its representative must include review of client files and sub-grantee records, as well as actual inspection of at least 5 percent of the completed units. By close of the program year, the State is

expected to have completed a comprehensive review of each sub-grantee, including review of its latest financial audit.

The applicant must maintain throughout the term of the contract a system of self-appraisal and program evaluation to track and validate effectiveness of the activities provided. The evaluation process must include tools or instruments to identify client indicators of change, which are relevant to client outcomes and include a process for making improvements or taking corrective action based upon the evaluation findings.

4. Performance Output and Outcome Measurements – The applicant shall set forth, using the attached table in Section 5, the amount of the following output and performance/outcomes that it expects to achieve. Program outputs and outcomes reported to DLIR-OCS for each specific activity must be a direct result of DLIR-OCS' funding for this program.

a. Dwelling Units

- Number of dwelling units and households assessed for program eligibility.
- Number of dwelling units and households qualifying for installation.
- Number of dwelling units reducing energy costs.
- Number of households receiving energy conservation education.

b. Jobs Data

- Jobs created using local agency Contractors/subcontractors
- Jobs retained at the local agency level
- Jobs retained with local agency Contractors/subcontractors
- Hours trained at the local agency

c. Energy Saving Devices

- Number of energy saving devices installed, by device.

The applicant may propose other measures of effectiveness.

Please use the Output and Performance/Outcome Measurements Table located at the end of this RFP in Section 5 and include it in the Service Delivery section of your proposal application.

5. Experience – A minimum of one year of experience of working with the target clientele and solar water system Contractors in Hawaii is preferred.

6. Coordination of Services – The applicant shall describe the agencies that it will coordinate its services with and indicate those which it already has established partnerships.

Provide a list of organizations, cooperating entities, consultants, or other key individuals who will work on the project along with a short description of the nature of their effort or contribution.

7. Reporting Requirements for Program and Fiscal Data – The applicant shall adhere to all Federal and State reporting requirements and program measures. Financial and progress reports will be used to adhere to the transparency and oversight requirements detailed in the ARRA. Information from these reports will be made available to the public.

Quarterly and monthly program progress and fiscal reports are required within four (4) calendar days after the last day of each month in which the Provider receives the assistance award funded in whole or in part by ARRA. The final report on the total contract period is required within forty-five (45) calendar days after the last day of the contract period unless otherwise specified.

The applicant shall describe its ability to provide monthly and final reports on program performance, particularly on units completed, people assisted, and energy savings.

The applicant shall describe its ability to provide monthly and final reports on fiscal performance, particularly comparing its budgeted expenditures to actual expenditures, and identifying and explaining the reasons for variances.

Other reports as may be required by ARRA, DOE, or DLIR-OCS.

This RFP is funded with money from ARRA. Because the United States issued ARRA funds to the State expeditiously, it may still be formulating its requirements and may impose further performance, reporting, and/or other requirements regarding the use of ARRA funds on the State after award of ARRA funds for this RFP and an Agreement is executed. If that should occur, the Contractor shall also be responsible to follow those requirements. In addition, should the Governor impose further performance, reporting, or other requirements on the use of the ARRA funds after award of ARRA funds for this RFP and an Agreement executed, the Contractor agrees to comply with those additional requirements, too.

For new programs, the State may consider allowing existing clients in a similar program to be carried forward at their current stages of progress in their respective programs.

8. Pricing Structure and Methodology – Pricing shall be based on a Milestone Payment System (See Section 3.V., Financial). The applicant shall submit a cost proposal on the appropriate budget forms listed in Section 3.V. that are provided on the SPO website (See Section 1, page 1-2, Website Reference) and other financial requirements as stated in Section 3.V. The cost proposal shall be in accordance with Chapter 103F, HRS, Cost Principles for Purchases of Health and Human Services in form, SPO-H-201 provided on the SPO website.

The State may consider allowing existing clients in a similar program to be carried forward at their current stages of progress in their respective programs.

9. Units of Service and Unit Rate – Under the Milestone Payment System, the fixed unit rates for services at each milestone are as follows:

M1: Outreach, Intake, Screening, & Individual Action Plan	\$100
M2: Energy Audit Process, Savings-to-Investment Ratio (SIR), and Estimated Savings	400
M3: Installation Process (applicant negotiates lowest unit price)	
i.e. 120 gallon solar water heater system @ \$6,200	
80 gallon solar water heater system @ \$5,200	
Compact Fluorescent Lights @ \$5	
M4: Energy Conservation Education	75
M5: Tracking Energy Usage and Savings (0-6 months)	350
M6: Tracking Energy Usage and Savings (6-12 months)	<u>\$350</u>
TOTAL	\$1,275 plus cost of measure(s)

10. Method of Compensation and Payment – Payment will be based upon a Milestone Payment System whereby the State will pay the Contractor a percentage of the total fixed unit rate per client at each of the six performance milestones. The number of payments made for each milestone shall be limited to the agreed upon number of clients to be served under this RFP, notwithstanding that a Contractor's actual clients at any given milestone may exceed this number.

Recognizing potential cash-flow issues, the State will do an initial advance payment of up to one-twelfth of the total contract amount upon contract execution, commencement of the program period and receipt of a written cash request, with subsequent payments made upon submission of required milestone documentation and review by the State. At the end of the program period, any funds advanced for unmet milestones shall be returned to DLIR-OCS within 30 days from end of or termination of the contract.

Subsequent payments shall be made to the Contractor in monthly installments, upon submission by the Contractor of written requests for payment. The State may retain some or all of each payment requested by the Contractor. Payment of the retained amount shall be made based upon acceptance of: (1) written monthly fiscal and program progress reports, and (2) written final fiscal and program progress reports. The reports shall be reviewed by the State and shall be subject to the State's preliminary determination of appropriateness and allowability of the reported expenditures. The State's preliminary determination of appropriateness and allowability of the reported expenditures shall be subject to verification and subsequent audit.

For each solar water heater system installation, the State will retain up to \$1,000 per unit prior to final payment. The State will make the final payment upon receiving notification/verification that the unit has passed the required quality control 100 point inspection.

If the United States or the State determines that the Contractor did not comply with or use ARRA funds appropriately in accordance with ARRA and its implementing regulations, guidelines, rules and/or other requirements (collectively referred to as ARRA) or that the Contractor failed to provide the services as set forth after award of ARRA funds for this RFP and an Agreement executed, and the United States requires the State to complete the services under this Agreement using State money, requires the State to repay the United States, and/or imposes any other penalty, the Contractor agrees to reimburse the State for the cost of completing the services and/or amount of the repayment or penalty.

IV. Facilities

The applicant shall provide a description of its facilities and demonstrate its adequacy in relation to the proposed services. If facilities are not presently available, describe plans to secure facilities. Also describe how the facilities meet the Americans with Disabilities Act (ADA) requirements, as applicable, and special equipment that may be required for the services.



Section 3
Proposal
Application
Instructions

Section 3

Proposal Application Instructions

General instructions for completing application(s):

- *Proposal Application shall be submitted to state purchasing agency using the prescribed format outlined in this section. The proposal shall be organized and presented in the sections and subsections designated in the RFP and with prescribed content for each section.*
- *The numerical outline for the application, the titles/subtitles, applicant organization and RFP identification information on the top right hand corner of each page should be retained. The instructions for each section may be omitted.*
- *Page numbering of the Proposal Application should be consecutive, beginning with page one (1) and continuing through the complete proposal.*
- *Document binding is optional.*
- *Tabbing of sections is recommended.*
- *Applicant must also include a Table of Contents with the Proposal Application. A sample format is reflected in Section 5, Attachment B.*
- *Applicant is encouraged to use single spacing, 12 point Times New Roman font with 1" margins on all sides.*
- *A written response is required for each item. Failure to answer any of the items will impact upon an applicant's score.*
- *Other supporting documents may be submitted in an Appendix, including visual aids to further explain specific points in the proposal; if used, they should be referenced.*
- *Applicant may submit either one-sided or two-sided proposal application(s).*
- *Proposal Application should not exceed 60 pages of main text, not including appendices, attachments, identification form (and/or title page), required forms, and table of contents. Appendices, attachments, identification form (and/or title page), required forms, and table of contents should not exceed 130 pages.*
- *Form SPO-H-200A is available on the SPO website (see Section 1, page 1-2, Website Reference). However, the form will not include items specific to each RFP. If using the website form, the applicant must include all items listed in this section.*
- *One (1) original and five (5) copies of each proposal are required.*
- *Applicant is strongly encouraged to review evaluation criteria in Section 4, Proposal Evaluation, when completing the proposal.*

The proposal application comprises of the following sections:

- Proposal Application Identification Form
- Table of Contents
- Program Overview
- Experience and Capability
- Project Organization and Staffing
- Service Delivery
- Financial
- Other
- Appendix (optional)

I. Program Overview

The applicant shall clearly and concisely summarize and highlight the contents of the proposal to orient and provide evaluators with a broad understanding as to the program/services being offered.

Summary should be limited to one page, no more than two pages. It should briefly answer the questions who, what, when, where, how, why and for how much.

II. Experience and Capability

A. Necessary Skills

The applicant shall identify the key skills, abilities, and knowledge necessary to effectively deliver the requested services. Identify the specific staff in your organization who possess these skills, abilities and knowledge.

B. Program Experience

Applicants are expected to provide a brief description of their relevant experiences that qualify them as contenders to perform the program services.

The applicant shall provide a brief description and relevant listing of past and current programs and/or contracts pertinent to providing solar water heater system/CFL installations that includes **all of the following information**: the contracting agency, contact person, address, telephone number and/or e-mail address, contract/program title, contract period, funding amount, and performance outcomes. In addition, the applicant shall provide a copy of relevant reports or information relating to contract/program performance.

The applicant shall also provide a brief description and relevant listing of past and current programs and/or contracts pertinent to providing services to the low-income native Hawaiians, and working with the Department of Hawaiian Home Lands that includes **all of the following information**: the contracting agency, contact person, address, telephone number and/or e-mail address, contract/program title, contract period, funding amount, and performance outcomes. The State reserves the right to contact references to verify experience.

C. Quality Assurance and Evaluation

The applicant shall describe its plans for quality assurance and evaluation for the proposed services, including methodology.

The applicant shall explain how applicant intends to determine whether or not the program was a success.

The applicant shall describe what evidence or documentation will be used to verify program accomplishments.

The applicant shall demonstrate that it has a written evaluation plan that effectively measures, monitors, and evaluates program performance and timely detects and addresses problems. (Refer to the quality assurance and evaluation requirements in Section 2, Service Specifications.

The applicant shall provide (1) a written quality assurance plan sufficient to assure consistent and high quality of administration and services, and (2) a written evaluation plan to effectively measure, monitor and evaluate program performance, and timely detect and resolve program problems.

D. Coordination of Services

The applicant shall demonstrate the capability to coordinate services with other agencies and resources in the community. The applicant will describe proposed partnerships or cooperative agreements with other public or private agencies that will assist the applicant in providing high quality installations of solar water heater systems and CFLs as well as energy educational services.

If letters of support are submitted, include only letters that establish genuine support and actually make a commitment of time, money, personnel, space, or resources to the program. Include letters that are absolutely necessary to support your proposal or that will enhance the program.

E. Facilities

The applicant shall provide a description of its facilities (i.e. location(s), layout, available technology and resources, etc.) and demonstrate its adequacy in relation to the proposed services.

If facilities are not presently available, describe plans to secure them. Also describe how the facilities meet the Americans with Disabilities Act (ADA) requirements, as applicable, and special equipment that may be required for the services.

III. Project Organization and Staffing

A. Project Organization

1. Supervision and Training – The applicant shall describe its ability to supervise, train and provide administrative direction relative to the delivery of the proposed services.

The applicant shall explain how the program organization and assignment of personnel are sufficient for the effective administration, management, supervision, and provision of services to meet the projected requirements of this RFP.

The applicant shall describe the training that would be provided for the staff and sub-recipient agencies to strengthen their capability to effectively provide the program services.

The applicant shall propose a clear plan for reviewing the qualifications and effectiveness of existing qualified staff, and qualified sub-recipient agencies.

2. Organization Chart – The applicant shall reflect the position of each staff and line of responsibility/supervision. (Include position title, name, and full-time equivalency.) Both the “Organization-wide” and “Program” organization charts shall be attached to the Proposal Application.

The applicant shall provide an “Organization-wide” chart that shows the program placement of the required services within the overall agency, and a “Program” organization chart that shows the lines of communication between program administration and staff. Written explanations of both organization charts shall be included.

Demonstrate that the applicant’s proposed organization would be sufficient to effectively administer, manage and provide the required services.

B. Staffing

1. Proposed Staffing – The applicant shall describe and demonstrate that (1) the proposed staffing pattern, client/staff ratio and caseload capacity are appropriate for the viability of the services (Refer to the personnel requirements in Section 2, Service Specifications, as applicable.) and (2) that applicant’s assignment of staff would be sufficient to effectively administer, manage, supervise, and provide the required services.

The applicant shall fully explain, justify, and demonstrate any proposed use of a subcontractor to be as effective as in-house staff for the provision of the required services; Demonstrate that a proposed subcontractor is fully qualified for the specific work that would be subcontracted, by including description of the proposed subcontractor’s experience, capability, project organization, staffing, and proposed services as set forth for applicants in these RFPs; Explain how it would assure quality and effectiveness of the subcontractor, monitor and evaluate the subcontractor, and assure compliance with all of the requirements of the RFP.

The applicant shall fully explain, justify, and demonstrate any proposed use of a volunteer to be as effective as in-house staff for the provision of the required services; Demonstrate that proposed volunteers are or would be fully qualified for the specific work assigned, could be relied on, and would be available when and where needed to provide the required services; Explain how it would provide sufficient management, supervision, oversight, and evaluation of volunteers, and otherwise assure their work quality and effectiveness; Explain how it will assure that volunteers perform in compliance with the requirements of the RFP.

2. Staffing Qualification and Experience – The applicant shall provide (1) the minimum qualifications for staff assigned to the program; (2) include position descriptions and (3) explain how the minimum qualifications and/or actual qualifications would assure delivery of quality services.

The applicant shall identify key staff members who will be involved in the management, administrative, and program functions needed to provide and support the services being requested. The applicant shall also provide resumes, employment history, responsibilities, program experience, and significant accomplishments for each staff member.

IV. Service Delivery

The applicant shall clearly identify and describe the geographic area(s) and the targeted population groups that it proposes to serve. The applicant shall demonstrate, with demographic data and other documentation, that the geographic area(s) it proposes to serve contains significant numbers of the target population of this RFP; there is a determined need for the services; the services available to the area are insufficient to fill the need; and the extent of services proposed for each area will effectively address the needs.

The applicant shall describe its program in sufficient detail to provide a complete and comprehensive picture of its total program design. The applicant shall explain how it would provide all of the services required in Section 2, Item III – Scope of Work, addressing all service locations, tasks, activities, time lines, milestones, and other pertinent information. Time lines should include goals and objectives with start and completion dates, major milestones or special events, important deadlines, scheduled reports and evaluations, as well as special requirements by the funding source.

The applicant shall provide a detailed start-up plan. The plan shall include tasks, activities, personnel, and timeframe. The plan shall clearly show how the applicant would have the program established with necessary staffing to meet the anticipated caseload and provide the required services in all applicable geographic areas by March 15, 2010.

The applicant shall describe and justify its overall approach and methodology in addressing the need identified in this RFP, including a logical step-by-step progression of proposed program services from start to finish. Methodology should include, but is not limited to:

The applicant shall demonstrate and detail how it will conduct an effective outreach campaign that reaches the specific target clientele. Explain the client intake process, client screening and

eligibility, development of individual action plan, and what is expected to be done (roles) by the client and case manager (Milestone 1).

The applicant shall describe its energy audit process. The audit process will include showing how the applicant would calculate the required Saving Investment Ratios (SIRs) and estimated savings (Milestone 2).

The applicant shall state the amounts of the required outputs that it proposes to provide, outcomes including but not limited to energy measures installed that it expects to achieve or that will result from its services, and why these outputs and outcomes are feasible and demonstrate the effectiveness of services. Projected outputs and outcomes shall be submitted on the performance output and outcome measurements tables provided in Section 5 (Attachments C and E). The applicant may extend the table and time lines as needed. Where the applicant proposes different or additional outputs and outcomes than those provided by DLIR-OCS, a justification should be provided (Milestone 3).

The applicant shall explain its method and list innovative resources/curricula used for providing people-driven energy conservation education to its clients. Elucidate on major topics covered and lessons to be learned. The term people-driven means changing people habits to save energy. Just installing energy savings measures alone do not by themselves save energy, and if you want to maximize energy savings, you need to change poor habits (Milestone 4).

The applicant shall demonstrate how it will track and document client household energy use and savings, 12 months prior and 12 months after the energy measure installation (Milestones 5 and 6).

The applicant shall describe its ability to provide complete, accurate and timely reports on program performance including, but not limited to, Milestone Achievement Forms and Program Progress Reports.

V. Financial

A. Pricing Structure

The applicant shall submit a cost proposal utilizing the pricing structure designated by the state purchasing agency. The cost proposal shall be attached to the Proposal Application.

1. Pricing Structure Based on Milestone Payment System – The applicant shall submit a cost proposal using the Funding Request worksheet in Section 5, Attachments. DLIR-OCS will use a Milestone Payment System that will be based on milestones required in Section 2, Service Specifications. Payments for each milestone reached will be made directly to the contract awardee(s) only once per case at the specified rate up to a negotiated amount.

Note: The total amount requested based on the estimated number of clients to be served under the Milestone Payment System should match the total budget amount submitted in the required SPO-H budget forms. Refer to Sample Funding Request in Section 5, Attachment E.

2. Budget Forms – As applicable, provide a budget with line-item detail and detailed calculations for each budget object class identified in the budget forms below. Detailed calculations must include estimation methods, quantities, unit costs, and other similar quantitative detail sufficient for the calculation to be duplicated.

All budget forms, instructions and samples are located on the SPO website (see Section 1, page 1-2, Website Reference). The following budget form(s) shall be submitted with the Proposal Application:

- a. SPO-H-205 Proposal Budget for FY 2010-2011
- b. SPO-H-206A Budget Justification – Personnel: Salaries and Wages
- c. SPO-H-206B Budget Justification – Personnel: Payroll Taxes, Assessment and Fringe Benefits
- d. SPO-H-206C Budget Justification – Travel: Inter-Island
- e. SPO-H-206D Budget Justification – Travel: Out-of-State
- f. SPO-H-206E Budget Justification – Contractual Services: Administrative
- g. SPO-H-206F Budget Justification – Contractual Services: Subcontracts
- h. SPO-H-206H Budget Justification – Program Activities
- i. SPO-H-206I Budget Justification – Equipment Purchases

The applicant shall also utilize form SPO-H-201, Chapter 103F, HRS, Cost Principles in Purchases of Health and Human Services, in preparing its cost proposal.

