



December 5, 2005

William A. Bonnet
Vice President
Government & Community Affairs

The Honorable Chairman and Members of
the Hawaii Public Utilities Commission
465 South King Street
Kekuaanoa Building, 1st Floor
Honolulu, Hawaii 96813

Dear Commissioners:

Subject: Docket No. 05-0069
Energy Efficiency Docket

This is to request Commission approval of modifications to HECO's existing energy efficiency demand-side management ("DSM") programs, and also approval of a new interim DSM program, collectively referred to as HECO's "Interim DSM Proposals".

The proposed program modifications, described below, are to HECO's Commercial and Industrial Energy Efficiency Program ("CIEE"), Docket No. 94-0012, Commercial and Industrial Customized Rebate Program ("CICR"), Docket No. 94-0011 and Commercial and Industrial New Construction Program ("CINC"), Docket No. 94-0010. The proposed new DSM program is the Interim Energy Solutions for the Home Program ("Interim E\$H"), described below.

The Interim DSM Proposals are necessary in order to provide HECO with additional megawatts ("MW") of peak demand savings in order to help address its current reserve capacity situation.¹ HECO is requesting approval of its Interim DSM Proposals in order to help address the reserve capacity shortfall cited in its 2005 Adequacy of Supply report, thereby achieving additional peak load reductions pending the completion of the Energy Efficiency Docket. Implementation of accelerated DSM initiatives can help mitigate the shortfall by lowering the peak demand that HECO's units and independent power producer generators need to serve and by increasing the reserve margin. The Interim DSM Proposals also offer enhanced energy savings opportunities to HECO's residential and commercial and industrial customers, and are a natural transition to the expanded portfolio of DSM programs that HECO is proposing in the subject proceeding.

¹ HECO's current reserve capacity situation is addressed in Exhibit C.

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Background on
HECO's DSM Programs

HECO's five existing energy efficiency DSM programs (CIEE, CICR, CINC, Residential Efficient Water Heating ("REWH") Program, Docket No. 94-0206, and Residential New Construction ("RNC") Program, Docket No. 94-0216, were approved by the Commission in 1996 for an initial five-year program implementation period .

In May 2000, HECO filed an application for a five-year Commercial and Industrial Demand-Side Management Program, Docket No. 00-0169 ("C&I DSM Program"). The C&I DSM Program proposed to consolidate the measures of HECO's then existing three commercial and industrial DSM programs (CIEE, CICR and CINC).

In June 2000, HECO filed an application for a five-year Residential Demand-Side Management Program, Docket No. 00-0209 ("Residential DSM Program"). The Residential DSM Program proposed to consolidate the measures of HECO's then existing two residential DSM programs (REWH and RNC).

Following the filing of Statements of Position in June 2001 in Docket Nos. 00-0169 and 00-0209, the parties to the proceedings entered into stipulations in October 2001. In Order Nos. 19019 and 19020, filed November 15, 2001 in Docket Nos. 00-0169 and 00-0209, respectively, the Commission approved the parties' stipulations, subject to certain conditions and modifications.

Order Nos. 19019 and 19020 stated, in relevant part, that:

- HECO may temporarily continue its three existing commercial and industrial DSM programs and its two existing residential DSM programs until HECO's next rate case (which HECO commits to file within three years using a 2003 or 2004 test year),
- HECO may continue to recover through its existing surcharge mechanism the DSM program costs, lost margins and shareholder incentives for its three existing commercial and industrial DSM programs and its two existing residential DSM programs accrued through the date that interim rates are established in HECO's next rate case, and
- HECO's three existing commercial and industrial DSM programs and its two existing residential DSM programs will end as part of HECO's next rate case, and any new DSM programs to be in place after HECO's next rate case will be determined as part of that case.

In August 2003, the parties to HECO's DSM Programs entered into stipulations to delay the filing of HECO's rate case by approximately 12 months such that HECO would utilize a 2005 test year, Docket Nos. 00-0169 and 00-0209, respectively. In Order Nos. 20391 and 20392, filed August 26, 2003 in Docket Nos. 00-0169 and 00-0209, respectively, the Commission approved the parties' stipulations.

On November 12, 2004, HECO filed its 2005 test year rate case application, Docket No. 04-0113. Included in its rate case application, HECO requested Commission approval and inclusion in base rates for its five existing energy efficiency DSM programs, in modified and/or enhanced form, two new energy efficiency programs (Energy Solutions for the Home and Residential Low Income), and two existing load management programs (the Residential Direct



Load Control (“RDLC”) Program and the Commercial and Industrial Direct Load Control (“CIDLC”) Program).²

On March 16, 2005 the Commission issued Order No. 21698, bifurcating the rate case and separating the DSM programs into the subject Energy Efficiency Docket, Docket No. 05-0069. In Order No. 21698, which opened the Energy Efficiency Docket, the Commission allowed “HECO to temporarily continue, in the manner currently employed, its existing two (2) residential DSM programs, approved in Docket Nos. 94-0206 and 94-0216 and continued in Docket No. 00-0209, and three (3) C&I DSM programs, approved in Docket Nos. 94-0010, 94-0011, and 94-0012 and continued in Docket No. 00-0169, until further order by the commission.”

Under the Commission’s Integrated Resource Planning Framework (the “IRP Framework”), approval of DSM programs in general, and the energy efficiency and load management DSM programs in particular, includes approval of the mechanism(s) to be used in recovering program costs (as well as any lost margins and shareholder incentives that are allowed to be recovered).³ Therefore, an order providing for continuation of the energy efficiency DSM programs, “in the manner currently employed”, includes continued recovery of costs using the current mechanisms (i.e., the surcharge for incremental costs, lost margins and shareholder incentives, and base rates for costs currently recovered through base rates). Accordingly, HECO is continuing to recover the DSM program costs, lost margins and shareholder incentives for its currently implemented DSM programs.⁴

In the interest of compromise, HECO is not seeking lost margins and shareholder incentives for its proposed Interim ESH Program. The Interim ESH Program is a new interim program, and is a subcomponent of HECO’s proposed full scale Energy Solutions for the Home (“ESH”) Program, which is being proposed as part of the portfolio of DSM energy efficiency programs in the Energy Efficiency Docket. In the Energy Efficiency Docket, HECO is proposing

² The RDLC Program, Docket No. 03-0166, was approved by the Commission by Decision and Order No. 21415, filed October 14, 2004, and the CIDLC Program, Docket No. 03-0415, was approved by the Commission by Decision and Order No. 21421, filed October 19, 2004.