In completing the required budget forms, the applicant should consider the evaluation criteria contained in Section 4, whereby the comprehensiveness of the information presented and the justification of all cost items are particularly important factors. If more space is needed to fully explain and justify the proposed cost items, the applicant should attach additional sheets as necessary.

3. Budget Justification – The budget justification should be in a narrative form. It evaluates the appropriateness and reasonableness of project costs in relation to anticipated program activities and planned outcomes.

a. Personnel

- *Description:* Costs of employee salaries and wages.
- *Justification:* Identify key project staff if known at the time of application. For each staff person, provide: title, time commitment to the project as a percentage or full-time equivalent, and annual salary.

b. Fringe

- *Description:* Costs of employee fringe benefits unless treated as part of an approved indirect cost rate.

- *Justification:* Provide a breakdown of the amounts and percentages that comprise fringe benefits, payroll taxes and assessment costs such as health insurance, FICA, retirement, unemployment insurance, social security, etc.

c. Travel

- *Description:* Cost of project-related travel by applicant employees.
- *Justification:* For each trip show: the total number of traveler(s); travel destination; duration of trip; per diem; mileage allowances, if privately owned vehicles will be used; and other transportation costs as well as subsistence allowances.

d. Equipment

- *Description:* "Equipment" means an article including items of personal property, as distinguished from real property, having a useful life of more than one year and an acquisition cost of \$250 or more.
- *Justification:* For each type of equipment requested provide: a description of the equipment, cost per unit, number of units, the total cost, and a plan for use on the project.

e. Supplies

- *Description:* Cost of all tangible personal property other than that included under the Equipment category.
- *Justification:* Specify general categories of supplies and their costs. Show computation and provide other information that supports the amount requested.

f. Contractual

- *Description:* Costs of all contracts for services and goods except for those that belong under other categories such as equipment, supplies, etc. Include third-party evaluation contracts, if applicable, and contracts with secondary recipient organizations, including delegate agencies and specific project(s) and/or businesses to be financed by the applicant.
- *Justification:* Demonstrate that all procurement transactions will be conducted in a manner provided, to the maximum extent practical, open and free competition.
- Note: Whenever the applicant intends to delegate part of the project to another agency, the applicant must provide a detailed budget and budget narrative for each delegate agency, by agency title, along with the required supporting information.

g. Other

Enter the total of all other costs. Such costs, where applicable and appropriate, may include but are not limited to: insurance; food; medical costs; professional services costs; space and equipment rentals; printing and

publication; computer use; training costs, such as tuition and stipends; staff development costs; and administrative costs.

- *Justification:* Provide computations, a narrative description and a justification for each cost under this category.

h. Indirect Costs

- *Description:* Total amount of indirect costs. This category should be used only when the applicant currently has an indirect cost rate approved by the U.S. Department of Energy or another cognizant Federal agency. In general, DLIR-OCS does not allow indirect cost rates. Indirect costs will be approved only on a case-by-case basis and at DLIR-OCS' discretion.
- *Justification:* An applicant that will charge indirect costs to the grant must enclose a copy of the current rate agreement. If the applicant is requesting a rate that is less than what is allowed under the program, the authorized representative of the applicant organization must submit a signed acknowledgement that the applicant is accepting a lower rate than allowed.

Are expenditures broken out properly by project activity, administrative expenditures, evaluation, monitoring and leveraged funds? Has the applicant remained within statutory limits on administrative expenses? Does the line-item budget show that the applicant is familiar with which labor and wage requirements apply to this program?

Need for Funding – If the services proposed by applicant are to be part of a larger project supported by other funding sources, the applicant shall identify the other funding amounts and sources, provide the planned or anticipated total project budget on form SPO-H-205 in columns (b), (c), (d), and explain its need for these POS funds.

B. Other Financial Related Materials

1. Financial Audit – The applicant shall provide, as part of its cost proposal, its most recent independent financial audit, with the accompanying management letter, to demonstrate the adequacy of its accounting system. Does the applicant have a regular audit performed by a qualified firm? Please explain any findings, if any. Is there a system in place that tracks audit findings, projections, recommendations and corrective actions?

2. Accounting System – The requirements for an adequate accounting system may include, but not limited to, keeping accurate procurement and financial records required by law, the state purchasing agency, or the State Procurement Office (SPO); providing required cost data in acceptable form and in a timely manner; and compliance with generally accepted accounting principles.

Accounting System

- Does the applicant possess a written operations manual which contains adequate information addressing: segregation of duties; accounting standards and practices, payment procedures, approval authority, and record keeping requirements?
- Has the applicant developed a process that generates timely and accurate reporting?

- Has the applicant developed a process to prevent fraudulent spending?
- Does the applicant use periodic financial reports as a management tool?
- Has the system been developed to track the progress of each funded project or activity?
Is the accounting system capable of keeping and reporting ARRA and non-ARRA funds separately?
- Does the applicant have an adequate system for comparing expenditures to budgeted amounts? How does the applicant compare expenditures to budgeted amounts?

Personnel

- Are applicant's personnel paid from a single source of funds? If not, explain. Does the applicant check to make sure that staff time is properly recorded against the funding source they are working on? Are processes in place to ensure that no more than 100 percent of time is charged per employee?
- Is there an established process for determining whether costs incurred by staff are allowable?
- Does the applicant have a master inventory list of equipment and vehicles? Has a physical inventory of equipment been taken within the last two years and the results reconciled with the property records?

Procurement

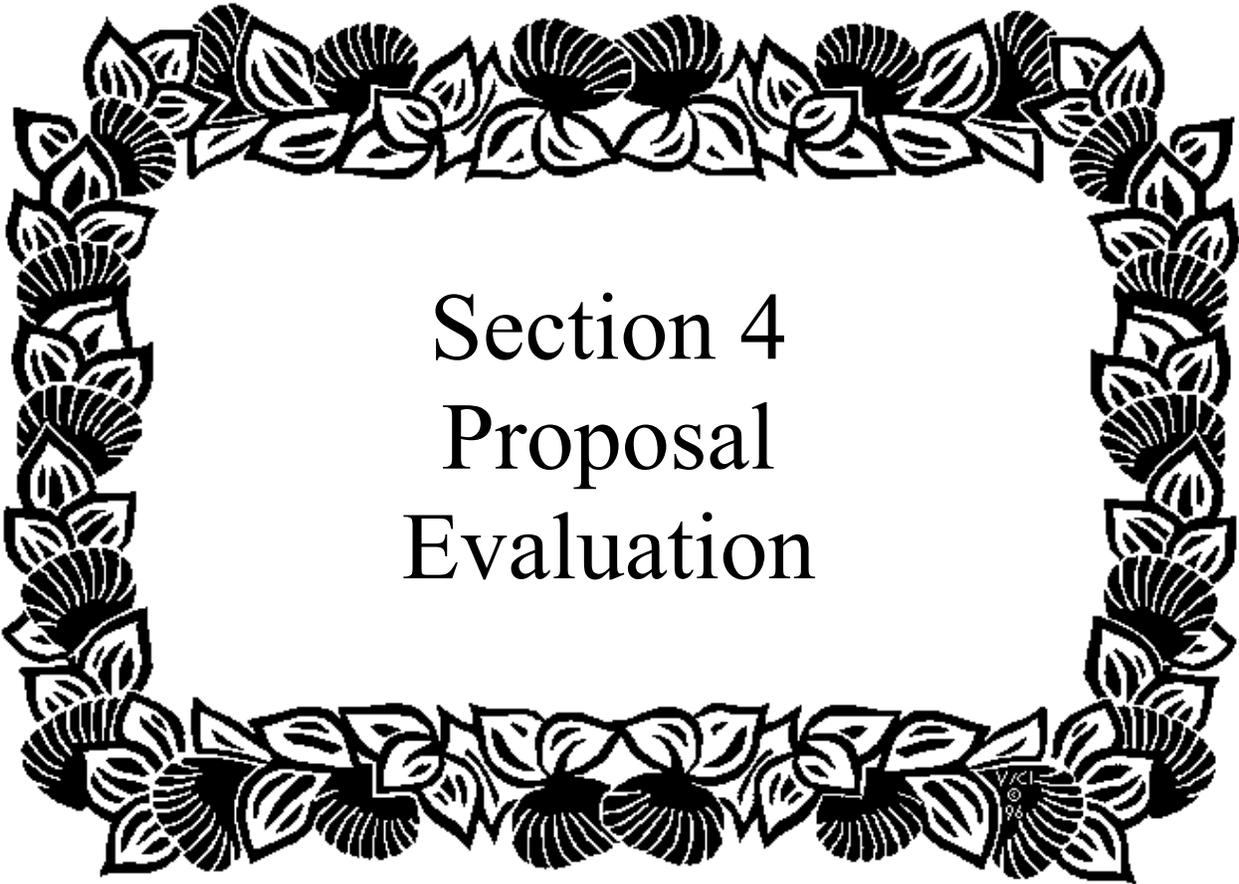
- Does the applicant follow the State's or its own procurement policy? Is the procurement process established in writing and distributed to employees?
- Does the applicant have a clear, open, fair and competitive process for selecting subcontractors and/or the procurement of goods?
- Is there a documented process and timeframe for issuing solicitations and making awards?

VI. Other

A. Litigation

The applicant shall disclose any pending litigation to which they are a party, including the disclosure of any outstanding judgment. If applicable, please explain.

VII. Appendix (Optional)



Section 4
Proposal
Evaluation

Section 4 Proposal Evaluation

I. Introduction

The evaluation of proposals received in response to the RFP[s] will be conducted comprehensively, fairly, and impartially. Structural, quantitative scoring techniques will be utilized to maximize the objectivity of the evaluation.

II. Evaluation Process

The procurement officer, or an evaluation committee of designated reviewers selected by the head of the state purchasing agency or procurement officer, shall review and evaluate proposals. When an evaluation committee is utilized, the head of the purchasing agency or the procurement officer shall select for each RFP a minimum of two employees from a state agency or agencies with sufficient education and training to evaluate the proposals received. Non-state employees may serve as advisors in the evaluation of the proposals but shall not represent or act on behalf of a purchasing agency in any selection or award.

Unless stated otherwise, the evaluation of the proposal shall be based solely upon the criteria and their relative priorities as established in this RFP. A written evaluation shall be made for each proposal based on a numerical rating system.

The evaluation will be conducted in three phases as follows:

- Phase 1 – Evaluation of Proposal Requirements
- Phase 2 – Evaluation of Proposal Application
- Phase 3 – Recommendation for Award

Evaluation Categories and Threshold

<u>Evaluation Categories</u>		<u>Possible Points</u>
Administrative Requirements		
<i>Proposal Application</i>		200 Points
Program Overview	0 points	
Experience and Capability	40 points	
Project Organization and Staffing	30 points	
Service Delivery	90 points	
Financial	40 points	
TOTAL POSSIBLE POINTS		200 Points

III. Evaluation Criteria

A. Phase 1 – Evaluation of Proposal Requirements

- 1. Administrative Requirements – Application Checklist.**
- 2. Proposal Application Requirements**
 - a. Proposal Application Identification Form (Form SPO-H-200)
 - b. Table of Contents
 - c. Program Overview
 - d. Experience and Capability
 - e. Project Organization and Staffing
 - f. Service Delivery
 - g. Financial (all required forms and documents)
 - h. Program Specific Requirements (as applicable)

B. Phase 2 – Evaluation of Proposal Application (100 Points)

- 1. Program Overview (0 Points) – Not applicable.**

Note: No points are assigned to Program Overview. The intent is to give the applicant an opportunity to orient evaluators as to the services being offered.

Summary should be limited to one page, no more than two pages. It should briefly answer the questions who, what, when, where, how, why and for how much.

2. Experience and Capability (40 Points) – DLIR-OCS will evaluate the experience and capability to provide the services as follows:

a. Necessary Skills

Identify key skills, abilities, and knowledge necessary to effectively deliver the requested services. Identify the specific staff in your organization who possess these skills, abilities, and knowledge. (8 points)

b. Program Experience

Provide the following information for past and current programs and contracts pertinent to providing energy assistance especially but not limited to installation of solar water heater systems and CFLs: (8 points)

- Contracting Agency
- Contact person
- Contact Information (address, telephone number, email address)
- Contract/Program Title
- Contract Period

- Funding Amount
- Performance Outcomes (budgeted and actual)
- Copy of Reports or Information Relating to Contract/Program Performance

c. Working Experience with native Hawaiians and/or DHHL

Provide the following information for past and current programs and/or contracts pertinent to providing services to low-income native Hawaiians, and working with DHHL: (7 points)

- Contracting Agency
- Contact person
- Contact Information (address, telephone number, email address)
- Contract/Program Title
- Contract Period
- Funding Amount
- Performance Outcomes (budgeted and actual)
- Copy of Reports or Information Relating to Contract/Program Performance

d. Quality Assurance and Evaluation

Sufficiency of quality assurance and evaluation plans for the proposed services, including methodology. Demonstrates that applicant has (1) a written quality assurance plan sufficient to assure consistent and high quality of administration and services, and (2) a written evaluation plan to effectively measure, monitor, and evaluate program performance, and timely detect and resolve program problems. (7 points)

e. Coordination of Services

Demonstrates applicant's capability to coordinate proposed services with relevant agencies and resources in the community. Provides examples of how relationship/agreements with other agencies, community groups, employers, etc., assist in achieving program goals and objectives. (5 points)

f. Facilities

Demonstrates that applicant would provide adequate facilities (i.e., location(s), description of facilities, available technology and resources, etc.) for the services proposed that are in compliance with Americans with Disabilities Act and other applicable laws and regulations. (5 points)

3. Project Organization and Staffing (30 Points) – DLIR-OCS will evaluate the project organization and staffing as follows:

a. Project Organization (14 points)

- *Supervision and Training*: Demonstrates ability that applicant would supervise, train and provide administrative direction to staff relative to the delivery of the proposed services. (8 points)

- **Organization Chart:** Approach and rationale for the structure, functions, and staffing of the proposed organization for the overall service activity and tasks. Demonstrates that applicant's proposed organization would be sufficient to effectively administer, manage, and provide the required services. (6 points)

b. Staffing (16 points)

- **Proposed Staffing:** Demonstrates that applicant's assignment of staff would be sufficient to effectively administer, manage, supervise, and provide the required services. (8 points)
- **Staff Qualifications and Experience:** Minimum qualifications for staff assigned to the program. Please include position descriptions. Explain how the minimum qualifications and/or actual qualifications would assure delivery of quality services. Extent to which applicant proposes a clear plan for reviewing the qualifications and effectiveness of existing qualified staff. (8 points)

4. Service Delivery (90 Points) – DLIR-OCS will evaluate the service delivery as follows:

- a. Demonstrates via data, evidence-based knowledge, and experience that the: a) geographic area the applicant proposes to serve contains significant numbers of the target population, (b) targeted population group in this area has a need for the required services, and (c) services already provided to this area are insufficient to meet this need. (15 points)
- b. The applicant shall demonstrate its program in sufficient detail to provide a complete and comprehensive picture of its total program design. The applicant shall explain in detail how it would provide all of the services required in Section 2, Item III – Scope of Work, addressing all service locations, tasks, activities, time lines, milestones, and other pertinent information. Time lines should include goals and objectives with start and completion dates, major milestones or special events, important deadlines, scheduled reports and evaluations, as well as special requirements by the funding source. Demonstrates that applicant's proposed approach and methodology are sound by showing a step-by-step progression of services provided to clients at each milestone. **(60 points)**
 - 1) The applicant shall demonstrate and detail how it will conduct an effective outreach campaign that reaches the specific target clientele. Explain the client intake process, client screening and eligibility, development of individual action plan, and what is expected to be done (roles) by the client and case manager (Milestone 1).
 - 2) The applicant shall describe its energy audit process. The audit process will include showing how the applicant would calculate the required Saving Investment Ratios (SIRs) and estimated savings (Milestone 2).

- 3) The applicant shall state the amounts of the required outputs that it proposes to provide, outcomes including but not limited to energy measures installed that it expects to achieve or that will result from its services, and why these outputs and outcomes are feasible and demonstrate the effectiveness of services. Projected outputs and outcomes shall be submitted on the performance output and outcome measurements tables provided at the end of each Section 5, Attachments for each RFP. The applicant may extend the table and time lines as needed. Where the applicant proposes different or additional outputs and outcomes than those provided by DLIR-OCS, a justification should be provided (Milestone 3).
 - 4) The applicant shall explain its method and list innovative resources/curricula used for providing people-driven energy conservation education to its clients. Elucidate on major topics covered and lessons to be learned. The term people-driven means changing people habits to save energy. Just installing energy savings measures alone do not by themselves save energy, and if you want to maximize energy savings, you need to change poor habits (Milestone 4).
 - 5) The applicant shall demonstrate how it will track and document client household energy use and savings, 12 months prior and 12 months after the energy measure installation (Milestones 5 and 6).
- c. Demonstrates that applicant proposes feasible, effective amounts of program outputs and outcomes. Demonstrates applicant's ability to propose the proper instruments, measuring tools, and documentation that it will use to verify each of the program outputs and outcomes. Explains in sufficient detail how outputs/outcomes will be tracked and documented in client's files and/or agency records. The applicant shall describe its ability to provide complete, accurate and timely reports on program performance including, but not limited to, Milestone Achievement Forms and Program Progress Reports. (15 points)

5. Financial (40 Points) – DLIR-OCS will evaluate the financial proposal as follows:

- a. Demonstrates that applicant's proposed costs are reasonable and necessary by providing adequate information and justification for all cost items, and explanation of applicant's method of allocation of indirect costs. Demonstrates that the applicant has a need for the amount requested for the proposed services. (16 points)
- b. Demonstrates the adequacy of applicant's accounting system and procedures to assure proper and sound fiscal administration of funding. Explains in sufficient detail applicant's ability to provide complete, accurate and timely fiscal reports. (24 points)

1) *Accounting System (12 points)*

- Does the applicant possess a written operations manual which contains adequate information addressing: segregation of duties; accounting standards and practices, payment procedures, approval authority, and record keeping requirements?
- Has the applicant developed a process that generates timely and accurate reporting?
- Has the applicant developed a process to prevent fraudulent spending?
- Does the applicant use periodic financial reports as a management tool?
- Has the system been developed to track the progress of each funded project or activity? Is the accounting system capable of keeping and reporting ARRA and non-ARRA funds separately?
- Does the applicant have an adequate system for comparing expenditures to budgeted amounts? How does the applicant compare expenditures to budgeted amounts?

2) *Personnel (6 points)*

- Are applicant's personnel paid from a single source of funds? If not, explain. Does the applicant check to make sure that staff time is properly recorded against the funding source they are working on? Are processes in place to ensure that no more than 100 percent of time is charged per employee?
- Is there an established process for determining whether costs incurred by staff are allowable?
- Does the applicant have a master inventory list of equipment and vehicles? Has a physical inventory of equipment been taken within the last two years and the results reconciled with the property records?

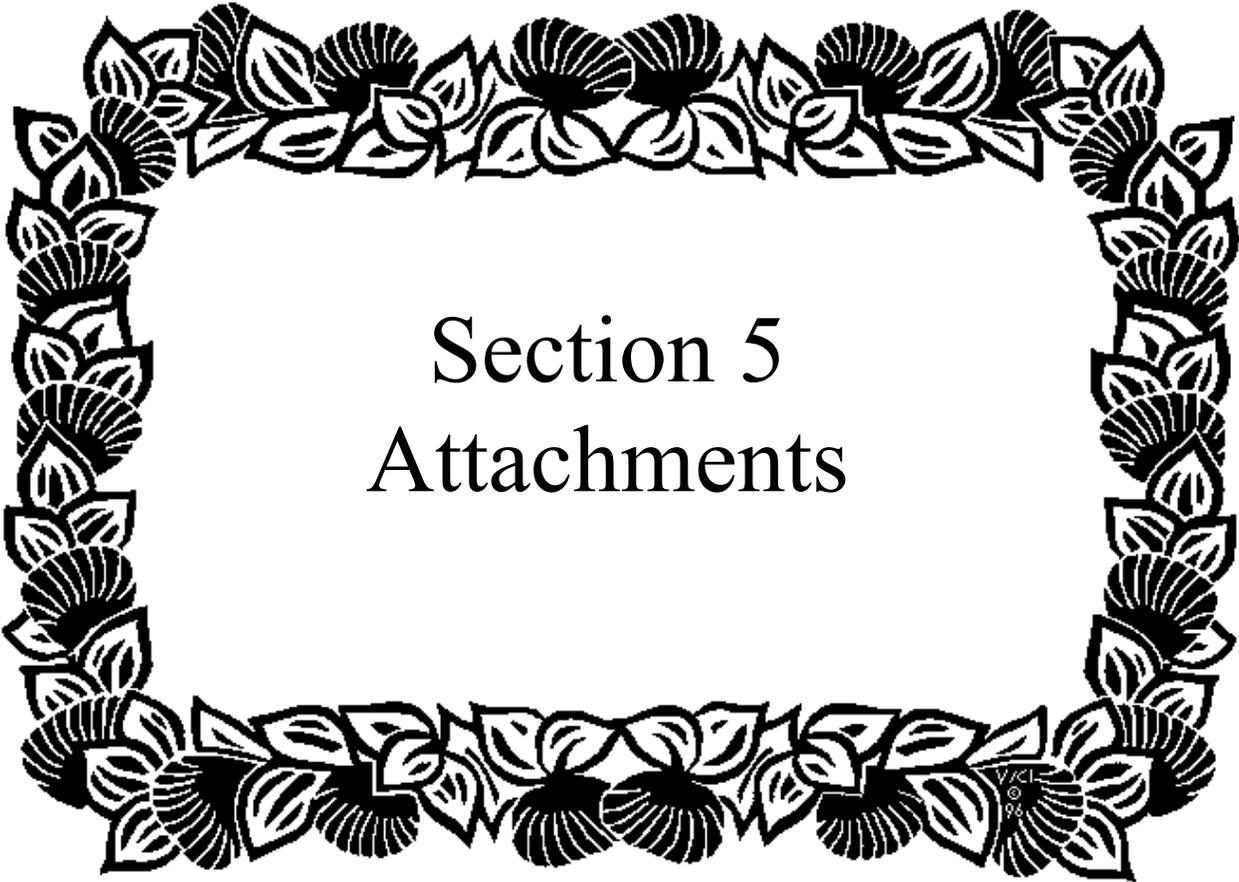
3) *Procurement (6 points)*

- Does the applicant follow the State's or its own procurement policy? Is the procurement process established in writing and distributed to employees?
- Does the applicant have a clear, open, fair and competitive process for selecting subcontractors and/or the procurement of goods?
- Is there a documented process and timeframe for issuing solicitations and making awards?

IV. Phase 3 – Recommendation for Award

Each notice of award shall contain a statement of findings and decision for the award or non-award of the contract to each applicant.

DLIR-OCS reserves the right not to select and award the lowest price proposal application. In fact, DLIR-OCS may decide at its discretion not to select and award any of the submitted applications.



Section 5
Attachments

Section 5

Attachments

- A. Proposal Application Checklist**
- B. Sample Table of Contents**
- C. Output and Performance/Outcome Measurements Table**
- D. Solar Water Heater Specifications**
- E. Sample Funding Request**
- F. Funding Request**

Proposal Application Checklist

Applicant: _____ RFP No.: _____

The applicant's proposal must contain the following components in the order shown below. This checklist must be signed, dated and returned to the purchasing agency as part of the Proposal Application. SPOH forms are on the SPO website. See Section 1, paragraph II Website Reference.*

Item	Reference in RFP	Format/Instructions Provided	Required by Purchasing Agency	Completed by Applicant
General:				
Proposal Application Identification Form (SPO-H-200)	Section 1, RFP	SPO Website*	X	
Proposal Application Checklist	Section 1, RFP	Attachment A	X	
Table of Contents	Section 5, RFP	Section 5, RFP	X	
Proposal Application (SPO-H-200A)	Section 3, RFP	SPO Website*	X	
Tax Clearance Certificate (Form A-6)	Section 1, RFP	Dept. of Taxation Website (Link on SPO website)*		
Cost Proposal (Budget)				
SPO-H-205	Section 3, RFP	SPO Website*	X	
SPO-H-205A	Section 3, RFP	SPO Website* Special Instructions are in Section 5		
SPO-H-205B	Section 3, RFP,	SPO Website* Special Instructions are in Section 5		
SPO-H-206A	Section 3, RFP	SPO Website*	X	
SPO-H-206B	Section 3, RFP	SPO Website*	X	
SPO-H-206C	Section 3, RFP	SPO Website*	X	
SPO-H-206D	Section 3, RFP	SPO Website*	X	
SPO-H-206E	Section 3, RFP	SPO Website*	X	
SPO-H-206F	Section 3, RFP	SPO Website*	X	
SPO-H-206G	Section 3, RFP	SPO Website*		
SPO-H-206H	Section 3, RFP	SPO Website*	X	
SPO-H-206I	Section 3, RFP	SPO Website*	X	
SPO-H-206J	Section 3, RFP	SPO Website*		
Certifications:				
<i>Federal Certifications</i>		Section 5, RFP		
Debarment & Suspension		Section 5, RFP		
Drug Free Workplace		Section 5, RFP		
Lobbying		Section 5, RFP		
Program Fraud Civil Remedies Act		Section 5, RFP		
Environmental Tobacco Smoke		Section 5, RFP		
Program Specific Requirements:				
Audit Management Letter	Section 3, RFP		X	
Organization Charts	Section 3, RFP		X	
Output/Outcome Measurements Table	Section 3, RFP	Section 5, RFP	X	

Authorized Signature

Date

Sample

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OUTPUT AND PERFORMANCE/OUTCOME MEASUREMENTS TABLE

1. Dwelling Units

	March 2009 – September 2010*
Number of dwelling units and households assessed for program eligibility	
Number of dwelling units and households qualifying for installation	
Number of dwelling units reducing energy costs	
Number of households receiving energy conservation education	

* Change date, as appropriate to match program

2. Jobs Data

	March 2009 – September 2010*
Jobs created at the local agency level	
Jobs created using local agency contractors/subcontractors	
Jobs retained at the local agency level	
Jobs retained with local agency contractors/subcontractors	
Hours trained at the local agency	

*Change date, as appropriate to match program

3. Energy Saving Devices

	CFL FIXTURES **	SOLAR HEATERS
MARCH 2010		
APRIL 2010		
MAY 2010		
JUNE 2010		
JULY 2010		
AUGUST 2010		
SEPTEMBER 2010		
OCTOBER 2010		
NOVEMBER 2010		
DECEMBER 2010		
JANUARY 2011		
FEBRUARY 2011		
MARCH 2011		
APRIL 2011		
MAY 2011		
JUNE 2011		

** Number of dwelling units assisted

RESIDENTIAL SOLAR WATER HEATING SYSTEM STANDARDS AND SPECIFICATIONS

September 19, 2007

(supercedes prior versions)

PART I - GENERAL

1.01. PROGRAM CONTRACT. The terms and conditions of the Customer Efficiency Program Contract, in their entirety, are hereby incorporated into these Program Standards and Specifications.

1.02. OTHER DOCUMENTS. Program figures, forms, tables, charts, approvals, Accepted Products List, and Policies and Procedures referred to herein are hereby incorporated into these Program Standards and Specifications.

1.03. SYSTEMS. Solar systems installed under the Company Customer Efficiency Residential Efficient Water Heating Program shall conform to applicable local building, plumbing and electrical codes, these Standards and Specifications, and other program requirements described in this document and shall be approved by Company prior to system installation. Where discrepancies, if any, exist between local codes and these Standards and Specifications, local codes shall govern.

1.04. SYSTEM DESIGN. Systems shall be designed specifically for residential water heating. Systems shall be of forced circulation or thermosiphon design which contain potable water. Systems may consist of single or multiple tanks and/or collectors. Multiple tank systems shall have the tanks connected in series. Multiple collector systems shall have the collectors connected in parallel. Single and multiple collectors shall be plumbed in a reverse return (i.e. opposite-end) method to achieve balanced flow through collectors. The solar return collector connection shall be at the highest point on each collector. Systems shall be designed to prevent back-siphoning. Acceptable system designs for forced circulation systems are bottom-return, side-return and top-return. Side-return and top-return system designs shall incorporate check valves and heat loops. Multiple tank bottom-return system designs shall incorporate swing check valves. Forced circulation system component sequence shall conform to Figure 1 for bottom-return systems; to Figure 2 for side-return systems; to Figure 3 for top-return systems; or as approved by Company prior to installation. Thermosiphon system designs shall conform to the manufacturer's recommendations. System mounting method shall conformed to the mounting method as approved by Company prior to system installation. Systems installed in areas which experience freezing conditions shall incorporate appropriate freeze protection measures.

1.05. SYSTEM PERFORMANCE. Systems shall be designed to provide a minimum of 90% of the annual average water heating load, except as provided for in Section 1.06.4 of these Standards and Specifications; to provide consistency of performance over the life of the system; and to achieve a minimum 15 year useful life.

1.06. SYSTEM SIZING. Systems shall be sized to yield an acceptable solar fraction. Solar fraction, expressed as a percentage, is the contribution by the solar system to the average daily water heating requirements. Solar fraction is a function of the actual system hot water storage, design finish tank temperature, daily BTU requirement to achieve design finish tank temperature, and daily collector output as determined by collector tilt, orientation and sunshine zone.

1.06.1. Water Storage. The minimum water storage for the combined capacity of the primary and any additional tanks in retrofit systems and owner builder new construction shall be number of residents as determined on Form 1 but not less than the Minimum Storage listed in Table 1. The minimum water storage for the combined capacity of the primary and any additional tanks in systems for new construction, rental, and military family housing units shall be based on the number of bedrooms as listed in Table 1.

1.06.2. Tank Temperature. Tank temperature rise for system sizing shall be 55 degrees F. to a finish tank temperature of 130 degrees F.

1.06.3. Daily BTU Requirement. The daily BTU requirement shall be determined by multiplying the total actual system storage in gallons as determined in Form 1 by 8.33 lbs. per gallon and by 55 BTU per pound for a 55 degrees F. temperature rise. Table 2 lists the daily BTU requirements for common nominal size residential heaters and storage tanks.

1.06.4. Solar Fraction. The system design solar fraction shall be not less than 90% and not more than 110% of the total actual system storage BTU requirement. The solar fraction shall be determined by dividing the total adjusted collector BTU output per day by the total actual system storage BTU requirement per day as provided on Form 1. In sizing retrofit systems based on the number of residents, when the required storage equals the actual storage as determined on Form 1, the design solar fraction shall be not less than 95% and not more than 110% of the total actual system storage BTU requirement.

1.07. COLLECTOR TILT. Collectors shall be tilted not less than 14 degrees or more than 60 degrees from the horizontal. Forced circulation system collectors mounted on roofs whose pitch is less than 14 degrees shall be tilted to no less than 20 degrees and no more than 30 degrees. Thermosiphon system collectors mounted on roofs whose pitch is less than 14 degrees shall be tilted to no less than 20 degrees and no more than 30 degrees. Collectors mounted on roofs whose tilt is above 35 degrees shall have their output rating derated by percentages listed in Table 3. Collector tilt factors shall be determined by rounding collector tilt to the nearest 5 degrees.

1.08. COLLECTOR ORIENTATION. Collectors shall be oriented between South of due East and South of due West. Collectors oriented East of 135 degrees true or West of 225 degrees true shall have their output rating derated by the percentages shown on Chart 1. Orientation Factors for Solar Installations (Compass Rose Diagram). Chart 1 shows allowable collector orientations and orientation factors corrected for magnetic deviation.

1.09. COLLECTOR SHADING. Collectors shall not be shaded by any permanent obstacle at any portion of the time after 9:00 a.m. or before 3:00 p.m. on December 21 or any other day of the year, except by prior Company approval.

PART II - PRODUCTS

2.01. GENERAL. All products shall be accepted for use in the Program by the Company prior to system installation. Specific product catalog data; equipment test data/approval, where applicable; local Building Department approval, where applicable; manufacturer's written installation instructions; and detailed manufacturer's written product warranty statements shall be submitted only by Participating Contractors or local product suppliers to Company for product acceptance consideration. Accepted products shall be listed on an Accepted Products List.

2.02. COLLECTOR RATINGS. Collectors shall be of the liquid type and shall have a current Solar Rating & Certification Corporation OG-100 rating and certification. OG-100 Category C data for clear day, mildly cloudy and cloudy days sky conditions shall be correlated to the Oahu Sunshine Map at 500, 400, and 300 cal. per sq. cm. per day and interpolated linearly at 450 and 350 cal. per sq. cm. per day. Table 6 lists accepted collectors and their output ratings for each sunshine zone. The sunshine zone closest to the collector installation site shall be used to determine collector output. Sites equidistant between two zones may be considered to be in either zone. Sites in the 300 zone shall be considered to be in a 350 zone for system sizing purposes.

2.03. COLLECTOR MATERIALS. For flat plate collectors, collector frame material shall be aluminum, stainless steel, copper or approved equal. Collector glazing shall be low-iron tempered solar glass. Collector waterways shall be of Type M minimum copper tube. Other collector materials are acceptable, subject to prior Company approval.

2.04 COLLECTOR/SYSTEM MOUNTING BRACKETS. Collector/system mounting brackets which secure the collector/system to the support structure or directly to the roof structural member shall be designed specifically for the equipment to be bracketed and shall be fabricated by an established manufacturer.

2.05. COLLECTOR/SYSTEM LEG SETS. Collector/system leg sets which secure the collector/system to the support structure or directly to the roof structural member shall be designed specifically for the equipment to be supported and shall be fabricated by an established manufacturer.

2.06. COLLECTOR/SYSTEM SUPPORT STRUCTURE. Collector/system support structure shall be of structurally sound material. The material shall be of non-corrosive metal channel or similar sections of approved material and finish which are compatible with the collector, collector mounting brackets, collector leg supports and leg set cross braces. Acceptable support structure materials are extruded aluminum solar strut, channel and double T, isolated galvanized steel and UV resistant plastic. Unless otherwise approved by Company prior to system installation, solar strut shall be 1 5/8" x 1 5/8" x 1/8" in size, channel and double T shall be 3" x 1" x 1/8" in size, and angle aluminum shall be 2" x 2" x 3/16" in size. Wood or wood products are not acceptable.

2.07. TANKS. Tanks shall be designed specifically as residential water heaters or water storage tanks. New tanks shall be warranted by the manufacturer for at least 5 years and shall be listed in the Company Accepted Products List or in the Company List of Accepted High-Efficiency Electric Water Heaters List. Where use of high-efficiency electric water heaters are not practical, the new tank shall be listed in the Gas Appliance Manufacturers Association Consumers' Directory of Certified Efficiency Ratings. Incorporation of existing water heaters and/or storage tanks into the solar system shall be accepted at the sole discretion of the Company. In single tank systems, the tank shall be equipped with an internal thermostat and heating element rated at not more than 4500 Watts. In single tank systems, the lower element, if any, shall be disabled at the upper element. In multiple tank systems, the tank which directly supplies the hot water load shall have an internal thermostat and heating element of an approved rating and the lower element, if any, shall not be disabled.

2.08. PUMP. Pumps shall be of a circulating type. The pump shall be designed to attain the manufacturer's recommended collector flow rate for the total number of system collectors and the total developed head of the solar lines. AC powered pumps shall be compatible with the pump controller. DC powered pumps shall be compatible with the photovoltaic module. Pump isoflanges are not acceptable in lieu of ball valves.

2.09. CONTROLLER. Controller shall automatically control the operation of the circulating pump so that optimum system performance is attained. The controller shall be compatible with the circulating pump. Controller sensors shall be thermistors, which conform to the manufacturer's specifications for the controller.

2.10. PHOTOVOLTAIC MODULE. Photovoltaic modules used to power DC pumps shall be compatible with the pump's performance rating and power requirements.

2.11. TIME SWITCHES. All systems shall have time switches, which control the operation of the auxiliary heating system. Acceptable time switches are electric, electronic and spring-loaded mechanical switches. Electric and electronic time switches shall have a manual override feature.

2.12. ELECTRICAL CONDUCTOR. Electrical conductors exposed to direct sunlight shall have sunlight resistant insulation. Conductors interconnecting the photovoltaic module and DC circulating pump shall not have more than a 3% voltage drop over the one way distance between the pump and module. Refer to Table 5 for conductor sizes based on one way distances.

2.13. PIPING. Piping shall be copper tubing Type M minimum. Solar supply and return pipe shall be sized to attain the manufacturer's recommended collector flow rate for the total number of system collectors and pump size. The pipe size for forced circulation systems with not over 120 sq. ft. of collector area and not over 120 feet total round trip distance shall be 1/2-inch minimum. The pipe size for forced circulation systems with collector area over 120 sq. ft. and/or over 120 feet total round trip distance shall be approved by Company prior to system installation. The pipe size for water heater/storage tank supply, distribution, multiple tank interconnections and overflow lines shall be 3/4-inch minimum. The hot and cold supply lines to a thermosiphon system shall have a pipe size of 3/4" minimum. Water heater flex connectors are not acceptable.