³ See, for example, Decision and Order No. 14638, issued April 22, 1996, in Docket Nos. 94-0010, 94-0011 and 94-0012 (Consolidated).

⁴ However, effective September 28, 2005 (the date interim rates became effective in Docket No. 04-0113), HECO will terminate recovery through the DSM surcharge of lost margins embedded in the 2005 test year. The sales estimate for the 2005 rate case reflects the full load and sales reduction impacts from DSM measures installed under the existing energy efficiency programs from 1996 through 2004, and one-half the impact of measures estimated to be installed in 2005. Thus, the Company will recover this lost margin amount through the DSM surcharge for approximately nine out of the twelve months of 2005. The DSM surcharge will remain unchanged until the Company’s 2006 reconciliation of lost margin amounts collected for 2005. The reconciliation will true-up the lost margin amount collected from customers against the actual program results, the amount embedded in the 2005 test year and any other impacts.

Once HECO concludes recovery of lost margins for the period from January 1, 2005 through September 27, 2005, then HECO’s continued recovery of lost margins under the existing surcharge will no longer include the impact of measures installed from 1996 through 2005 to the extent the impact is reflected in the test year sales estimate (that is, except for the one-half of the impact of 2005 measures that is not reflected in the sales estimate). The recovery period for the period from January 1 through September 27, 2005 runs from June 1, 2005 following filing of the Annual Program Accomplishment and Surcharge Report through May 31, 2006.



alternative incentive mechanisms (i.e., shortfall in fixed cost contribution and return on program costs). The issue of DSM program cost recovery and incentive mechanisms was bifurcated from HECO's rate case and is to be decided in the subject Energy Efficiency Docket. In the interest of simplifying any potential issues and obtaining the other parties/participants' support for HECO's Interim DSM Proposals, HECO will forego requesting lost margins and shareholder incentives for its proposed Interim E\$H Program.⁵

HECO's Interim DSM Proposals

HECO is requesting interim approval for the following Interim DSM Proposals:

1. Modifications to the existing CIEE, CINC, and CICR Programs, and
2. New Interim E\$H Program.

The modifications to the existing C&I programs include increasing CIEE Program customer incentive levels to provide approximately 25% of the incremental cost of the more efficient alternative measures. Since the same customer incentives also apply to the installation of these measures under the CINC Program, the CINC Program will also be modified as a result. The modification to the existing CICR Program consists of eliminating the 2-year payback requirement. In total, these C&I Program modifications are expected to reduce HECO's peak by an additional 1.4 MW beyond the reductions expected without these modifications. See Exhibit A for details on the CIEE, CINC and CICR Program modifications.

The Interim E\$H Program will distribute approximately 180,000 compact fluorescent lamps ("CFLs") to residential customers per year and reduce HECO's peak by 2.47 MW. The Interim E\$H Program is a subcomponent of HECO's proposed full scale Energy Solutions for the Home ("ESH") Program, which is being proposed as part of the portfolio of DSM energy efficiency programs in the Energy Efficiency Docket. See Exhibit B for details on the Interim E\$H Program.

The elements of the C&I Programs modifications and the Interim E\$H Program are components of HECO's DSM Program portfolio that were originally included in HECO's 2005 test year rate case, which was subsequently bifurcated and separated into the Energy Efficiency Docket. Thus, the Interim DSM Proposals represent a stepwise transition to the full-scale and complete DSM program portfolio envisioned in the Energy Efficiency Docket. Rather than wait for the resolution of the Energy Efficiency Docket, which encompasses statewide issues as well as HECO's proposed DSM Programs, and which is tentatively scheduled for hearing before the Commission during the summer of 2006 (according to the parties' proposed prehearing orders pending before the Commission), HECO is requesting expedited interim approval of its Interim DSM Proposals. HECO is making this request because expeditious implementation of these

⁵ In addition, HECO is receptive to engaging in discussions with the other parties/participants' to the Energy Efficiency Docket for their ideas on alternative DSM incentive mechanisms so that investments in suitable and effective DSM programs are at least as attractive to the utility as investments in supply-side options. (See the IRP Framework, Section II.B.7.)



modifications can quickly help address its current reserve capacity shortfall by reducing peak demand.

Rationale for HECO's
Interim DSM Proposals

HECO's Interim DSM Proposals can be easily implemented and help achieve peak load reductions quickly, which helps to reduce HECO's current reserve capacity shortfall situation. Furthermore, the implementation of the Interim DSM Proposals to help mitigate the reserve capacity shortfall has the added benefit of reducing the consumption of oil when compared to other fossil-fuel generation alternatives. Increased energy savings from the implementation of energy efficiency DSM programs also contributes to the achievement of the State's Renewable Portfolio Standards, Act 95.

The proposed C&I Program modifications can be implemented quickly. The increased incentives do not require significant process changes, can be communicated rapidly to potential customers, and should increase program participation leading to additional load reductions.

The Interim ESH Program can also be easily implemented because HECO is currently involved in a pilot CFL program that is similar to the proposed program. In executing the pilot program HECO has worked with manufacturers, distributors, and retailers of CFLs, and with coupon redemption centers. HECO can build upon these established relationships to quickly implement the proposed Interim ESH Program. It has also developed advertising and marketing themes and materials, which can be used or improved upon for the new program. In addition, the installation of CFLs in the home has the potential to result in significant load reductions (at 0.012 kw reduced per lamp).