2.14. FITTINGS. Fittings shall be bronze, brass, or wrought copper approved for potable water distribution. Factory installed galvanized tank nipples are acceptable.

2.15. PIPE SUPPORTS, BLOCKS AND SPACERS. Pipe supports shall be copper, stainless steel or other approved material. Rooftop piping support blocks or spacers, when used, shall be 2" x 4" painted wolmanized wood blocks, UV resistant non-metallic spacers, solar strut or equal.

2.16. VALVES. Valves shall be bronze or brass.

2.16.1. Ball Valves. Ball valves shall be provided to isolate major system components such as tanks, collectors and circulating pumps. Factory supplied pump isolation flanges are acceptable to isolate the pump in lieu of ball valves.

2.16.2. Check Valves. Check valves shall be provided with side-return, top-return and multiple tank, bottom-return forced circulation systems or where back siphoning may occur. Check valves shall be of the swing check type.

2.16.3. Flush Out Valves. Flush out valves shall be provided to allow for storage tank and collector draining and periodic flushing. Acceptable valves are hose bibs and boiler drains.

2.16.4. Pressure Relief Valve. A pressure relief valve shall be provided at the collector(s). The pressure setting shall be non-adjustable and rated at 125 or 150 PSI. The valve lever shall be stainless steel and the valve pin shall be brass.

2.16.5. Temperature & Pressure Relief Valve. A temperature & pressure relief valve shall be provided for single or multiple pressurized water storage tank systems provided that the location complies with local code requirements. The temperature and pressure relief settings shall be non-adjustable and rated at 210 degrees F. and 150 PSI, respectfully.

2.17. UNIONS. Unions shall be bronze or brass. Unions shall be used to connect dissimilar piping materials. Dielectric unions connecting corrosion causing dissimilar metals are acceptable.

2.18. TEMPERATURE MEASURING DEVICE. A temperature-measuring device shall be provided to measure the temperature of the storage tank, which directly supplies the hot water load. Acceptable temperature measuring devices are temperature gauges and electronic temperature devices.

2.19 FASTENING HARDWARE. All fastening hardware, including, but not limited to, strut-nut sets, through-bolt sets, lag-bolt sets, and hanger-bolt sets, shall be stainless steel Series 300 minimum or other approved material.

2.19.1. Strut-Nut Sets. Strut-nut sets shall consist of one strut nut, bolt, and flat or lock washer each. The size, length and quantity of strut-nut sets shall be that recommended by the manufacturer or one strut-nut set per collector mounting bracket with a minimum bolt diameter and length of 5/16" by 3/4", whichever is greater.

2.19.2. Through-Bolt Sets. Through-bolt sets shall consist of one bolt, nut, flat or fender washer and lock washer each. The size, length and quantity of through-bolt sets shall be that recommended by the manufacturer or one through-bolt set per collector mounting bracket with a minimum bolt diameter and length of 5/16" by 3/4", whichever is greater.

2.19.3. Lag-Bolt Sets. Lag-bolt sets shall consist of one lag bolt and one flat or fender washer. Lag bolt diameter shall be that recommended by the manufacturer or 5/16" minimum, whichever is greater. Lag bolts shall be of sufficient length to penetrate a minimum of 1 3/4" into the roof structural member. The number of anchoring lag bolts shall be that recommended by the manufacturer or that listed in Table 4, whichever is greater, or as approved by Company prior to installation.

2.19.4. Hanger-Bolt Sets. Hanger-bolt sets shall consist of one hanger bolt, and lock washer each and two nuts and flat or fender washer each. Hanger bolt diameter shall be that recommended by the manufacturer or 3/8" minimum, whichever is greater. Hanger bolts shall be of sufficient length to penetrate a minimum of 1 3/4" into the roof structural member. The number of anchoring hanger bolts shall be that recommended by the manufacturer or that listed in Table 4, whichever is greater, or as approved by Company prior to installation.

2.20. INSULATION. Piping insulation shall be flexible and elastomeric with a minimum wall thickness of 1/2" and a minimum design temperature of 220 degrees F.

2.21. SOLDER. Solder shall be lead free.

2.22. FLASHING. Flashing, when used, shall be designed to positively seal roof penetrations resulting from the solar system installation. Acceptable flashing materials are lead, copper, aluminum or other approved material. Lead shall not be used where water supplying a catchment system contacts the flashing.

2.23. OTHER PRODUCTS. Neoprene, EPDM spacers or other approved material shall separate corrosion causing dissimilar metals. Minor component products not otherwise listed in these standards and specifications may be used provided that their use does not detract from overall system performance.

2.24. PRODUCT WARRANTIES. Manufacturer warranties shall apply to all products. Contractors and/or vendors who unilaterally extend manufacturer product warranties shall provide the Company with a copy of the warranty and shall provide the solar system purchaser with a written statement approved by the Company that the extension is not guaranteed by the Company.

2.25. ASBESTOS PROHIBITION. No materials containing asbestos shall be used in any product.

PART III - EXECUTION

3.01. GENERAL. Solar system installations shall result in fully operational systems. Solar systems shall be installed by licensed solar water heating contractors approved by Company. All required governmental permits shall be issued prior to system installation. Installations shall be in accordance with applicable governmental codes and Company's Residential Solar Water Heating Standards and Specifications or manufacturer's recommendations where they meet or exceed these Standards and Specifications. Systems shall be installed in a professional, workmanlike manner using Company accepted products.

3.02. COLLECTORS/SYSTEMS. Solar collectors/systems, mounting brackets, leg sets, support structure and support structure anchoring fasteners shall be attached to form a secure mechanical bond between adjoining components and the roof structural members.

3.02.1. Collectors/Systems. In multiple collector systems, collectors shall be installed with the same tilt and orientation or as approved by Company prior to system installation. Solar collectors/systems shall be mounted in a stand-off method with a minimum of 2 inches between the roof and the bottom edge of the collectors/system, except where the collectors are integrated into the roof.

3.02.2. Mounting Brackets. Mounting brackets shall secure flush mounted collectors directly to the collector support structure or the roof structural members. Unless otherwise provided by the collector manufacturer, a minimum of four brackets per collector shall secure each flush mounted collector. For mounting brackets which require penetration of the collector box, the number of fasteners attaching each bracket to the collector shall equal the number of holes in the bracket, unless otherwise provided by the collector manufacturer. Collector box penetrations by mounting bracket fasteners shall be positively sealed to prevent moisture infiltration. Brackets attached directly to roof structural members shall be secured with a minimum required diameter anchoring fastener. Brackets attached to support structures shall be secured with lock-nut sets on "solar strut" and with through-bolt sets on channel.

3.02.3. Mounting Flanges. Fastening of collectors with mounting flanges directly to the support structure through the mounting flange is acceptable provided that collector manufacturer documentation of the acceptability of this mounting method is submitted to the Company prior to installation. When collectors with mounting flanges are fastened directly to the support structure through the mounting flange, collectors shall be secured with strut-nut sets or

through-bolt sets. These bolt-sets shall be through-bolted to the support structure in accordance with the collector manufacturer's recommendations, or secured with a minimum of four bolt-sets of the size and length described for mounting brackets per collector, whichever is greater.

3.02.4. Leg Sets. Leg sets shall secure tilted collectors directly to the collector support structure or the roof structural members. The type, number, location and installation method of leg sets shall be in accordance with the collector manufacturer's recommendations. Unless otherwise provided by the collector manufacturer, each tilted collector shall be supported by a minimum of two leg sets. For leg set brackets which require penetration of the collector box, the number of fasteners attaching the collector leg sets to the collector shall equal the number of holes in the leg set bracket, unless otherwise provided by the collector manufacturer. Collector box penetrations by leg set bracket fasteners shall be positively sealed to prevent moisture infiltration. Leg sets shall be secured to the support structure with strut-nut sets on "solar strut" and with through-bolt sets on channel. Leg sets which are 4 feet or longer in length shall be cross-braced diagonally. Cross braces shall be through bolted to the leg sets.

3.02.5. Support Structure. Collector/system support structures shall be anchored by fasteners firmly secured to the roof structural members. Support structure runners, when used, shall be located no farther in than 24" from the shorter ends of the collector(s). Anchor fasteners along each runner shall be located no farther from the edge of outer most collector than one-half the collector width and no farther than 4 feet apart. Collector/ system support structures and anchoring fastener size and spacing for roof structural members greater than 4 feet apart shall be approved by Company prior to system installation. Collector/system support structure anchoring fasteners shall not be exposed on the interior side of roof structural members. Support structures installed parallel to the roof ridge shall provide sufficient clearance from the roof covering to allow for adequate water and debris shed.

3.03. TANKS. Water heaters and/or storage tanks shall be plumbed so that the attached equipment, cover plates and warning labels are visible and accessible. Attached equipment shall be defined as pump, controller, time switch, piping and any other components attached or connected to the tank. All pressurized tanks shall be equipped with a securely attached temperature and pressure relief valve. Piping connections to the tank shall be made with brass or bronze fittings. The tank combination temperature and pressure relief valve drain line shall be securely attached to the temperature and pressure relief valve and shall terminate no more than 2' nor less than 6" above the ground and pointing downward or as otherwise approved by Company. Adjustable auxiliary heating thermostats shall be set at 120 degrees F.

3.03.1. Ground Mounted Tanks. Vertical and horizontal ground mounted tanks shall be set level on concrete or other approved base extending not less than three (3) inches above the adjoining ground level. Cement bricks placed between the tank and the supporting base shall support tanks. Cement bricks shall be whole and of a nominal minimum size of 2" high, 3" wide and 7" long. A minimum of three bricks evenly spaced shall be used to support vertical tanks. Bricks are not required for tanks with non-metallic bottoms. Horizontal tanks shall be supported in accordance with the tank manufacturer's recommendations or as approved by Company prior to system installation. Acceptable leveling devices are manufactured plastic shims, or other approved material. In side-return, top-return single and multiple tank systems, the solar return line shall be plumbed with a heat loop which extends to within 12 inches of the bottom of the tank. Required swing check valves shall be installed horizontally on the solar return line at the bottom of the heat loop. In bottom-return multiple tank systems, the required swing check valve shall be installed horizontally at the solar return line connection to the tank drain port. Nipples replacing manufacturer supplied tank drain valve shall be of sufficient length to allow adequate access to tank sensor. All contractor installed flush out valves shall have thread caps with hose washer securely attached to the valve.

3.03.2. Roof Mounted Tanks. Roof mounted thermosiphon system tanks shall be supported by the number of tank supports, support fasteners and tank mounting brackets recommended by the manufacturer or those which correspond to the tank length ranges shown on Table 7 Minimum Thermosiphon System Tank Supports, Support Anchoring Fasteners and Tank Mounting Brackets, whichever is greater. The number of supports and fasteners are based on roof structural member spacing of 24" on center or less. The number of tank supports and support fasteners for roof structural members with spacing greater than 24" shall be approved by Company prior to system installation. The length of tank supports shall be not less than the tank diameter or width and shall conform to Section 2.06. Collector/System Support Structure of these Standards and Specifications. Each tank support shall be installed parallel to and directly over a roof structural member. Each tank support shall be securely attached to the roof structural member with a minimum of 2 anchoring fasteners per support, which shall be located no farther than 4" from the ends of each support. Tank mounting brackets shall be located on and secured to opposite sides of each tank support. Tank mounting brackets shall be secured to the tank supports with strut nut sets on "solar strut", with through-bolt sets on channel, and with lag bolt-sets on approved plastic lumber.

3.04. CONTROLLERS. Pump controllers shall be installed in accordance with manufacturer's recommendations. The top of the controller shall not be higher than 6 ft. 7 in. above the floor/ground level and shall not be located behind the tank. Controller sensors shall be attached at the hottest and coldest points in the solar piping loop by

stainless steel clamps. Collector sensors shall be attached no farther than 6" from the collector header connection to the solar return line. Tank sensors shall be attached no farther than 12" from the coldest point at the tank on the solar supply line. Attachment of the tank sensor to factory provided tank sensor stud is permitted. Controller sensor attachment shall form a positive mechanical bond between the sensor and the sensing point to optimize heat transfer to the sensor. The sensor shall be clamped on its flanged end. Clamping of sensors over the sensor "barrel" end is unacceptable. Sensors shall be connected to sensor wire with all plastic wire nuts. Wire nuts shall be sealed with silicon and wrapped with electrician's tape. Sensor wiring shall be secured in a workmanlike manner.

3.05. TIME SWITCHES. Time switches shall be installed in accordance with manufacturer's recommendations. The top of the time switch shall not be higher than 6 ft. 7 in. above the floor/ground level and shall not be located behind the tank. Time switches shall be set so that tank thermostats are not energized during the solar day (i.e. between 9:00 AM and 3:00 PM). Recommended automatic time switch settings are 4 PM "on", 5 PM "off". Multiple automatic time switch settings, exclusive of the solar day, are acceptable. At a minimum, electric time switches shall have at least one "off" tab securely affixed to the face of the timing mechanism and electronic time switches shall be programmed to turn off within 24 hours of being turned on. Time switch wiring shall be secured in a workmanlike manner.

3.06. PHOTOVOLTAIC MODULES. Photovoltaic modules shall be securely installed with approved support structure materials in the same tilt and orientation as the system collectors. Module location shall conform to Section 1.09 Collector Shading. Wire nuts used to interconnect module and pump shall be all plastic and shall be sealed with silicon and wrapped with electrician's tape.

3.07 PIPING, FITTINGS AND VALVES. Solder joints shall be sanded, fluxed and soldered with approved solder. Threaded fittings and valves shall be wrapped with Teflon or equal tape and/or joint sealant. Piping shall be plumb and level where practical. Vertical piping shall be supported at each story or at maximum intervals of 10 feet. Horizontal piping shall be supported at approximately 6-foot intervals. Pipe supports shall not penetrate piping insulation. Rooftop piping shall be raised off the roof by blocks or spacers. Blocks/spacers shall be placed at approximately 6-foot intervals on straight runs and not more than 2 feet of each side of an angular joint. Piping shall be attached to blocks/spacers with acceptable pipe supports. Blocks/spacers shall be adhered to the roof. Roof penetration shall not be made to attach blocks/spacers to the roof. Valves, including hose bibs and boiler drains, shall be installed in the sequence shown on the Company accepted system schematic.

3.08. PIPING INSULATION. Insulation shall be installed on all new hot water piping, including solar supply and return lines and on accessible existing hot and cold water supply pipe for a minimum of 6 feet leading to the system. Insulation is not required on

the cold water supply line to thermosiphon systems. The tank temperature & pressure relief overflow line and collector pressure relief overflow line, where present, shall be insulated to within the 12" of the end of exposed pipe. Insulation butt joints shall be sealed in accordance with manufacturer's recommendations. Packing of insulation butt joints in attics and within walls, in lieu of sealing, is acceptable. Abutment of valves, unions and tees with pipe insulation is acceptable. Insulation shall in no way restrict the operation of any valve. Collector headers and interconnections shall be insulated. Collector headers and interconnections insulation may be slit and ny-tied without sealing. The entire circumference of rooftop exposed insulation shall be UV protected. Acceptable UV protection is latex based paint or other approved product. UV protection of insulation on exterior vertical piping is acceptable.

3.09. ROOF/WALL/CEILING PENETRATIONS. Roof penetrations shall be detailed on system mounting detail drawings and shall be positively sealed in accordance with standard roofing practices. Flashing installed on metal roofs shall be compatible with the roofing material. Exterior/interior wall penetrations shall be made watertight. Ceiling penetrations shall be sealed.

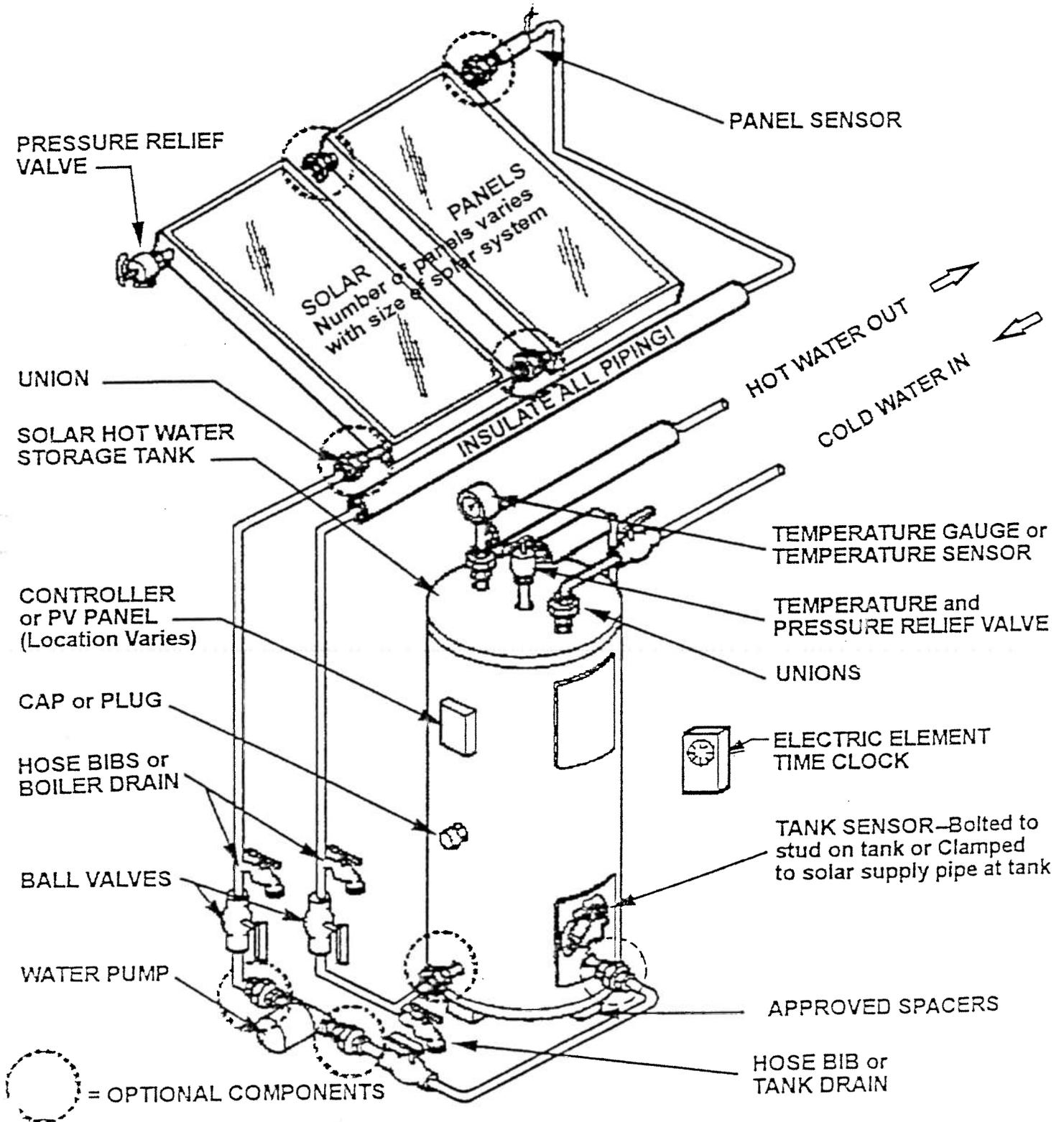
3.10. TEMPERATURE MEASURING DEVICE. In forced circulation systems, the temperature-measuring device shall be installed at the hot water outlet port on the tank, which directly supplies the domestic hot water load. In thermosiphon systems, the temperature-measuring device shall be installed only on an accessible hot water supply after the storage tank and before any hot water fixture; the device shall not be required on inaccessible hot water supply lines.