HECO is currently implementing its load management programs for both the commercial and industrial and residential customer classes. Those load management programs directly reduce peak load through the interruption of customer loads. To increase participation in these programs, HECO requested an increase in resources to fund additional load management advertising and marketing in its 2005 test year rate case, and this request is pending with the filing of HECO's Annual Program Modifications and Evaluation Report on December 2, 2005. The requested funds will be used to increase customer awareness of the programs and overcome customer reluctance to participate. Those additional resources, if approved by the Commission, should provide sufficient funding to meet the forecasted load management program peak reductions. In addition, by the end of 2005, HECO intends to file modifications to the CIDLC Program to add voluntary load control and small business direct load control elements to the program, and to add direct control of residential central air-conditioning systems to the RDLC Program. These modifications are intended to broaden the potential market for these programs, increase customer participation, and increase the amount of load reductions.

The Interim DSM Proposals are significantly less involved and complex than 1) the other energy efficiency DSM program enhancements that will be addressed in the Energy Efficiency Docket, and 2) the load management program modifications currently being evaluated by HECO for planned filing later this year.



HECO is not proposing any modifications to its existing REWH and RNC Programs at this time. A 30% federal tax credit for solar systems goes into effect January 1, 2006, and this is expected to increase participation in HECO's two existing residential energy efficiency programs, although HECO has not attempted to quantify the impact. HECO will monitor the effect of the federal tax credit on the programs' participation levels in 2006, and plans to take this into account while evaluating if other program modifications are warranted, including evaluating through sensitivity analyses the impacts of an increase in the customer incentive on the programs' projected energy and demand savings and cost-effectiveness.

Thus, HECO is hopeful that Commission approval of its Interim DSM Proposals will be forthcoming on an expedited basis.

HECO Reserve Capacity Situation

As addressed in HECO's Adequacy of Supply ("AOS") Report dated March 10, 2005, the Company's projected reserve capacity shortfall in 2006 is 70 MW. The reserve capacity shortfall continues at least until 2009, which is the estimated in-service date for HECO's next generating unit. The magnitude of the shortfall assumed, among other things, that HECO's entire portfolio of ten DSM Programs proposed in its 2005 test year rate case, and now the subject of the Energy Efficiency Docket, was implemented in July 2005. HECO is currently implementing its five approved energy efficiency DSM programs (CIEE, CINC, CICR, REWH, and RNC) and its two approved load management DSM programs (RDLC and CIDLC). However, the five energy efficiency DSM programs currently being implemented do not include the enhanced and expanded features that are included in the programs being proposed in the Energy Efficiency Docket.

HECO is requesting approval of its Interim DSM Proposals in order to help address the reserve capacity shortfall cited in its AOS Report, thereby achieving additional peak load reductions pending the completion of the Energy Efficiency Docket. Implementation of accelerated DSM initiatives can help mitigate the shortfall by lowering the peak demand that HECO's units and independent power producer generators need to serve and by increasing the reserve margin. Exhibit C provides additional discussion and details of HECO's reserve capacity shortfall situation.

Schedule for HECO's Interim DSM Proposals

HECO and the parties/participants to the docket submitted for Commission review alternative proposed prehearing orders, which differed mainly in the characterization of the issues in the docket. With respect to HECO's Interim DSM Proposals⁶, however, both proposed

⁶ In accordance with the schedule included in the proposed prehearing orders, HECO informally provided its Interim DSM Proposals to the parties/participants on October 11, 2005, and received comments from certain parties on November 18, 2005. HECO took these informal comments into consideration in its subject Interim DSM Proposals.



prehearing orders included the following procedural steps:

HECO's Interim DSM Proposals filed with the Commission for interim approval	December 5, 2005
Parties/Participants' Responses to HECO's Interim DSM Proposals filed with the Commission	January 10, 2006
HECO's Reply to the Parties/Participants' Responses on HECO's Interim DSM Proposals filed with the Commission	January 31, 2006
Commission decision on HECO's Interim DSM Proposals	To be determined by the Commission

Following the submission of HECO's Reply to the Parties/Participants' Responses on HECO's Interim DSM Proposals on January 31, 2006, HECO requests that the Commission approve HECO's requested Interim DSM Proposals on an expedited basis. This will allow HECO to expeditiously implement the Interim DSM Proposals in order to help address its reserve capacity shortfall cited in its AOS Report, thereby achieving additional peak load reductions pending the completion of the Energy Efficiency Docket. Implementation of accelerated DSM initiatives can help mitigate the shortfall by lowering the peak demand that HECO's units and independent power producer generators need to serve and by increasing the reserve margin.

Sincerely,



Attachments

cc: Division of Consumer Advocacy
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Interim DSM Proposals

Commercial and Industrial Energy Efficiency, New Construction, and Customized Rebate Programs

December 5, 2005

HECO's Interim DSM Proposals request the following modifications to HECO's existing commercial and industrial energy efficiency programs:

1. Increasing customer incentives for prescriptive measures in the Commercial and Industrial Energy Efficiency (CIEE) Program and the Commercial and Industrial New Construction (CINC) Program.
2. Eliminating the 2-year payback minimum requirement for energy efficiency projects under the Commercial and Industrial Customized Rebate (CICR) Program.

The requested modifications to the CIEE, CINC and CICR Programs are included as part of HECO's DSM Program proposals that are the subject of the Energy Efficiency Docket.

These modifications are necessary to

1. Increase DSM load reduction to mitigate the reserve capacity shortfall.
2. Respond to market conditions that have resulted in slowing growth in program participation.
3. Capitalize on current efforts that have created a positive environment in certain customer segments regarding energy efficiency.
4. Increase breadth of customer participation and make bill savings available to more customers.

A summary of program budgets, impacts, and cost benefit ratios are shown on page 4.

HECO is requesting that the Commission approve the implementation of the program modifications described below on an interim basis pending the resolution of the Energy Efficiency Docket. Recovery of program costs, lost margins, and shareholders incentives, will continue under the current IRP Clause mechanism until the effective date of the Energy Efficiency Docket Decision and Order.