3.11. OTHER PRODUCTS. Minor component products not otherwise listed in these standards and specifications shall be installed in a professional, workmanlike manner in accordance with manufacturer's recommendations.

3.12. SYSTEM WARRANTY. Contractors shall provide full labor warranty for one (1) year from the date of Company acceptance for each system installed. Contractors and/or vendors who unilaterally extend manufacturer product warranties shall provide the Company with a copy of the warranty and shall provide the solar system purchaser with a written statement approved by the Company that the extension is not guaranteed by the Company.



FIGURE 1.
BOTTOM-RETURN RESIDENTIAL FORCED CIRCULATION SYSTEM DESIGN

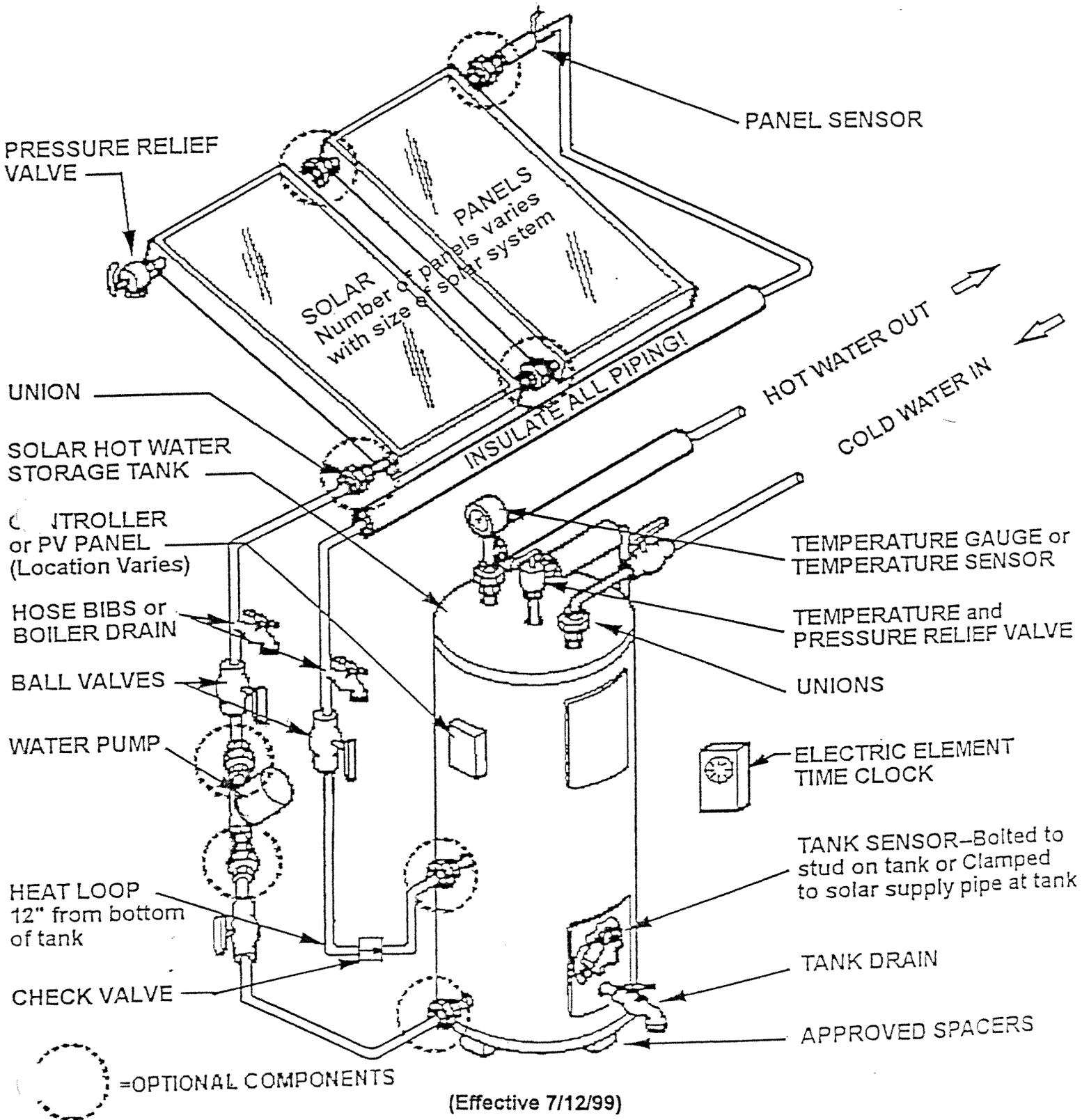


(Effective 7/12/99)

Reference: HECO Residential Solar Water Heating System Standards and Specifications Section 1.04. System Design



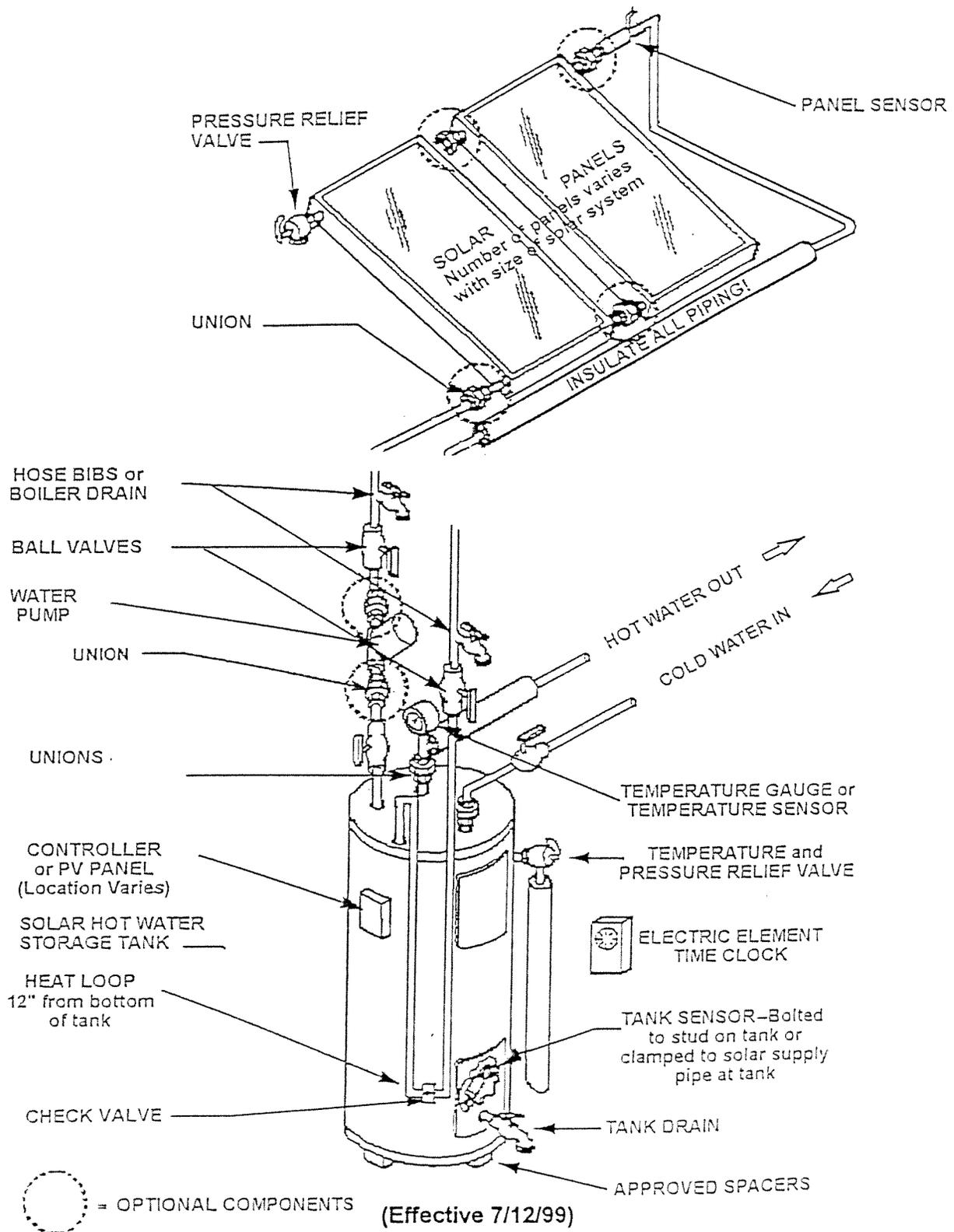
**FIGURE 2.
SIDE-RETURN RESIDENTIAL FORCED CIRCULATION SYSTEM DESIGN**



Reference: HECO Residential Solar Water Heating System Standards and Specifications Section 1.04. System Design



FIGURE 3.
TOP-RETURN RESIDENTIAL FORCED CIRCULATION SYSTEM DESIGN



Reference: HECO Residential Solar Water Heating System Standards and Specifications Section 1.04. System Design

TABLES 1-5. RESIDENTIAL SOLAR WATER HEATING SYSTEM STANDARDS

[9/12/06 fn: tables 1-5]

Effective September 12, 2006
(supercedes 7/1/99)

Table 1. Minimum Water Storage for Retrofit and New Construction, Rentals, Military Family Housing

<u>RETROFIT, OWNER BUILDER</u>		<u>NEW CONSTRUCTION, RENTALS, MILITARY FAMILY HOUSING</u>	
<u>No. of Residents</u>	<u>Storage</u>	<u>No. of Bedrooms</u>	<u>Storage</u>
1 to 4	80 gals.	1-3	80 gal.
4 to 5	100 gals.	4-5	120 gal.
5 to 6	120 gals.	over 5	custom
over 6	20 per person		

**Table 2
Daily BTU Requirements for Common Nominal Size Residential Heaters & Storage Tanks
at 55 Deg. Rise to Tank Temperature of 130 Deg.**

<u>Nominal Storage Capacity</u>	<u>Daily BTU Requirement</u>	<u>Nominal Storage Capacity</u>	<u>Daily BTU Requirement</u>
30 gals.	13,745	70 gals.	32,071
40 gals.	18,326	80 gals.	36,652
50 gals.	22,908	90 gals.	41,234
52 gals.	23,824	100 gals.	45,815
60 gals.	27,489	115 gals.	52,687
66 gals.	30,238	120 gals.	54,978

Table 3. Tilt Factors

<u>Tilt (in deg.)</u>	<u>Add'l Collector BTU</u>	<u>Tilt (in deg.)</u>	<u>Add'l Collector BTU</u>
14	0%	50	15%
35	0%	55	20%
40	5%	60	25%
45	10%		

Table 4. Minimum Support Structure Anchors*

<u>No. of Collectors</u>	<u>Collector Size</u>	<u>No. of Anchors</u>
1	any size	4
2	3' x 7' or 3' x 8'	4
2	1 @ 3' x 8' and 1 @ 4' x 8'	4
2	4' x 6' or 4' x 8' or 4' x 10'	6
3	3' x 7' or 3' x 8'	6
3	2 @ 3' x 8' and 1 @ 4' x 8'	6
3	1 @ 3' x 8' and 2 @ 4' x 8'	6
3	4' x 6' or 4' x 8' or 4' x 10'	8
4	3' x 7' or 3' x 8'	8
4	2 @ 3' x 8' and 2 @ 4' x 8'	8
4	4' x 6' or 4' x 8' or 4' x 10'	10

* Applies to extruded aluminum sizes: 1 5/8" x 1 5/8" x 1/8" solar strut, 3" x 1" x 1/8" channel & double T, 2" x 2" x 3/16" angle.

Table 5. Minimum Conductor Size for PV Powered Pumps (One Way Distance)

<u>Module Output</u>	<u>18 AWG</u>	<u>16 AWG</u>	<u>14 AWG</u>	<u>12 AWG</u>	<u>10 AWG</u>	<u>8 AWG</u>
5 W	54 ft	109 ft	219 ft	327 ft	545 ft	>1000ft
10 W	26 ft	52 ft	104 ft	156 ft	269 ft	429 ft
20 W	n/a	26 ft	52 ft	78 ft	130 ft	208 ft
43 W	n/a	n/a	24 ft	36 ft	60 ft	96 ft

Oahu Solar Collector BTU/Day Output by Sunshine Zone Table

OG-100 Protocol Format			(BTU/sq ft day)	1845	1661	1476	1292	1107
Hawaii Sunshine Zone			(Cal/sq cm/day)	500	450	400	350	300
Nom. Size	Coating	Manufacturer/Brand	Model					
3' x 7'	Paint	Alternate Energy	AE-21E	17,159	14,660	12,103	9,505	9,505
		Alternate Energy	MSC-21E	17,804	15,229	12,595	9,919	9,919
		Alternate Energy	ST-21E	17,528	14,945	12,300	9,609	9,609
		R&R	EPI-308CU (3' X 7')	18,081	15,466	12,792	10,022	10,022
		R&R	EPI-308SS (3' X 7')	18,081	15,466	12,792	10,022	10,022
		R&R	SunPro21	18,358	15,704	12,989	10,177	10,177
		Solahart	J Collector	19,926	17,032	14,071	11,055	11,055
		Solahart	L Collector	14,207	11,813	9,348	7,077	7,077
		SunEarth	EP-21	19,742	17,222	14,662	12,037	12,037
3' x 7'	Selective	Alternate Energy	AE-21	19,096	16,558	13,973	11,314	11,314
		Alternate Energy	MSC-21	19,742	17,127	14,465	11,727	11,727
		Apricus Solar	AP-10	10,609	9,441	8,266	7,077	7,077
		Solahart	Bt	21,310	18,408	15,449	12,347	12,347
		Solahart	Kf	21,402	18,645	15,842	12,967	12,967
		Solahart	M Collector	17,251	14,802	12,300	9,815	9,815
		SunEarth	EC-21	20,572	17,886	15,154	12,450	12,450
3' x 8'	Paint	Alternate Energy	AE-24E	19,649	16,842	13,973	11,004	11,004
		Alternate Energy	MSC-24E	20,111	17,222	14,268	11,210	11,210
		Integrated Solar, LLC	Radco 308P-HP	16,513	13,711	10,824	8,111	8,111
		R&R	EPI-308CU (3' x 8')	20,572	17,601	14,563	11,417	11,417
		R&R	EPI-308SS (3' x 8')	20,572	17,601	14,563	11,417	11,417
		R&R	SunPro24	20,941	17,886	14,760	11,572	11,572
		SunEarth	EP-24	23,155	20,163	17,122	14,052	14,052
		SunEarth	IP-24	22,970	20,021	17,023	13,948	13,948
		SunEarth	SB-24	19,096	16,083	12,989	9,970	9,970
3' x 8'	Selective	Alternate Energy	AE-24	21,863	18,930	15,941	12,915	12,915
		Alternate Energy	MSC-24	22,509	19,499	16,433	13,328	13,328
		Integrated Solar, LLC	Radco 308C-HP	19,280	16,463	13,579	10,642	10,642
		SunEarth	EC-24	23,985	20,875	17,712	14,516	14,516
		SunEarth	IC-24	23,985	20,875	17,712	14,516	14,516
4' x 6'	Paint	Alternate Energy	AE-26E	20,941	17,933	14,858	11,675	11,675
		Alternate Energy	MSC-26E	21,402	18,313	15,154	11,933	11,933
4' x 6'	Selective	Alternate Energy	AE-26	23,247	20,163	17,023	13,793	13,793
		Alternate Energy	MSC-26	23,801	20,638	17,417	14,155	14,155
		Solene	SLCO-30	24,446	21,112	17,712	14,258	14,258
		Solene	SLAR-30	24,446	21,112	17,712	14,258	14,258
4' x 7'	Paint	Alternate Energy	AE-28E	23,155	19,831	16,433	12,915	12,915
		Alternate Energy	MSC-28E	23,616	20,211	16,728	13,173	13,173
		Heliodyne	406-002	24,262	20,685	17,023	13,328	13,328
4' x 7'	Selective	Alternate Energy	AE-28	25,646	22,251	18,794	15,240	15,240
		Alternate Energy	MSC-28	26,291	22,773	19,188	15,550	15,550
		Heliodyne	336-013	24,170	20,875	17,515	14,155	14,155
		Heliodyne	406-001	26,199	22,773	19,286	15,756	15,756
4' x 8'	Paint	Alternate Energy	AE-32E	26,384	22,583	18,696	14,671	14,671
		Alternate Energy	MSC-32E	26,937	23,057	19,090	14,981	14,981
		Heliodyne	408-002	29,705	25,192	20,566	16,170	16,170
		Integrated Solar, LLC	Radco 408P-HP	22,601	18,740	14,760	11,055	11,055
		R&R	EPI-308CU (4' x 8')	27,675	23,674	19,750	15,343	15,343
		R&R	EPI-308SS (4' x 8')	27,675	23,674	19,750	15,343	15,343
		R&R	Sunpro 32	28,044	23,959	19,750	15,498	15,498
		Solene-Corona	SLCO-32P	24,446	20,590	16,630	12,812	12,812
		SunEarth	EP-32	31,550	27,517	23,419	19,269	19,269
		SunEarth	IP-32	31,365	27,327	23,222	19,114	19,114
	SunEarth	SP-32	31,550	27,517	23,419	19,269	19,269	
	SunEarth	SB-32	26,015	21,919	17,712	13,638	13,638	

Oahu Solar Collector BTU/Day Output by Sunshine Zone Table

OG-100 Protocol Format			(BTU/sq ft day)	1845	1661	1476	1292	1107
Hawaii Sunshine Zone			(Cal/sq cm/day)	500	450	400	350	300
Nom. Size	Coating	Manufacturer/Brand	Model					
4' x 8'	Selective	Alternate Energy	AE-32	29,243	25,382	21,451	17,409	17,409
		Alternate Energy	MSC-32	29,981	25,999	21,943	17,771	17,771
		Heliodyne	408-001	31,550	27,422	23,222	19,011	19,011
		Heliodyne	408-013	29,059	25,097	21,058	16,944	16,944
		Integrated Solar, LLC	Radco 408C-HP	26,199	22,393	18,499	14,516	14,516
		Solene	SLCR-30	30,535	26,710	22,829	19,011	19,011
		Solene	SLCO-32	31,826	27,517	23,124	18,649	18,649
		Solene	SLCR-32	32,195	28,181	24,108	20,044	20,044
		Solene	SLAR-32	31,826	27,517	23,124	18,649	18,649
		SunEarth	EC-32	32,564	28,371	24,108	19,786	19,786
		SunEarth	IC-32	32,564	28,371	24,108	19,786	19,786
4' x 10'	Paint	Alternate Energy	AE-40E	32,841	28,134	23,321	18,339	18,339
		Alternate Energy	MSC-40E	33,487	28,655	23,714	18,649	18,649
		Alternate Energy	ST-40E	31,826	27,137	22,337	17,461	17,461
		Heliodyne	410-002	36,716	31,455	26,076	20,561	20,561
		Integrated Solar, LLC	Radco 410P-HP	28,229	23,437	18,499	13,845	13,845
		R&R	Sunpro 40	34,963	29,889	24,698	19,373	19,373
		Solene	SLCO-40P	29,705	25,002	20,172	15,550	15,550
		SunEarth	EP-40	39,299	34,301	29,225	24,022	24,022
		SunEarth	IP-40	39,299	34,254	29,126	23,970	23,970
		SunEarth	SB-40	32,657	27,564	22,337	17,151	17,151
		4' x 10'	Selective	Alternate Energy	AE-40	36,531	31,644	26,666
Alternate Energy	MSC-40			38,653	33,495	28,241	22,937	22,937
Heliodyne	410-001			39,483	34,349	29,126	23,815	23,815
Heliodyne	410-013			36,439	31,455	26,371	21,181	21,181
Integrated Solar, LLC	Radco 410C-HP			32,933	28,134	23,222	18,184	18,184
Solene	SLCO-40			39,114	33,779	28,339	22,834	22,834
Solene	SLCR-40			40,313	35,297	30,209	25,107	25,107
Solene	SLAR-40			39,114	33,779	28,339	22,834	22,834
SunEarth	EC-40			40,867	35,582	30,209	24,797	24,797
SunEarth	IC-40			40,867	35,582	30,209	24,797	24,797
4' x 12'	Paint			Integrated Solar, LLC	Radco 412P-HP	34,133	28,323	22,337
4' x 12'	Selective	Integrated Solar, LLC	Radco 412C-HP	39,760	33,969	28,044	22,007	22,007
5' X 7'	Selective	Apricus	AP-20	24,170	21,397	18,598	15,756	15,756
		Apricus	AP-22	23,616	21,017	18,401	15,705	15,705
7' x 7'	Selective	Apricus	AP-30	37,454	33,163	28,831	24,435	24,435
Notes:		1. Values for the 350 and 450 Sunshine Zones are interpolated assuming a linear relationship.						
		2. Values for the 300 Sunshine Zone equals the 350 Sunshine Zone per Section 2.02.						

HECO Solar Water Heating System Standards & Specifications

[06/01/99 fn:table7]

Effective June 1, 1999

**Table 7. Minimum Thermosiphon System
Tank Supports, Support Anchoring Fasteners & Tank Mounting Brackets**

<u>Tank Length</u>	<u>No. of Tank Supports¹</u>	<u>No. of Support Fasteners²</u>	<u>No. of Tank Mount Brackets³</u>
48" - 56"	2	4	4
69" - 75"	3	6	6
91" - 108"	4	8	8
120" - 130"	5	10	10
160"	6	12	12

1. Based on typical rafter/joist spacing of 24" on center or less. For rafter/joist spacing greater than 24' on center refer to Section 3.03.2. Minimum support length not less than tank diameter or width.
 2. Minimum of 2 support fasteners per support of 5/16" diameter for direct mount method. Fasteners of sufficient length to penetrate a minimum of 1 3/4" into the roof structural member.
 3. Tank mounting brackets shall be located on and secured to opposite sides of each tank support.
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Hawaii County Solar Collector BTU/Day Output by Sunshine Zone Table

OG-100 Protocol Format			(BTU/sq ft day)	2,030	1,845	1,661	1,476	1,292	1,107
Hawaii Sunshine Zone			(Cal/sq cm/day)	550	500	450	400	350	300
Nom. Size	Coating	Manufacturer/Brand	Model						
3' x 7'	Paint	Alternate Energy	AE-21E	18,874	17,159	14,660	12,103	9,505	9,505
		Alternate Energy	MSC-21E	19,585	17,804	15,229	12,595	9,919	9,919
		Alternate Energy	ST-21E	19,280	17,528	14,945	12,300	9,609	9,609
		R&R	EPI-308CU (3' X 7')	19,889	18,081	15,466	12,792	10,022	10,022
		R&R	EPI-308SS (3' X 7')	19,889	18,081	15,466	12,792	10,022	10,022
		R&R	SunPro21	20,194	18,358	15,704	12,989	10,177	10,177
		Solahart	J Collector	21,919	19,926	17,032	14,071	11,055	11,055
		Solahart	L Collector	15,627	14,207	11,813	9,348	7,077	7,077
		SunEarth	EP-21	21,716	19,742	17,222	14,662	12,037	12,037
3' x 7'	Selective	Alternate Energy	AE-21	21,005	19,096	16,558	13,973	11,314	11,314
		Alternate Energy	MSC-21	21,716	19,742	17,127	14,465	11,727	11,727
		Apricus Solar	AP-10	11,670	10,609	9,441	8,266	7,077	7,077
		Solahart	Bt	23,441	21,310	18,408	15,449	12,347	12,347
		Solahart	Kf	23,542	21,402	18,645	15,842	12,967	12,967
		Solahart	M Collector	18,976	17,251	14,802	12,300	9,815	9,815
		SunEarth	EC-21	22,629	20,572	17,886	15,154	12,450	12,450
3' x 8'	Paint	Alternate Energy	AE-24E	21,614	19,649	16,842	13,973	11,004	11,004
		Alternate Energy	MSC-24E	22,122	20,111	17,222	14,268	11,210	11,210
		Integrated Solar, LLC	Radco 308P-HP	18,164	16,513	13,711	10,824	8,111	8,111
		R&R	EPI-308CU (3' x 8')	22,629	20,572	17,601	14,563	11,417	11,417
		R&R	EPI-308SS (3' x 8')	22,629	20,572	17,601	14,563	11,417	11,417
		R&R	SunPro24	23,035	20,941	17,886	14,760	11,572	11,572
		SunEarth	EP-24	25,470	23,155	20,163	17,122	14,052	14,052
		SunEarth	IP-24	25,267	22,970	20,021	17,023	13,948	13,948
		SunEarth	SB-24	21,005	19,096	16,083	12,989	9,970	9,970
3' x 8'	Selective	Alternate Energy	AE-24	24,050	21,863	18,930	15,941	12,915	12,915
		Alternate Energy	MSC-24	24,760	22,509	19,499	16,433	13,328	13,328
		Integrated Solar, LLC	Radco 308C-HP	21,208	19,280	16,463	13,579	10,642	10,642
		SunEarth	EC-24	26,384	23,985	20,875	17,712	14,516	14,516
		SunEarth	IC-24	26,384	23,985	20,875	17,712	14,516	14,516
4' x 6'	Paint	Alternate Energy	AE-26E	23,035	20,941	17,933	14,858	11,675	11,675
		Alternate Energy	MSC-26E	23,542	21,402	18,313	15,154	11,933	11,933
4' x 6'	Selective	Alternate Energy	AE-26	25,572	23,247	20,163	17,023	13,793	13,793
		Alternate Energy	MSC-26	26,181	23,801	20,638	17,417	14,155	14,155
		Solene	SLCO-30	26,891	24,446	21,112	17,712	14,258	14,258
		Solene	SLAR-30	26,891	24,446	21,112	17,712	14,258	14,258
4' x 7'	Paint	Alternate Energy	AE-28E	25,470	23,155	19,831	16,433	12,915	12,915
		Alternate Energy	MSC-28E	25,978	23,616	20,211	16,728	13,173	13,173
		Heliodyne	406-002	26,688	24,262	20,685	17,023	13,328	13,328
4' x 7'	Selective	Alternate Energy	AE-28	28,210	25,646	22,251	18,794	15,240	15,240
		Alternate Energy	MSC-28	28,920	26,291	22,773	19,188	15,550	15,550
		Heliodyne	336-013	26,586	24,170	20,875	17,515	14,155	14,155
		Heliodyne	406-001	28,819	26,199	22,773	19,286	15,756	15,756
4' x 8'	Paint	Alternate Energy	AE-32E	29,022	26,384	22,583	18,696	14,671	14,671
		Alternate Energy	MSC-32E	29,631	26,937	23,057	19,090	14,981	14,981
		Heliodyne	408-002	32,675	29,705	25,192	20,566	16,170	16,170
		Integrated Solar, LLC	Radco 408P-HP	24,861	22,601	18,740	14,760	11,055	11,055
		R&R	EPI-308CU (4' x 8')	30,443	27,675	23,674	19,750	15,343	15,343
		R&R	EPI-308SS (4' x 8')	30,443	27,675	23,674	19,750	15,343	15,343
		R&R	Sunpro 32	30,848	28,044	23,959	19,750	15,498	15,498
		Solene-Corona	SLCO-32P	26,891	24,446	20,590	16,630	12,812	12,812
		SunEarth	EP-32	34,704	31,550	27,517	23,419	19,269	19,269
		SunEarth	IP-32	34,502	31,365	27,327	23,222	19,114	19,114
SunEarth	SP-32	34,704	31,550	27,517	23,419	19,269	19,269		
SunEarth	SB-32	28,616	26,015	21,919	17,712	13,638	13,638		

Hawaii County Solar Collector BTU/Day Output by Sunshine Zone Table

OG-100 Protocol Format			(BTU/sq ft day)	2,030	1,845	1,661	1,476	1,292	1,107
Hawaii Sunshine Zone			(Cal/sq cm/day)	550	500	450	400	350	300
Nom. Size	Coating	Manufacturer/Brand	Model						
4' x 8'	Selective	Alternate Energy	AE-32	32,168	29,243	25,382	21,451	17,409	17,409
		Alternate Energy	MSC-32	32,979	29,981	25,999	21,943	17,771	17,771
		Heliodyne	408-001	34,704	31,550	27,422	23,222	19,011	19,011
		Heliodyne	408-013	31,965	29,059	25,097	21,058	16,944	16,944
		Integrated Solar, LLC	Radco 408C-HP	28,819	26,199	22,393	18,499	14,516	14,516
		Solene	SLCR-30	33,588	30,535	26,710	22,829	19,011	19,011
		Solene	SLCO-32	35,009	31,826	27,517	23,124	18,649	18,649
		Solene	SLCR-32	35,415	32,195	28,181	24,108	20,044	20,044
		Solene	SLAR-32	35,009	31,826	27,517	23,124	18,649	18,649
		SunEarth	EC-32	35,821	32,564	28,371	24,108	19,786	19,786
SunEarth	IC-32	35,821	32,564	28,371	24,108	19,786	19,786		
4' x 10'	Paint	Alternate Energy	AE-40E	36,125	32,841	28,134	23,321	18,339	18,339
		Alternate Energy	MSC-40E	36,835	33,487	28,655	23,714	18,649	18,649
		Alternate Energy	ST-40E	35,009	31,826	27,137	22,337	17,461	17,461
		Heliodyne	410-002	40,387	36,716	31,455	26,076	20,561	20,561
		Integrated Solar, LLC	Radco 410P-HP	31,051	28,229	23,437	18,499	13,845	13,845
		R&R	Sunpro 40	38,459	34,963	29,889	24,698	19,373	19,373
		Solene	SLCO-40P	32,675	29,705	25,002	20,172	15,550	15,550
		SunEarth	EP-40	43,228	39,299	34,301	29,225	24,022	24,022
		SunEarth	IP-40	43,228	39,299	34,254	29,126	23,970	23,970
		SunEarth	SB-40	35,922	32,657	27,564	22,337	17,151	17,151
4' x 10'	Selective	Alternate Energy	AE-40	40,184	36,531	31,644	26,666	21,646	21,646
		Alternate Energy	MSC-40	42,518	38,653	33,495	28,241	22,937	22,937
		Heliodyne	410-001	43,431	39,483	34,349	29,126	23,815	23,815
		Heliodyne	410-013	40,083	36,439	31,455	26,371	21,181	21,181
		Integrated Solar, LLC	Radco 410C-HP	36,227	32,933	28,134	23,222	18,184	18,184
		Solene	SLCO-40	43,025	39,114	33,779	28,339	22,834	22,834
		Solene	SLCR-40	44,345	40,313	35,297	30,209	25,107	25,107
		Solene	SLAR-40	43,025	39,114	33,779	28,339	22,834	22,834
		SunEarth	EC-40	44,953	40,867	35,582	30,209	24,797	24,797
		SunEarth	IC-40	44,953	40,867	35,582	30,209	24,797	24,797
4' x 12'	Paint	Integrated Solar, LLC	Radco 412P-HP	37,546	34,133	28,323	22,337	16,738	16,738
4' x 12'	Selective	Integrated Solar, LLC	Radco 412C-HP	43,736	39,760	33,969	28,044	22,007	22,007
5' X 7'	Selective	Apricus	AP-20	26,586	24,170	21,397	18,598	15,756	15,756
		Apricus	AP-22	25,978	23,616	21,017	18,401	15,705	15,705
7' x 7'	Selective	Apricus	AP-30	41,199	37,454	33,163	28,831	24,435	24,435
Notes:		1. Values for the 350 and 450 Sunshine Zones are interpolated assuming a linear relationship.							
		2. Values for the 300 Sunshine Zone equals the 350 Sunshine Zone per Section 2.02.							

TABLES 1-5. RESIDENTIAL SOLAR WATER HEATING SYSTEM STANDARDS

[04/01/00 fn:table1,3-5,7]

Effective April 1, 2000

Table 1. Minimum Water Storage for Retrofit and New Construction, Rentals, Military Family Housing

RETROFIT, OWNER BUILDER		NEW CONSTRUCTION, RENTALS, MILITARY HOUSING	
No. of Residents	Storage	No. of Bedrooms	Storage
1 to 4	80 gals.	1-3	80 gal.
4 to 5	100 gals.	4-5	120 gal.
5 to 6	120 gals.	over 5	custom
over 6	20 per person		

Table 3. Tilt Factors

Tilt (in deg.)	Add'l Collector BTU	Tilt (in deg.)	Add'l Collector BTU
14	0%	50	15%
35	0%	55	20%
40	5%	60	25%
45	10%		

Table 4. Minimum Support Structure Anchors*

No. of Collectors	Collector Size	No. of Anchors ¹
1	any size	4
2	3' x 7' or 3' x 8'	4
2	1 @ 3' x 8' and 1 @ 4' x 8'	4
2	4' x 6' or 4' x 8' or 4' x 10'	6
3	3' x 7' or 3' x 8'	6
3	2 @ 3' x 8' and 1 @ 4' x 8'	6
3	1 @ 3' x 8' and 2 @ 4' x 8'	6
3	4' x 6' or 4' x 8' or 4' x 10'	8
4	3' x 7' or 3' x 8'	8
4	2 @ 3' x 8' and 2 @ 4' x 8'	8
4	4' x 6' or 4' x 8' or 4' x 10'	10

* Applies to extruded aluminum sizes: 1 5/8 inch x 1 5/8 inch x 1/8 inch solar strut, 3 inch x 1/8 inch channel & double T, 2 inch x 2 inch x 3/16 inch angle.

Table 5. Minimum Conductor Size for PV Powered Pumps (One Way Distance)

Module Output	18 AWG	16 AWG	14 AWG	12 AWG	10 AWG	8 AWG
5 W	54 ft	109 ft	219 ft	327 ft	545 ft	>1000ft
10 W	26 ft	52 ft	104 ft	156 ft	269 ft	429 ft
20 W	n/a	26 ft	52 ft	78 ft	130 ft	208 ft
43 W	n/a	n/a	24 ft	36 ft	60 ft	96 ft

Table 7. Minimum Thermosyphon System
Tank Supports, Support Anchoring Fasteners & Tank Mounting Brackets

Tank Length	No. of Tank Supports ¹	No. of Support Fasteners ²	No. of Tank Mount Brackets ³
48" - 56"	2	4	4
69" - 75"	3	6	6
91" - 108"	4	8	8
120" - 130"	5	10	10
160"	6	12	12

- Based on typical rafter/joint spacing of 24" on center or less. Minimum support length not less than tank diameter or width.
- Minimum of 2 support fasteners per support of 5/16" diameter for direct mount method. Fasteners of sufficient length to penetrate between 1/2 and the full depth of the roof structural member.
- Tank mounting brackets shall be located on and secured to opposite sides of each tank support.