CIEE Program

HECO proposes to increase incentives for certain prescriptive measures, specifically air conditioning equipment (excluding chillers), and T8 lighting and delamping as shown on page 5. The increased incentives are designed to

provide 25% of the incremental cost of the more efficient alternative. These higher incentives are necessary to:

- Address a slowing of growth in program participation as more difficult projects need to be addressed. Recent trends show applications of technology at customer sites that have longer paybacks under the existing program customer incentive levels. Higher incentives will also address customers that are subject to more stringent implementation criteria who need shorter payback periods to implement.
- Demonstrate to trade allies that HECO has the ability to impact the energy efficiency market and so motivate them to stock and sell energy efficient technologies.
- Meet and then exceed program goals.
- Be consistent with industry practice.

The requested increase is allocated to program incentives, reducing the proportion of administration costs to total program costs, and effectively increasing the efficiency of impact delivery.

Other CIEE Program changes have been proposed in the Energy Efficiency Docket to achieve higher impacts. However, these other changes, such as vendor incentives, financing options, and additional outreach, take more time to develop and are not being proposed for interim approval.

The revised CIEE Program budget and anticipated energy and peak savings impacts are shown on page 6, and supported by page 7. The derivation of the revised CIEE Program cost/benefit ratios is shown on page 8.

CINC Program

As the result of proposed changes to the prescriptive measure incentive levels for the CIEE Program, the CINC Program is also affected. Both the budget and impacts increased as the result of the proposed program modifications to customer incentive levels.

The requested increase is allocated to program incentives, reducing the proportion of administration costs to total program costs, effectively increasing the efficiency of impact delivery.

Other CINC Program changes have been proposed in the Energy Efficiency Docket to achieve higher impacts. However, these other changes, such as commissioning, take more time to develop and are not being proposed for interim approval.

The revised CINC Program budget and anticipated energy and peak savings impacts are shown on page 9, and supported by page 10. The derivation of the revised CINC Program cost/benefit ratios is shown on page 11.

CICR Program

HECO proposes to eliminate the 2-year payback restriction on project eligibility. The restriction was originally intended to reduce free-ridership, since it was commonly accepted when the program was initially designed that customers did not need incentives to implement projects with paybacks of two years or less. However, program experience indicates that many projects with less than 2-year paybacks are not being installed despite the seemingly obvious financial benefits. Customer reasons include reluctance to invest in energy efficiency and the lack of capital to fund even projects with high potential returns. Making these projects eligible will increase cost effectiveness to the customer, encourage program participation and help load reductions.

In addition, the existence of the 2-year payback requirement has interfered with the customer's planning process, including the pro forma analysis often conducted when evaluating potential energy efficient projects. The customer's effective energy costs are volatile due to fluctuations in the world oil market. As a result, the paybacks are not fixed and can float above or below the 2 year threshold based on external fuel factors. The uncertainty of whether an incentive can be included in a project's economic evaluation can discourage a customer's consideration of a particular technology that would otherwise be considered.

The revised CICR Program budget and anticipated energy and peak savings impacts are shown on page 12 and supported by page 13. The derivation of the revised CICR Program cost/benefit ratios is shown on page 14.

HECO's DSM Energy Efficiency Programs Estimated Budgets for 2006 (\$)

Expense Type	Existing CIEE Program	Interim CIEE Program	Existing CINC Program	Interim CINC Program	Existing CICR Program	Interim CICR Program	TOTAL Existing C&I Programs	TOTAL Interim C&I Programs
Incentives	675,968	1,217,721	607,741	890,709	1,103,896	1,090,568	2,387,605	3,198,998
Direct Labor								
Base Labor ¹	104,220	104,220	114,573	114,573	145,807	145,807	364,600	364,600
Incremental Labor	0	0	0	0	109,003	109,003	109,003	109,003
Total Labor	104,220	104,220	114,573	114,573	254,810	254,810	473,603	473,603
Outside Services								
Implementation	375,186	387,010	254,324	260,286	255,502	262,609	885,012	909,905
Tracking	18,932	18,932	15,628	15,628	18,774	18,774	53,334	53,334
Evaluation	81,178	81,178	38,864	38,864	44,890	44,890	164,932	164,932
Design Assistance	112,500	112,500	100,000	100,000	100,000	100,000	312,500	312,500
Subtotal	587,796	599,620	408,816	414,778	419,166	426,273	1,415,778	1,440,671
Advertising/Marketing	125,664	117,484	57,986	57,986	76,030	76,030	259,680	251,500
Materials, Travel, & Misc.	95,806	115,651	23,789	50,384	43,163	62,087	162,758	228,122
TOTAL PROGRAM COSTS	\$1,589,454	\$2,154,696	\$1,212,905	\$1,528,430	\$1,897,065	\$1,909,768	\$4,699,424	\$5,592,894

HECO's DSM Programs Estimated Impacts (Gross Generation Level) for 2006

	Existing CIEE Program	Interim CIEE Program	Existing CINC Program	Interim CINC Program	Existing CICR Program	Interim CICR Program	TOTAL Existing C&I Programs	TOTAL Interim C&I Programs
Gross kW ²	1,319	1,791	1,189	1,621	2,069	2,565	4,577	5,977
Gross MWh ³	12,430	13,358	9,869	12,657	16,479	18,141	38,778	44,156
Net kW ⁴	876	1,189	725	753	1,562	1,937	3,163	3,879
Net MWh ⁵	8,117	8,723	5,882	7,544	12,508	13,769	26,507	30,036

HECO's DSM Programs Estimated Benefit/Cost Ratios With Shareholder Incentives for 2006⁶

	Existing CIEE Program	Interim CIEE Program	Existing CINC Program	Interim CINC Program	Existing CICR Program	Interim CICR Program
Utility Cost Test	2.49	2.23	2.39	2.44	2.72	2.90
Total Resource Cost Test	1.50	1.39	1.26	1.26	0.96	0.90
Participant Test	3.34	3.40	2.59	2.61	1.56	1.53
Rate Impact Measure Test	0.62	0.53	0.59	0.57	0.66	0.62