Table 2. MECO REWH Daily BTU Requirements

	Aver. Inlet H2O Temp.	Data Source	30	40	50	52	60	66	80	100	120
Kahului	74	Maui County BOWS	13,994	18,659	23,324	24,257	27,989	30,788	37,318	46,648	55,978
Wailuku	74	Maui County BOWS	13,994	18,659	23,324	24,257	27,989	30,788	37,318	46,648	55,978
Paia	74	Maui County BOWS	13,994	18,659	23,324	24,257	27,989	30,788	37,318	46,648	55,978
Kihei	74	Maui County BOWS	13,994	18,659	23,324	24,257	27,989	30,788	37,318	46,648	55,978
Maalaea	74	Maui County BOWS	13,994	18,659	23,324	24,257	27,989	30,788	37,318	46,648	55,978
Wailea	74	Maui County BOWS	13,994	18,659	23,324	24,257	27,989	30,788	37,318	46,648	55,978
Maalaea	74	Maui County BOWS	13,994	18,659	23,324	24,257	27,989	30,788	37,318	46,648	55,978
Makena	74	Maui County BOWS	13,994	18,659	23,324	24,257	27,989	30,788	37,318	46,648	55,978
Kaunakakai	74	Contractor Concensus	13,994	18,659	23,324	24,257	27,989	30,788	37,318	46,648	55,978
Lanai	74	BOWS Estimate	13,994	18,659	23,324	24,257	27,989	30,788	37,318	46,648	55,978
Kaanapali	71	Maui County BOWS	14,744	19,659	24,574	25,556	29,488	32,437	39,318	49,147	58,976
Lahaina	71	Maui County BOWS	14,744	19,659	24,574	25,556	29,488	32,437	39,318	49,147	58,976
Pukalani	69	Maui County BOWS	15,244	20,325	25,407	26,423	30,488	33,537	40,650	50,813	60,976
Makawao	69	Maui County BOWS	15,244	20,325	25,407	26,423	30,488	33,537	40,650	50,813	60,976
Haiku	69	Maui County BOWS	15,244	20,325	25,407	26,423	30,488	33,537	40,650	50,813	60,976
Hana	69	BOWS Estimate	15,244	20,325	25,407	26,423	30,488	33,537	40,650	50,813	60,976
Kalae, Molokai	69	Contractor Concensus	15,244	20,325	25,407	26,423	30,488	33,537	40,650	50,813	60,976
Lower Kula	68	Maui County BOWS	15,494	20,658	25,823	26,856	30,988	34,086	41,317	51,646	61,975
Upper Kula	64	Maui County BOWS	16,493	21,991	27,489	28,589	32,987	36,285	43,982	54,978	65,974
Olinda	64	Maui County BOWS	16,493	21,991	27,489	28,589	32,987	36,285	43,982	54,978	65,974

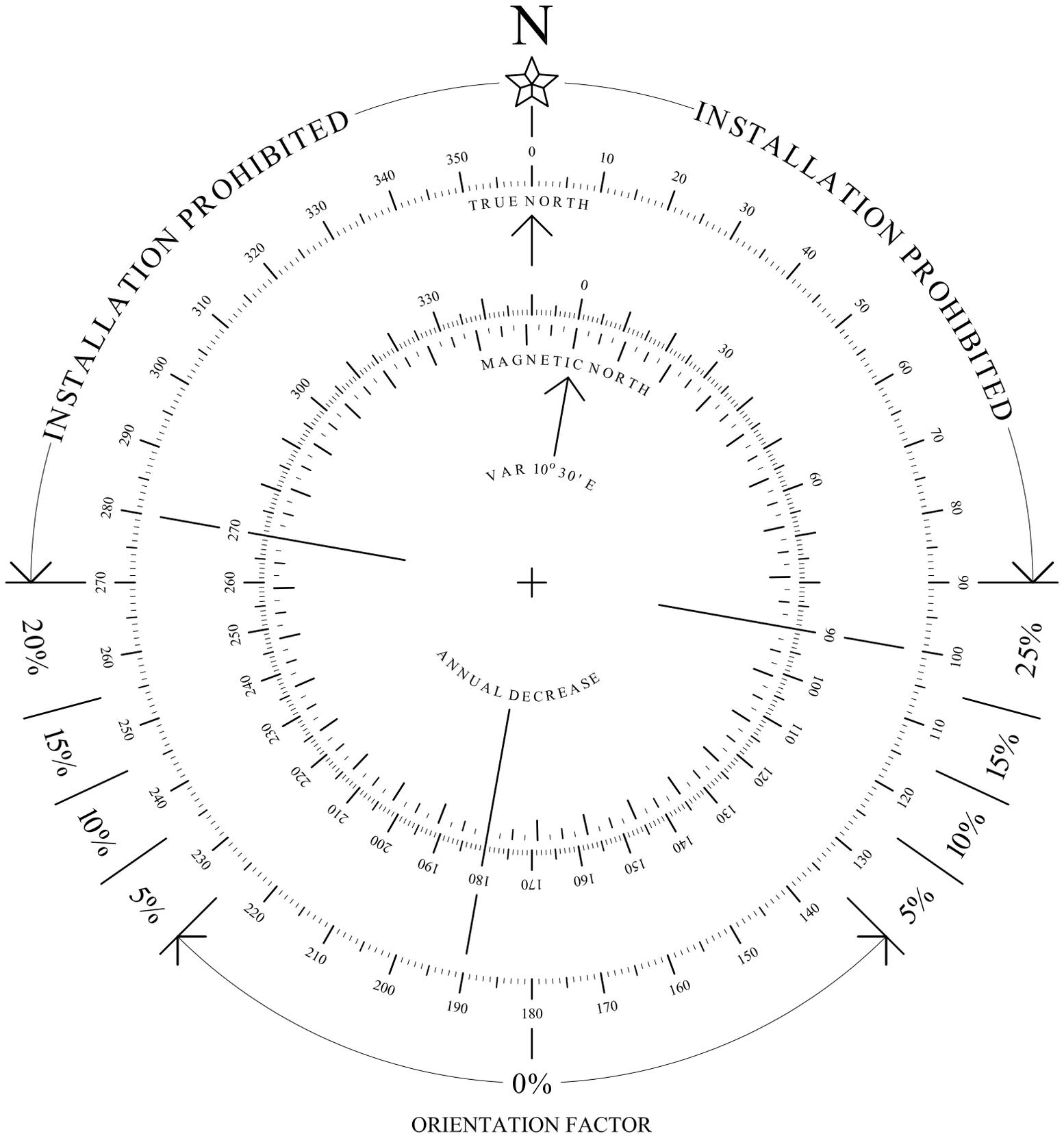
Maui County Solar Collector BTU/Day Output by Sunshine Zone Table

OG-100 Protocol Format			(BTU/sq ft day)	1,845	1,771	1,661	1,476	1,292	1,107
Hawaii Sunshine Zone			(Cal/sq cm/day)	500	480	450	400	350	300
Nom. Size	Coating	Manufacturer/Brand	Model						
3' x 7'	Paint	Alternate Energy	AE-21E	17,159	16,472	14,660	12,103	9,505	9,505
		Alternate Energy	MSC-21E	17,804	17,092	15,229	12,595	9,919	9,919
		Alternate Energy	ST-21E	17,528	16,826	14,945	12,300	9,609	9,609
		R&R	EPI-308CU (3' X 7')	18,081	17,358	15,466	12,792	10,022	10,022
		R&R	EPI-308SS (3' X 7')	18,081	17,358	15,466	12,792	10,022	10,022
		R&R	SunPro21	18,358	17,623	15,704	12,989	10,177	10,177
		Solahart	J Collector	19,926	19,129	17,032	14,071	11,055	11,055
		Solahart	L Collector	14,207	13,638	11,813	9,348	7,077	7,077
		SunEarth	EP-21	19,742	18,952	17,222	14,662	12,037	12,037
3' x 7'	Selective	Alternate Energy	AE-21	19,096	18,332	16,558	13,973	11,314	11,314
		Alternate Energy	MSC-21	19,742	18,952	17,127	14,465	11,727	11,727
		Apricus Solar	AP-10	10,609	10,184	9,441	8,266	7,077	7,077
		Solahart	Bt	21,310	20,457	18,408	15,449	12,347	12,347
		Solahart	Kf	21,402	20,546	18,645	15,842	12,967	12,967
		Solahart	M Collector	17,251	16,561	14,802	12,300	9,815	9,815
		SunEarth	EC-21	20,572	19,749	17,886	15,154	12,450	12,450
3' x 8'	Paint	Alternate Energy	AE-24E	19,649	18,863	16,842	13,973	11,004	11,004
		Alternate Energy	MSC-24E	20,111	19,306	17,222	14,268	11,210	11,210
		Integrated Solar, LLC	Radco 308P-HP	16,513	15,852	13,711	10,824	8,111	8,111
		R&R	EPI-308CU (3' x 8')	20,572	19,749	17,601	14,563	11,417	11,417
		R&R	EPI-308SS (3' x 8')	20,572	19,749	17,601	14,563	11,417	11,417
		R&R	SunPro24	20,941	20,103	17,886	14,760	11,572	11,572
		SunEarth	EP-24	23,155	22,229	20,163	17,122	14,052	14,052
		SunEarth	IP-24	22,970	22,051	20,021	17,023	13,948	13,948
		SunEarth	SB-24	19,096	18,332	16,083	12,989	9,970	9,970
3' x 8'	Selective	Alternate Energy	AE-24	21,863	20,989	18,930	15,941	12,915	12,915
		Alternate Energy	MSC-24	22,509	21,609	19,499	16,433	13,328	13,328
		Integrated Solar, LLC	Radco 308C-HP	19,280	18,509	16,463	13,579	10,642	10,642
		SunEarth	EC-24	23,985	23,026	20,875	17,712	14,516	14,516
		SunEarth	IC-24	23,985	23,026	20,875	17,712	14,516	14,516
4' x 6'	Paint	Alternate Energy	AE-26E	20,941	20,103	17,933	14,858	11,675	11,675
		Alternate Energy	MSC-26E	21,402	20,546	18,313	15,154	11,933	11,933
4' x 6'	Selective	Alternate Energy	AE-26	23,247	22,317	20,163	17,023	13,793	13,793
		Alternate Energy	MSC-26	23,801	22,848	20,638	17,417	14,155	14,155
		Solene	SLCO-30	24,446	23,468	21,112	17,712	14,258	14,258
		Solene	SLAR-30	24,446	23,468	21,112	17,712	14,258	14,258
4' x 7'	Paint	Alternate Energy	AE-28E	23,155	22,229	19,831	16,433	12,915	12,915
		Alternate Energy	MSC-28E	23,616	22,671	20,211	16,728	13,173	13,173
		Heliodyne	406-002	24,262	23,291	20,685	17,023	13,328	13,328
4' x 7'	Selective	Alternate Energy	AE-28	25,646	24,620	22,251	18,794	15,240	15,240
		Alternate Energy	MSC-28	26,291	25,240	22,773	19,188	15,550	15,550
		Heliodyne	336-013	24,170	23,203	20,875	17,515	14,155	14,155
		Heliodyne	406-001	26,199	25,151	22,773	19,286	15,756	15,756
4' x 8'	Paint	Alternate Energy	AE-32E	26,384	25,328	22,583	18,696	14,671	14,671
		Alternate Energy	MSC-32E	26,937	25,860	23,057	19,090	14,981	14,981
		Heliodyne	408-002	29,705	28,516	25,192	20,566	16,170	16,170
		Integrated Solar, LLC	Radco 408P-HP	22,601	21,697	18,740	14,760	11,055	11,055
		R&R	EPI-308CU (4' x 8')	27,675	26,568	23,674	19,750	15,343	15,343
		R&R	EPI-308SS (4' x 8')	27,675	26,568	23,674	19,750	15,343	15,343
		R&R	Sunpro 32	28,044	26,922	23,959	19,750	15,498	15,498
		Solene-Corona	SLCO-32P	24,446	23,468	20,590	16,630	12,812	12,812
		SunEarth	EP-32	31,550	30,288	27,517	23,419	19,269	19,269
		SunEarth	IP-32	31,365	30,110	27,327	23,222	19,114	19,114
		SunEarth	SP-32	31,550	30,288	27,517	23,419	19,269	19,269
		SunEarth	SB-32	26,015	24,974	21,919	17,712	13,638	13,638

Maui County Solar Collector BTU/Day Output by Sunshine Zone Table

OG-100 Protocol Format			(BTU/sq ft day)	1,845	1,771	1,661	1,476	1,292	1,107
Hawaii Sunshine Zone			(Cal/sq cm/day)	500	480	450	400	350	300
Nom. Size	Coating	Manufacturer/Brand	Model						
4' x 8'	Selective	Alternate Energy	AE-32	29,243	28,074	25,382	21,451	17,409	17,409
		Alternate Energy	MSC-32	29,981	28,782	25,999	21,943	17,771	17,771
		Heliodyne	408-001	31,550	30,288	27,422	23,222	19,011	19,011
		Heliodyne	408-013	29,059	27,896	25,097	21,058	16,944	16,944
		Integrated Solar, LLC	Radco 408C-HP	26,199	25,151	22,393	18,499	14,516	14,516
		Solene	SLCR-30	30,535	29,313	26,710	22,829	19,011	19,011
		Solene	SLCO-32	31,826	30,553	27,517	23,124	18,649	18,649
		Solene	SLCR-32	32,195	30,907	28,181	24,108	20,044	20,044
		Solene	SLAR-32	31,826	30,553	27,517	23,124	18,649	18,649
		SunEarth	EC-32	32,564	31,262	28,371	24,108	19,786	19,786
SunEarth	IC-32	32,564	31,262	28,371	24,108	19,786	19,786		
4' x 10'	Paint	Alternate Energy	AE-40E	32,841	31,527	28,134	23,321	18,339	18,339
		Alternate Energy	MSC-40E	33,487	32,147	28,655	23,714	18,649	18,649
		Alternate Energy	ST-40E	31,826	30,553	27,137	22,337	17,461	17,461
		Heliodyne	410-002	36,716	35,247	31,455	26,076	20,561	20,561
		Integrated Solar, LLC	Radco 410P-HP	28,229	27,099	23,437	18,499	13,845	13,845
		R&R	Sunpro 40	34,963	33,564	29,889	24,698	19,373	19,373
		Solene	SLCO-40P	29,705	28,516	25,002	20,172	15,550	15,550
		SunEarth	EP-40	39,299	37,727	34,301	29,225	24,022	24,022
		SunEarth	IP-40	39,299	37,727	34,254	29,126	23,970	23,970
		SunEarth	SB-40	32,657	31,350	27,564	22,337	17,151	17,151
4' x 10'	Selective	Alternate Energy	AE-40	36,531	35,070	31,644	26,666	21,646	21,646
		Alternate Energy	MSC-40	38,653	37,107	33,495	28,241	22,937	22,937
		Heliodyne	410-001	39,483	37,904	34,349	29,126	23,815	23,815
		Heliodyne	410-013	36,439	34,981	31,455	26,371	21,181	21,181
		Integrated Solar, LLC	Radco 410C-HP	32,933	31,616	28,134	23,222	18,184	18,184
		Solene	SLCO-40	39,114	37,549	33,779	28,339	22,834	22,834
		Solene	SLCR-40	40,313	38,701	35,297	30,209	25,107	25,107
		Solene	SLAR-40	39,114	37,549	33,779	28,339	22,834	22,834
		SunEarth	EC-40	40,867	39,232	35,582	30,209	24,797	24,797
		SunEarth	IC-40	40,867	39,232	35,582	30,209	24,797	24,797
4' x 12'	Paint	Integrated Solar, LLC	Radco 412P-HP	34,133	32,767	28,323	22,337	16,738	16,738
4' x 12'	Selective	Integrated Solar, LLC	Radco 412C-HP	39,760	38,169	33,969	28,044	22,007	22,007
5' X 7'	Selective	Apricus	AP-20	24,170	23,203	21,397	18,598	15,756	15,756
		Apricus	AP-22	23,616	22,671	21,017	18,401	15,705	15,705
7' x 7'	Selective	Apricus	AP-30	37,454	35,955	33,163	28,831	24,435	24,435
Notes:	1. Values for the 350 and 450 Sunshine Zones are interpolated assuming a linear relationship.								
	2. Values for the 300 Sunshine Zone equals the 350 Sunshine Zone per Section 2.02.								

Chart 1



COMPASS ROSE DIAGRAM COURTESY OF HAWAII ELECTRIC LIGHT COMPANY

HAWAII ENERGY SOLAR WATER HEATING SYSTEMS ACCEPTED PRODUCTS LIST

COLLECTORS						
Manufacturer	Brand Name	Model No.	Type	Absorber Coating		
Alternate Energy Technologies	Alternate Energy	AE-21	Flat Plate	Black Chrome		
		AE-24	Flat Plate	Black Chrome		
		AE-26	Flat Plate	Black Chrome		
		AE-28	Flat Plate	Black Chrome		
		AE-32	Flat Plate	Black Chrome		
		AE-40	Flat Plate	Black Chrome		
	American Energy	AE-21E	Flat Plate	Selective Paint		
		AE-24E	Flat Plate	Selective Paint		
		AE-26E	Flat Plate	Selective Paint		
		AE-28E	Flat Plate	Selective Paint		
		AE-32E	Flat Plate	Selective Paint		
		AE-40E	Flat Plate	Selective Paint		
		Morning Star	Morning Star	MSC-21	Flat Plate	Black Chrome
				MSC-24	Flat Plate	Black Chrome
MSC-26	Flat Plate			Black Chrome		
MSC-28	Flat Plate			Black Chrome		
MSC-32	Flat Plate			Black Chrome		
MSC-40	Flat Plate			Black Chrome		
Morning Star	MSC-21E		Flat Plate	Selective Paint		
	MSC-24E		Flat Plate	Selective Paint		
	MSC-26E		Flat Plate	Selective Paint		
	MSC-28E		Flat Plate	Selective Paint		
Star Fire	Star Fire	ST-21E	Flat Plate	Selective Paint		
		ST 40E	Flat Plate	Selective Paint		
Corona		SLCO-30 (4'x6')	Flat Plate	Black Chrome		
		SLCO-32 (4'x8')	Flat Plate	Black Chrome		
		SLCO-40 (4'x10')	Flat Plate	Black Chrome		
Chromagen		SLCR-30 (4'x6')	Flat Plate	Black Chrome		
		SLCR-32 (4'x8')	Flat Plate	Black Chrome		
		SLCR-40 (4'x10')	Flat Plate	Black Chrome		
Heliodyne	Gobi	336 013	Flat Plate	Black Chrome		
		406 001	Flat Plate	Selective		
		406 002	Flat Plate	Black Chrome		
		408 001	Flat Plate	Selective		
		408 002	Flat Plate	Black Paint		
		408 013	Flat Plate	Black Chrome		
		410 001	Flat Plate	Selective		
		410 002	Flat Plate	Black Paint		
		410 013	Flat Plate	Black Chrome		
R & R Services	Copper Star 21	EPI-308CU (3'x7')	Flat Plate	Black Paint		
		EPI-308CU (3'x8')	Flat Plate	Black Paint		
		EPI-308CU (4'x8')	Flat Plate	Black Paint		
	Sunlast 21	EPI-308SS (3'x7')	Flat Plate	Black Paint		
		EPI-308SS (3'x8')	Flat Plate	Black Paint		
		EPI-308SS (4'x8')	Flat Plate	Black Paint		
	Sunpro 21	Sunpro 21	Flat Plate	Black Paint		
		Sunpro 24	Flat Plate	Black Paint		
		Sunpro 32	Flat Plate	Black Paint		
		Sunpro 40	Flat Plate	Black Paint		
	Radco Products, Inc.	Radco	308C-HP	Flat Plate	Black Chrome	
			408C-HP	Flat Plate	Black Chrome	
410C-HP			Flat Plate	Black Chrome		
412C-HP			Flat Plate	Black Chrome		
308P-HP			Flat Plate	Black Paint		
408P-HP			Flat Plate	Black Paint		
410P-HP			Flat Plate	Black Paint		
412-P-HP			Flat Plate	Black Paint		