CIEE INCENTIVE AMOUNTS COMPARISON

Program (1)	End-Use Component (2)	Measures (3)	Existing Programs Incentive per Unit (4)		Proposed New & Enhanced Programs Incentive per Unit (5)		Benchmark Comparison		
			per unit above qualifying efficiency	per unit above qualifying efficiency	per unit above qualifying efficiency	per unit above qualifying efficiency	PG&E (6)	Alliant Energy (IPL) (7)	CL&P (8)
1. Commercial and Industrial Energy Efficiency	a. HE Cooling	AC: Package/Split (Air Cooled)	\$ 40 per ton plus \$ 30	\$ 80.00 per ton plus \$ 60	\$ 80.00 per ton plus \$ 60	\$100/unit	\$50-\$350/unit	\$79-\$92/ton	
		AC: Package/Split (Water)	\$ 80 per ton plus \$ 20	\$ 200.00 per ton plus \$ 40	\$ 200.00 per ton plus \$ 40	\$100/unit	\$50-\$350/unit	\$79-\$92/ton	
		Chillers	\$ 20 per ton plus \$ 250	\$ 20.00 per ton plus \$ 250	\$ 20.00 per ton plus \$ 250	\$100/unit	NA-Custom	NA-Custom	
	b. HE Lighting - TB	De-lamp w/ reflectors	\$ 2.80 per lamp	\$ 5.60 per lamp	\$ 5.60 per lamp	\$3.5-\$7.5/lamp	\$10-\$20/mixture	\$10-\$50/mixture	
		De-lamp w/ reflectors	\$ 5.00 per lamp	\$ 10.00 per lamp	\$ 10.00 per lamp	\$4-\$9/lamp	NA	NA	
	c. Delamping	HPS	\$ 75.00 per lamp	\$ 75.00 per lamp	\$ 75.00 per lamp	NA	NA	NA	
		MH	\$ 75.00 per lamp	\$ 75.00 per lamp	\$ 75.00 per lamp	NA	NA	NA	
	d. HE HPS HID	same	\$ 20.00 per sensor	\$ 20.00 per sensor	\$ 20.00 per sensor	\$16-\$44/sensor	NA	\$10/sensor	
		Occupancy Sensors	\$ 10.00 HP (Varies w/Size)	\$ 10.00 HP (Varies w/Size)	\$ 10.00 HP (Varies w/Size)	NA	NA	\$45-\$700/motor	
	e. HE Metal Halide	same	\$ 20.00 per sensor	\$ 20.00 per sensor	\$ 20.00 per sensor	\$16-\$44/sensor	NA	\$10/sensor	
		Premium Efficient Motors	\$ 10.00 HP (Varies w/Size)	\$ 10.00 HP (Varies w/Size)	\$ 10.00 HP (Varies w/Size)	NA	NA	\$45-\$700/motor	

**HECO Commercial and Industrial
Energy Efficiency Program**

2006 Interim Budget

	<u>2005 M&E*</u>	<u>2006 Interim</u>
Participation		
New Participants		
MW Enrolled/Reduced (Gross System)	1.95	1.79
MWH Reduced (Gross System)	15,164	13,358
Incentives	875,501	1,217,721
Direct Labor		
Base	174,836	104,220
Incremental	<u>0</u>	<u>0</u>
Total Labor	174,836	104,220
Outside Services		
Implementation	404,309	387,010
Tracking	4,244	18,932
Evaluation	0	81,178
Engineering Studies	109,273	112,500
Advertising	125,664	117,484
Admin/Misc	92,882	115,651
Total	\$1,786,709	\$2,154,696

* Annual Program Modification and Evaluation Report filed November 30, 2004

BACKUP FOR COMPONENT/PROGRAM LEVEL SAVINGS, PARTICIPANTS AND COSTS
COMMERCIAL AND INDUSTRIAL ENERGY EFFICIENCY PROGRAM (CIEE)

SUMMARY - PROGRAM DETAILS

Program	2006 Aggregate	
	Annual Energy (kWh)	Peak Demand (kW)
TOTAL -- GROSS CUSTOMER LEVEL	11,865,901	1,591
		\$1,217,721

PARTICIPANTS AND ENERGY AND DEMAND SAVINGS

Program/Measures	Per-Participant Impact (1)(2)		Number of Participants per Year		2006 Impact (Interim)	
	Annual Energy (kWh)	Peak Demand (kW)	2006		Annual Energy (kWh)	Peak Demand (kW)
a. HE Cooling	44,343	5.034	150		6,651,415	755
b. HE Lighting - T8	29,782	4.160	100		2,978,174	416
c. Premium Efficiency Motors	44,726	8.394	50		2,236,312	420
TOTAL -- GROSS CUSTOMER LEVEL					11,865,901	1,591
TOTAL -- GROSS SYSTEM LEVEL					13,357,988	1,791

INCENTIVE CALCULATIONS:

Program/Measures	Per Participant			Total Incentive	Total Customer Cost 2006	Aggregate Incentive Budget 2006
	Customer Costs (4)	Adjusted Equipment Cost (3)	% Rebate			
a. HE Cooling	\$18,056	\$14,445	25%	\$3,611	\$2,166,693	\$641,673
b. HE Lighting - T8	\$15,101	\$12,081	25%	\$3,020	\$1,208,102	\$302,026
c. Premium Efficiency Motors	\$37,402	\$29,922	25%	\$7,480	\$1,496,088	\$374,022
TOTAL					\$4,870,883	\$1,217,721

SOURCE/NOTES:

- (1) Data for CIEE measures derived BEST model runs in support of the Phase II study (see detailed table below).
- (2) Per-participant impacts represented at the Gross Customer Level.
- (3) Costs reduced for all CIEE measures to reflect greater level of market activity relative to 2003 when Phase II study was conducted. Reduction am. 20%
- (4) Customer costs based on HECO Phase II study.

Backup Calculations - Per Participant Impacts and Costs:

Measure	Representative Prototype (a)	Weight of Prototype in Measure (b)	Base Case	Efficiency Case	Measure Life	Impact/Measure (c)			Impacts per Participant		
						kWh	kW	Measure Life	Assumed Unit Value	Weighted Measure kW	Weighted Measure kWh
a. HE Cooling	SOFF-Existing	35%	EER=8.9	EER=11.0	15	0.11900	575,000	31	There are 30.8	5.034	44,343
	REST-Existing	15%	EER=8.9	EER=11.0	15	0.16200	843,000	14	There are 13.5		
	LRET-Existing	20%	EER=8.9	EER=11.0	15	0.19000	776,000	90	There are 89.9		
b. HE Lighting - T8	SCHO-Existing	30%	EER=8.9	EER=11.0	15	0.09000	377,000	202	There are 202		
	LOFF-Existing	40%	4 ft. T12 + exist. 2 lamp fixture	4 ft. T8 + new 2-lamp fixture	10	0.00003	0.199	330000	This measure c		
	SOFF-Existing	30%	4 ft. T12 + exist. 2 lamp fixture	4 ft. T8 + new 2-lamp fixture	10	0.00006	0.297	10000	This measure c		
c. Premium Efficiency Motors	SCHO-Existing	30%	4 ft. T12 + exist. 2 lamp fixture	4 ft. T8 + new 2-lamp fixture	10	0.00000	0.177	50000	This measure c		
	LOFF-Existing	40%	Standard Fan Motors	Efficiency Fan Motors	15	0.05029	240.616	330	There are 330		
	LHOT-Existing	30%	Standard Fan Motors	Premium-Efficiency Fan Motors	15	0.06245	505.628	25	There are 25 H		
			Standard Fan Motors	Premium-Efficiency Fan Motors	15	0.04874	347.393	88	There are 88 H		
										4.160	29,782
										8.394	44,726

BACKUP TABLE NOTES:

- SOFF=small office, REST=restaurant, LRET=large retail, SCHO=school, SHOT=small hotel, LHOT= large hotel/resort, GROC=grocery store, Existing=existing vintage, New=new construction vintage
- Weights developed by HECO consultant GEP using engineering estimates.
- Data extracted from Building Energy Simulation Tool (BEST) model runs developed by HECO consultant GEP during Phase II of this project. Values reflect building characteristics from Oahu.

DETAILED SUMMARY FOR 2006 START YEAR -- 2006 PARTICIPANTS ONLY SUMMARY
Commercial & Industrial Energy Efficiency (CIEE)

Discount Rate	8%
General Escalation Rate	3.2%

	Benefits	Costs	Net Benefits	B/C Ratio
Participant Total	\$5,797,506	\$3,180,687	\$2,616,820	1.82
Ratepayer Impact Measure Test	\$6,752,847	\$7,917,950	(\$1,165,103)	0.85
Utility Cost Test	\$6,752,847	\$4,120,444	\$2,632,403	3.12
Total Resource Cost Test	\$6,752,847	\$4,083,410	\$2,669,438	1.65

Net System Savings (Annual)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Demand (kW)	1,189	1,189	1,189	1,189	1,189	1,189	1,189	1,189	1,189	1,189	1,189	1,189	1,189	1,189	1,189	0	0	0	0	0	0
Energy (kWh)	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	0	0	0	0	0	0
Total Energy (kWh)	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	8,722,766	0	0	0	0	0	0

Rates

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Summer Demand (¢/kW)	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00
Energy (¢/kWh)	\$0.0810	\$0.0841	\$0.0873	\$0.0906	\$0.0941	\$0.0977	\$0.1014	\$0.1052	\$0.1092	\$0.1134	\$0.1177	\$0.1221	\$0.1268	\$0.1316	\$0.1366	\$0.1418	\$0.1472	\$0.1528	\$0.1586	\$0.1646	\$0.1708

BENEFIT CALCULATIONS:

Avoided Costs (Utility Ratepayer) NPY

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Demand (kW)	\$149,807	\$155,500	\$161,409	\$167,542	\$173,909	\$180,517	\$187,377	\$194,497	\$201,888	\$209,560	\$217,523	\$225,789	\$234,369	\$243,275	\$252,519	\$0	\$0	\$0	\$0	\$0	\$0
Energy (kWh)	\$438,249	\$455,629	\$472,243	\$489,215	\$506,570	\$524,333	\$542,503	\$561,086	\$580,086	\$599,508	\$619,364	\$639,664	\$660,424	\$681,654	\$703,373	\$725,592	\$748,320	\$771,568	\$795,346	\$819,664	\$844,532
Total	\$688,756	\$611,129	\$634,352	\$658,457	\$683,478	\$709,451	\$736,410	\$764,333	\$793,440	\$823,931	\$854,887	\$887,373	\$921,033	\$956,075	\$992,426	\$0	\$0	\$0	\$0	\$0	\$0

Avoided Costs (Total Resource)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Demand (kW)	\$149,807	\$155,500	\$161,409	\$167,542	\$173,909	\$180,517	\$187,377	\$194,497	\$201,888	\$209,560	\$217,523	\$225,789	\$234,369	\$243,275	\$252,519	\$0	\$0	\$0	\$0	\$0	\$0
Energy (kWh)	\$438,249	\$455,629	\$472,243	\$489,215	\$506,570	\$524,333	\$542,503	\$561,086	\$580,086	\$599,508	\$619,364	\$639,664	\$660,424	\$681,654	\$703,373	\$725,592	\$748,320	\$771,568	\$795,346	\$819,664	\$844,532
Total	\$688,756	\$611,129	\$634,352	\$658,457	\$683,478	\$709,451	\$736,410	\$764,333	\$793,440	\$823,931	\$854,887	\$887,373	\$921,033	\$956,075	\$992,426	\$0	\$0	\$0	\$0	\$0	\$0

Avoided Costs (Participant)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Electric Demand	\$54,699	\$54,699	\$54,699	\$54,699	\$54,699	\$54,699	\$54,699	\$54,699	\$54,699	\$54,699	\$54,699	\$54,699	\$54,699	\$54,699	\$54,699	\$0	\$0	\$0	\$0	\$0	\$0
Electric	\$461,587	\$472,127	\$492,334	\$516,232	\$535,840	\$556,212	\$577,348	\$599,287	\$622,060	\$645,698	\$670,234	\$695,703	\$722,140	\$749,581	\$778,065	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$516,286	\$526,826	\$547,033	\$570,932	\$590,539	\$610,911	\$632,047	\$653,986	\$676,759	\$700,397	\$724,934	\$750,403	\$776,839	\$804,281	\$832,765	\$0	\$0	\$0	\$0	\$0	\$0