HAWAII ENERGY SOLAR WATER HEATING SYSTEMS ACCEPTED PRODUCTS LIST

COLLECTORS (cont.)				
Manufacturer	Brand Name	Model No.	Type	Absorber Coating
Solahart	Solahart	Bt Collector	Flat Plate	Selective
		J Collector	Flat Plate	Black Paint
		K Collector	Flat Plate	Black Chrome
		L Collector	Flat Plate	Black Paint
		M Collector	Flat Plate	Black Chrome
SunEarth	Empire	EC-21	Flat Plate	Black Chrome
		EC-24	Flat Plate	Black Chrome
		EC-32	Flat Plate	Black Chrome
		EC-40	Flat Plate	Black Chrome
	Empire	EP-20	Flat Plate	Black Paint
		EP-21	Flat Plate	Black Paint
		EP-24	Flat Plate	Black Paint
		EP-32	Flat Plate	Black Paint
		EP-40	Flat Plate	Black Paint
	Imperial	IC-32	Flat Plate	Black Chrome
		IC-40	Flat Plate	Black Chrome
	Imperial	IP-40	Flat Plate	Black Paint
	SolarStar	SSC-32	Flat Plate	Black Chrome
		SSC-40	Flat Plate	Black Chrome
	SolarStar	SSP-21	Flat Plate	Black Paint
SSP-24		Flat Plate	Black Paint	
SSP-32		Flat Plate	Black Paint	
SSP-40		Flat Plate	Black Paint	
Sunbelt	SB-24	Flat Plate	Black Paint	
	SB-32	Flat Plate	Black Paint	
	SB-40	Flat Plate	Black Paint	
SunWise	SC-32	Flat Plate	Black Chrome	
	SC-40	Flat Plate	Black Chrome	
SunWise	SP-24	Flat Plate	Black Paint	
	SP-32	Flat Plate	Black Paint	
	SP-40	Flat Plate	Black Paint	
Solene	Solene	SLCO-32P	Flat Plate	Black Paint
		SLCO-40P	Flat Plate	Black Paint
		SLAR-30	Flat Plate	Black Chrome
		SLAR-32	Flat Plate	Black Chrome
		SLAR-40	Flat Plate	Black Chrome
Solar Skies	Solar Skies	SS-21	Flat Plate	Selective
		SS-24	Flat Plate	Selective
		SS-26	Flat Plate	Selective
		SS-28	Flat Plate	Selective
		SS-32	Flat Plate	Selective
		SS-40	Flat Plate	Selective

HAWAII ENERGY SOLAR WATER HEATING SYSTEMS ACCEPTED PRODUCTS LIST

STORAGE TANKS & HEATERS					
Manufacturer	Brand Name	Model No.	Type	Heating Element	
A.O. Smith	ProMax	SUN-80	Open Storage	yes	
		SUN-120	Open Storage	yes	
American	Solar Storage Tanks	SE62-80H-45S	Open Storage	yes	
		SE62-119R-45S	Open Storage	yes	
Bradford White	Solar Saver	MS65R6 (SS)	Open Storage	yes	
		MS80R6 (SS)	Open Storage	yes	
		MS120R6 (SS)	Open Storage	yes	
Lochinvar Corp	SunSaver	FTA066-K	Open Storage	yes	
		FTA-082-K	Open Storage	yes	
		FTA-120-K	Open Storage	yes	
		FTS-066	Open Storage	no	
		FTS-082	Open Storage	no	
		FTS-120	Open Storage	no	
Radco Products Inc.	Copper SunSation	CSS-60	Heat Exchange	no	
		CSS-80	Heat Exchange	no	
		CSS-100	Heat Exchange	no	
Rheem	Solaraide	81VR80-1	Open Storage	yes	
		81VR120-1	Open Storage	yes	
		81VR80-T	Open Storage	no	
		81VR120-T	Open Storage	no	
Richmond	Solar Model	S80-1	Open Storage	yes	
		S120-1	Open Storage	yes	
		S80TC-1	Open Storage	yes	
		S120TC-1	Open Storage	yes	
Ruud	Solar Servant	RSPER80-1	Open Storage	yes	
		RSPER120-1	Open Storage	yes	
		RSPER80-T	Open Storage	no	
		RSPER120-T	Open Storage	no	
	Solar Servant TC	RSTCR80-1	Open Storage	yes	
		RSTCR120-1	Open Storage	yes	
		RSTCR80-T	Open Storage	no	
		RSTCR120-T	Open Storage	no	
Solahart Industries	Solahart	150 J	Closed Storage	yes	
		180 J	Closed Storage	yes	
		220 J	Closed Storage	yes	
		300 J	Closed Storage	yes	
		440 J	Closed Storage	yes	
Solahart Industries	Solahart	150 K	Closed Storage	yes	
		180 K	Closed Storage	yes	
		220 K	Closed Storage	yes	
		300 K	Closed Storage	yes	
		440 K	Closed Storage	yes	
		180KF	Closed Storage	yes	
		220KF	Closed Storage	yes	
		440KF	Closed Storage	yes	
		Solahart	150 KBCXII	Closed Storage	yes
			180 KBCXII	Closed Storage	yes
	220 KBCXII		Closed Storage	yes	
			300 KBCXII	Closed Storage	yes
			440 KBCXII	Closed Storage	yes

HAWAII ENERGY SOLAR WATER HEATING SYSTEMS ACCEPTED PRODUCTS LIST

STORAGE TANKS & HEATERS (cont')				
Manufacturer	Brand Name	Model No.	Type	Heating Element
	Solahart	150 L	Open Storage	yes
		180 L	Open Storage	yes
		220 L	Open Storage	yes
		300 L	Open Storage	yes
		440 L	Open Storage	yes
	Solahart	150 LX	Open Storage	yes
		180 LX	Open Storage	yes
		220 LX	Open Storage	yes
		300 LX	Open Storage	yes
		440 LX	Open Storage	yes
	Solahart	252 SL	Open Storage	yes
		303 SL	Open Storage	yes
	Solahart	270SL2USA	Closed Storage	yes
		340SL4USA	Closed Storage	yes
		430SL4USA	Closed Storage	yes
Solar Edwards	Edwards	DES125 (42 gal.)	Open Storage	yes
		DES250 (80 gal.)	Open Storage	yes
		DES 350 (92 gal.)	Open Storage	yes
	Edwards	L180 (48 gal.)	Open Storage	yes
		L305 (80 gal.)	Open Storage	yes
		L440 (116 gal.)	Open Storage	yes
		L600 (160 gal.)	Open Storage	yes
State Industries	State	SBV-66-10TS	Open Storage	yes
		SBV-82-10TS	Open Storage	yes
		OST-66-E	Open Storage	yes
		OST-80-E	Open Storage	yes
		OST-120-E	Open Storage	yes
SunEarth	SunEarth	SU80-1	Open Storage	Yes
		SU120-1	Open Storage	Yes
CIRCULATING PUMPS				
Manufacturer	Brand Name	Model No.	Type	
Bell & Gossett	Bronze Fox	NBF-8S/LS	AC	
		NBF-9U/LW	AC	
		NBF-10S/LW	AC	
		NBF-12U/LW	AC	
		NBF-12F/LW	AC	
		NBF-18S	AC	
		NBF-22U	AC	
Grundfos	Grundfos	UM15-10B5	AC	
		UM15-10B7	AC	
		UP15-18SU	AC	
		UP15-29SU	AC	
		UP15-29SU/LC	AC	
		UP15-35SUC	AC	
		UPS15-35SUC	AC	
		UPS15-35SFC	AC	
		UP15-42SU	AC	
		UP15-18SF	AC	
		UP15-42SF	AC	
		UP15-18B5	AC	
		UP15-42B5	AC	
		UP15-18B7	AC	
		UP15-42B7	AC	
		UP25-64SU	AC	
		UP25-64SF	AC	
		UP26-96BF	AC	
		UP26-99BF	AC	
		UP43-75BF	AC	
		UPS15-58	AC	

HAWAII ENERGY SOLAR WATER HEATING SYSTEMS ACCEPTED PRODUCTS LIST

CIRCULATING PUMPS (cont')				
Manufacturer	Brand Name	Model No.	Type	
Hartell	Brushless	MD-10-HEH	DC	
Hartell	Brush	MD-3-DCL	DC	
		MD-10-DCH	DC	
Ivan Labs Inc.	El Sid	2W2RD331200	DC	
		2W2RD341500	DC	
		2W2RD31730	DC	
Laing Thermotech	pump	SM-303-BS	AC	
	pump	SM-303-BT	AC	
	pump	SM-909-BS-14	AC	
	pump	SM-909-BT-14	AC	
	ecocirc solar	720 B	DC	
	ecocirc solar	090 B	DC	
	ecocirc	D5-38/710B	DC	
	ecocirc	D5-38/720B	DC	
	ecocirc	D5-38/090B	DC	
	ecocirc solar	D5 solar 710B	DC	
	ecocirc solar	D5 solar 720B	DC	
	ecocirc solar	D5 solar 090B	DC	
March Manufacturing	March	809	AC/DC	
		809HS	AC/DC	
		815	AC	
		821	AC	
		830	AC	
Taco	Taco	#006B	AC	
		#006-BC7-11FC	AC	
		#006-BC7-IFC	AC	
		#007B	AC	
		#008B	AC	
		#009B	AC	
		#010B	AC	
		00-VT series	AC	
PUMP CONTROLLERS				
Manufacturer	Brand Name	Model No.	Type	
Heliotrope Thermal	Delta-T	DTT-84	AC	
		DTT-94	AC	
		DLTA-Pro	AC	
Goldline Controls	Goldline	GL-30	AC	
		GL-30-LCO	AC	
Sun Earth	Sun Earth	SETR 0301 U	AC	
PHOTOVOLTAIC MODULES				
Manufacturer	Brand Name	Model No.	Type	
Alternative Energy Engineering		AE-5G	DC	
		AE-10G	DC	
		AE-20G	DC	
BP Solar, Inc.	BP Solar	BP SX 10	DC	
		BP SX 20	DC	
Inter-Island Solar Supply	Inter-Island Solar	JM-10	DC	
		YL-10	DC	
		JM-20	DC	
		YL-20	DC	
Power-Up Solar, Inc.	Power-Up	PowerUp 10 (BSP-1012)	DC	
		PowerUp 20 (BSP-2012)	DC	

HAWAII ENERGY SOLAR WATER HEATING SYSTEMS ACCEPTED PRODUCTS LIST

PHOTOVOLTAIC MODULES (cont')				
Manufacturer	Brand Name	Model No.	Type	
Shell Solar	Shell Solar	ST5	DC	
		ST10	DC	
		ST20		
Solartech Power, Inc.	Solartech Power, Inc.	SPM010P	DC	
SunWize	SunWize	OEM10	DC	
		OEM20	DC	
Yingli Solar	Yingli Solar	YL10	DC	
		YL20	DC	
Solartech Power Inc		SPM010P (10W)	DC	
		SPM020P (20W)	DC	
TIME SWITCHES				
Manufacturer	Brand Name	Model No.	Type	
BRK Electronics Inc.	BRK Electronics	TS212	AC	
		TS212M	AC	
		TS212R	AC	
		TS212RP	AC	
Intermatic Inc.	Intermatic	WH40	AC	
		EH10	AC	
		EH40	AC	
		T104	AC	
M.H. Rhodes	Marktime	72133 AB	AC	
Paragon Electric		4004-71	AC	
		4014-71P	AC	
		EC-4005	AC	
		P104	AC	
		P104P	AC	
		P104PC	AC	
		P104-S	AC	
		P104P-S	AC	
Solahart	Solar Optimiser	TEK 414	DC	
		TEK 415	AC	
PIPING INSULATION				
Manufacturer	Brand Name	Model No.	Type	
Aeroflex International	Aerocel	AC5812	1/2" wall min.	
		AC7812	1/2" wall min.	
Aramcell LLC	AP Armaflex	AP Armaflex	1/2" wall min.	
Bridging China Int'l	Solar Flex	MMAC 05812	1/2" wall min.	
		MMAC 07812	1/2" wall min.	
Mueller Industries	Streamline	CT-98	1/2" wall min.	
Nomaco K-Flex	FlexTherm	Pipe Insulation	1/2" wall min.	
	Insul-Tube	Insul-Tube 180	1/2" wall min.	

HAWAII ENERGY SOLAR WATER HEATING SYSTEMS ACCEPTED PRODUCTS LIST

VALVES				
Manufacturer	Brand Name	Model No.	Type	Description
American Valve	American Valve	M100	Bronze	Ball Valve
		M100S	Bronze	Ball Valve
Arrowhead Brass	Arrowhead Brass	220	Brass	Boiler Drain
		221	Brass	Boiler Drain
		222	Brass	Boiler Drain
		223	Brass	Boiler Drain
	Arrowhead Brass	251	Brass	Hose Bib
		253	Brass	Hose Bib
		351	Brass	Hose Bib
		353	Brass	Hose Bib
B&K Industries	B&K Industries	107-403HC	Brass	Ball Valve
		107-404HC	Brass	Ball Valve
		107-453HC	Brass	Ball Valve
		107-454HC	Brass	Ball Valve
	B&K Industries	101-003	Brass	Swing Check Valve
		101-004	Brass	Swing Check Valve
		101-503	Brass	Swing Check Valve
		101-504	Brass	Swing Check Valve
	B&K Industries	102-003	Brass	Boiler Drain
		102-004	Brass	Boiler Drain
		102-003HC	Brass	Boiler Drain
		102-004HC	Brass	Boiler Drain
	B&K Industries	103-023HC	Brass	Hose Bibb
		103-024HC	Brass	Hose Bibb
	ProLine	101-203	Bronze	Swing Check "Y"
		101-204	Bronze	Swing Check "Y"
		101-703	Bronze	Swing Check "Y"
		101-704	Bronze	Swing Check "Y"
	ProLine	102-703	Brass	Boiler Drain
		102-704	Brass	Boiler Drain
Cash Acme	Cash Acme	#8316	Bronze	Temp./ Press. Relief
Erie Mfg. Company	Motortrol	#0654C0307GB00	Electric	Motorized Check Valve
Familian Northwest Inc	FNW Valve	FV 12 420	Brass	Ball Valve
		FV 34 420	Brass	Ball Valve
		FV 12 421	Brass	Ball Valve
		FV 34 421	Brass	Ball Valve
	FNW	Figure 411	Brass	Ball Valve
Grundfos	Grundfos	519852	Bronze	Flange Isolation Valve
Guardian	Guardian	16-202-125	Bronze	Press. Relief
Hammond Valve	Hammond	#8201	Brass	Ball Valve
		#8211	Brass	Ball Valve
Heliodyne	Heliodyne	UWM KR-1-11.5	Combo	Ball/Check/Temp.
Mueller Industries	Streamline	M420012	Brass / Bronze	Boiler Drain
		M420034	Brass / Bronze	Boiler Drain
		S210012	Brass / Bronze	Ball Valve
		S210034	Brass / Bronze	Ball Valve
Nibco Inc.	Nibco	S-413	Bronze	Check Valve
		T-413	Bronze	Check Valve
		T-580	Bronze	Ball Valve
		T-585	Bronze	Ball Valve

HAWAII ENERGY SOLAR WATER HEATING SYSTEMS ACCEPTED PRODUCTS LIST

VALVES (cont')				
Manufacturer	Brand Name	Model No.	Type	Description
Premier	Premier	#252259	Brass	Ball Valve
Red-White Valve Corp.	Red-White	#247	Bronze	Check Valve
		5044F	Brass	Ball Valve
		5049F	Brass	Ball Valve
Solar Edwards	RMC	HT575	Brass	Temp. / Press. Relief
		HT748	Brass	Temp. / Press. Relief
SunEarth	SunEarth	B-6001-Y111	Bronze	Ball Valve
Taco	Taco	258-2	Bronze	Isolation Valve
Watts Regulator	Watts	No. 3L-Z9	Bronze	Press. Relief
		No. 53L	Bronze	Press. Relief
		FBV-1	Brass	Ball Valve
		FBVS-1	Brass	Ball Valve
	Blue Ribbon	No. 100XL	Bronze	Temp./ Press. Relief
		Series CVY	Brass	Check Valves
		Series CVYS	Brass	Check Valves
		Series B-6000	Bronze	Ball Valve
		Series B-6001	Bronze	Ball Valve
		WBV	Brass	
		WBVS	Brass	
Webstone	Webstone	5061 Series	Brass	
		5067 Series	Brass	
		4170 Series	Brass	
		5170 Series	Brass	
Zurn/Wilkins	Zurn/Wilkins	TP1100A	Bronze	Temp./ Press. Relief
TEMPERATURE GAUGES				
Manufacturer	Brand Name	Model No.	Type	
Blue Ribbon	Blue Ribbon	BRHW	Bi-Metal	
Clifton Industrial	Clifton	I3-2-06-03	Bi-Metal	
		I3-2-06-04	Bi-Metal	
		A4-2-06-03	Bi-Metal	
		A4-2-06-04	Bi-Metal	
		#71226	Bi-Metal	
Dasco	Dasco	H221A	Bi-Metal	
Heliotrope General	Two-Temp Quadra-Temp	Two-Temp Quadra-Temp	Electronic Electronic	
Goldline Controls	Goldline	TD-GL	Electronic	
Grainger	Taylor	9940-10	Digital Panel Thermometer	
Letro Products, Inc.	Letro	SL2DW	Bi-Metal	
		SL2DW3	Bi-Metal	
Pasco	Pasco	1449	Bi-Metal	
		1449-C	Bi-Metal	
		1450	Bi-Metal	
		1450-W	Bi-Metal	
		1455	Bi-Metal	
		1457	Bi-Metal	
Winter's Thermogauges		T100	Industrial 9IT	
		T174	Bi-Metal	
		T30040	Bi-Metal	
		T30060	Bi-Metal	
		T31060	Bi-Metal	

Milestone Funding Request - Sample

Table 1	Number of Clients	Number OCS Pays For	Payment Amount per Milestone	Funding Request
Milestone 1	400	400	\$100	40000
Milestone 2	250	400	\$400	100000
Milestone 3				
Solar Water Heaters – 120 gal	210	360	\$6200	1302000
Solar Water Heater – 80 gal	40	40	\$5200	208000
CFL retrofits	6000	10000	\$5	30000
Milestone 4	250	400	\$75	18750
Milestone 5	250	400	\$350	87500
Milestone 6	250	400	\$350	87500
Total				1837750

Milestone Funding Request

Table 1	Number of Clients/Energy Measures	Number OCS Pays For	Payment Amount per Milestone	Funding Request
Milestone 1		400	\$100	
Milestone 2		400	\$400	
Milestone 3				
Solar Water Heaters – 120 gal		360		
Solar Water Heater – 80 gal		40		
CFL retrofits		10000		
Milestone 4		400	\$75	
Milestone 5		400	\$350	
Milestone 6		400	\$350	
Total				