COST CALCULATIONS:

Cost Inputs:

Program Administration	\$902,723	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Incentives	\$1,217,721	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Participant	\$3,180,687	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Participant Costs	\$4,361,131	\$0	\$0	\$0	\$0	\$0	\$0	\$0													
Total RIM Costs	\$2,646,720	\$533,826	\$552,033	\$570,932	\$590,538	\$610,911	\$632,047	\$653,986	\$676,759	\$700,397	\$724,934	\$750,403	\$776,839	\$804,281	\$832,765	\$0	\$0	\$0	\$0	\$0	\$0
Total Utility Costs	\$2,120,444	\$0	\$0	\$0	\$0	\$0	\$0	\$0													
Total TRC Costs	\$4,083,410	\$0	\$0	\$0	\$0	\$0	\$0	\$0													

HECO Commercial and Industrial
New Construction Program

2006 Interim Budget

	<u>2005</u> <u>M&E*</u>	<u>2006</u> <u>Interim</u>
Participation		
New Participants		
MW Enrolled/Reduced (Gross System)	1.02	1.62
MWH Reduced (Gross System)	7,226	12,657
Incentives	511,119	890,709
Direct Labor		
Base	39,150	114,573
Incremental	<u>0</u>	<u>0</u>
Total Labor	39,150	114,573
Outside Sevices		
Implementation	136,832	260,286
Tracking	4,017	15,628
Evaluation	0	38,864
Engineering studies	49,333	100,000
Advertising	48,272	57,986
Admin/Misc	26,016	50,384
Total	\$814,739	\$1,528,430

* Annual Program Modification and Evaluation Report filed November 30, 2004

BACKUP FOR COMPONENT/PROGRAM LEVEL SAVINGS, PARTICIPANTS AND COSTS
COMMERCIAL AND INDUSTRIAL NEW CONSTRUCTION PROGRAM (CINC)

SUMMARY - PROGRAM DETAILS

Program	2006 Aggregate	
	Annual Energy (kWh)	Incentives
TOTAL -- GROSS CUSTOMER LEVEL	11,243,380	\$890,709

PARTICIPANTS AND ENERGY AND DEMAND SAVINGS

Program/Measures	Per-Participant Impact (1)(2)		Number of Participants per Year		2006 Impact (Interim)	
	Annual Energy (kWh)	Peak Demand (kW)	2006		Annual Energy (kWh)	Peak Demand (kW)
a. HE Cooling	40,196	4.223	100		4,019,602	422
b. HE Lighting - TB	25,203	0.085	100		2,520,349	9
c. Premium Efficiency Motors	31,533	6.769	30		945,977	203
d. Customized Component (3)	66,317	8.405	55		3,757,452	462
TOTAL -- GROSS CUSTOMER LEVEL					11,243,380	1,097
TOTAL -- GROSS SYSTEM LEVEL					12,657,188	1,235

INCENTIVE CALCULATIONS:

Program/Measures	Per Participant			Aggregate Incentive Budget 2006
	Customer Costs (4)	Adjusted Equipment Cost (5)	% Rebate	
a. HE Cooling	\$17,029	\$13,623	25%	\$340,574
b. HE Lighting - TB	\$12,525	\$10,260	25%	\$256,494
c. Premium Efficiency Motors	\$1,725	\$1,388	25%	\$41,640
d. Customized Component (6)	\$30,964	\$30,964	17%	\$1,704,135
TOTAL				\$4,134,046

SOURCE/NOTES:

- (1) Data for CIEE measures derived BEST model runs in support of the Phase II study (see detailed table below). Data for Customized Component from HECO historical DSMIS data. (See spreadsheet titled DSMIS Data for Customized 11-05.XLS).
- (2) Per-participant impacts represented at the Customer Level.
- (3) Participation levels increased by 10% to reflect elimination of 2-year payback.
- (4) Customer costs for all CIEE measures based on HECO Phase II study, customized costs reflect DSMIS actuals for timeperiod 3/99-10/05.
- (5) Costs reduced for all CIEE measures to reflect greater level of market activity relative to 2003 when Phase II study was conducted. Reduction at 20% cost reduction format not applied to Customized Component.
- (6) Incentive for customized calculated based on formula of \$125/kW plus \$0.06/kWh.

Backup Calculations - Per Participant Impacts and Costs:

Measure	Representative Prototype (a)	Weight of Prototype In Measure (b)	Base Case	Efficiency Case	Impacts per Measure (C)			Impacts per Participant		
					Measure Life	kWh	kW	Assumed Unit Value	Weighted Measure kWh	Weighted Measure kW
a. HE Cooling	SOFF-New REST-New LRET-New SCHO-New	35% 15% 20% 30%	EER=8.9 or lower EER=8.9 or lower EER=8.9 or lower EER=8.9 or lower	EER=11.0 EER=11.0 EER=11.0 EER=11.0	15 15 15 15	558,000 685,000 830,000 358,000	0.10700 0.16500 0.20000 0.00000	28 13 72 201	4.223 40,196	
b. HE Lighting - TB	LOFF-New	40%	4 ft. T12 + exist. 2-lamp fixture	4 ft. T12 + new 2-lamp fixture	10	0.00000	0.172	330000	0.095	25,203
c. Premium Efficiency Motors	SOFF-New SCHO-New	30% 30%	4 ft. T12 + exist. 2-lamp fixture	4 ft. T12 + new 2-lamp fixture 4 ft. T12 + exist. 2-lamp fixture	10 10 10	0.00002 0.130 0.140	0.00000	10000 50000	0.085	25,203
	LOFF-New	40%	Standard Fan Motors	Efficiency Fan Motors	15	0.04024	170,176	330	6.769	31,533
	SHOT-New	30%	Standard Fan Motors	Premium-Efficiency Fan Motors	15	0.07027	393,710	25	6.769	31,533
	LHOT-New	30%	Standard Fan Motors	Premium-Efficiency Fan Motors	15	0.03525	231,670	88	6.769	31,533

BACKUP TABLE NOTES:

- SOFF=small office, REST=restaurant, LRET=large retail, SCHO=school, SHOT=small hotel, LHOT=large hotel/resort, GROC=grocery store, Existing-existing vintage, New=new construction vintage
- Weights developed by HECO consultant/GEI engineering estimates.
- Data extracted from Building Energy Simulation Tool (BEST) model runs developed by HECO consultant/GEI during Phase II of this project. Values reflect building characteristics from Oahu.

DETAILED SUMMARY FOR 2006 START YEAR - 2006 PARTICIPANTS ONLY SUMMARY
Commercial & Industrial New Construction (CINC)

Discount Rate	8%
General Escalation Rate	3.8%

	Benefits	Costs	Net Benefits	E/C Ratio
Participant Test	\$4,897,457	\$2,463,892	\$2,433,565	1.99
Ratepayer Impact Measure Test	\$5,442,682	\$6,347,782	(\$905,100)	0.86
Utility Cost Test	\$5,442,682	\$1,450,325	\$3,992,357	3.75
Total Resource Cost Test	\$5,442,682	\$3,023,508	\$2,419,174	1.80

Net System Savings (Annual)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025			
Demand (kW)	753	753	753	753	753	753	753	753	753	753	753	753	753	753	753	753	753	753	753	753	753		
Energy (kWh)	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	
Total Energy (kWh)	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684	7,543,684

Rates

Summer Demand (\$/kW)	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	
Energy (\$/kWh)	\$0.0841	\$0.0873	\$0.0906	\$0.0941	\$0.0977	\$0.1014	\$0.1052	\$0.1092	\$0.1134	\$0.1177	\$0.1221	\$0.1268	\$0.1316	\$0.1366	\$0.1418	\$0.1472	\$0.1528	\$0.1586	\$0.1646	\$0.1708	\$0.1772	\$0.1838	\$0.1906

BENEFIT CALCULATIONS:

Avoided Costs (Utility Ratepay)

Demand (kW)	\$94,912	\$98,519	\$102,263	\$106,149	\$110,183	\$114,369	\$118,715	\$123,227	\$127,909	\$132,770	\$137,815	\$143,052	\$148,488	\$154,131	\$159,988	\$166,066	\$172,386	\$178,956	\$185,779	\$192,852	\$199,179	\$205,752	\$212,572	
Energy (kWh)	\$379,615	\$394,040	\$409,014	\$424,557	\$440,690	\$457,436	\$474,818	\$492,862	\$511,590	\$531,031	\$551,210	\$572,156	\$593,898	\$616,466	\$639,892	\$664,202	\$689,412	\$715,528	\$742,566	\$770,632	\$799,839	\$829,187	\$859,782	\$890,622
Total	\$474,527	\$492,560	\$511,277	\$530,705	\$550,872	\$571,805	\$593,534	\$616,088	\$639,500	\$663,801	\$689,025	\$715,208	\$742,386	\$770,596	\$799,879	\$829,202	\$859,624	\$890,154	\$920,892	\$951,848	\$983,028	\$1,014,431	\$1,046,054	\$1,077,982

Avoided Costs (Total Resources)

Demand (kW)	\$94,912	\$98,519	\$102,263	\$106,149	\$110,183	\$114,369	\$118,715	\$123,227	\$127,909	\$132,770	\$137,815	\$143,052	\$148,488	\$154,131	\$159,988	\$166,066	\$172,386	\$178,956	\$185,779	\$192,852	\$199,179	\$205,752	\$212,572	\$219,532
Energy (kWh)	\$379,615	\$394,040	\$409,014	\$424,557	\$440,690	\$457,436	\$474,818	\$492,862	\$511,590	\$531,031	\$551,210	\$572,156	\$593,898	\$616,466	\$639,892	\$664,202	\$689,412	\$715,528	\$742,566	\$770,632	\$799,839	\$829,187	\$859,782	\$890,622
Total	\$474,527	\$492,560	\$511,277	\$530,705	\$550,872	\$571,805	\$593,534	\$616,088	\$639,500	\$663,801	\$689,025	\$715,208	\$742,386	\$770,596	\$799,879	\$829,202	\$859,624	\$890,154	\$920,892	\$951,848	\$983,028	\$1,014,431	\$1,046,054	\$1,077,982

Avoided Costs (Participant)

Electric Demand	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656	\$34,656
Electric Energy	\$399,193	\$414,362	\$430,108	\$446,432	\$463,317	\$480,827	\$499,036	\$517,974	\$537,674	\$558,117	\$579,337	\$601,363	\$624,226	\$647,952	\$672,562	\$698,072	\$724,492	\$751,842	\$780,142	\$809,412	\$839,672	\$870,942	\$903,242	\$936,592
Total	\$433,849	\$449,017	\$464,764	\$481,107	\$498,172	\$515,682	\$533,961	\$552,935	\$572,630	\$593,073	\$614,292	\$636,319	\$659,182	\$682,914	\$707,548	\$733,092	\$759,584	\$787,034	\$815,474	\$844,922	\$875,392	\$906,902	\$939,462	\$973,082

COST CALCULATIONS:

Cost Inputs:

Program Administration	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Incentives	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783	\$893,783
Participant	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892
Total Participant Costs	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892	\$2,463,892
Total RIM Costs	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782	\$6,347,782
Total Utility Costs	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325	\$1,450,325
Total TRC Costs	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508	\$3,023,508

HECO Commercial and Industrial
Customized Rebate Program

2006 Interim Budget

	<u>2005</u> <u>M&E*</u>	<u>2006</u> <u>Interim</u>
Participation		
New Participants		
MW Enrolled/Reduced (Gross System)	1.28	2.57
MWH Reduced (Gross System)	9,165	18,141
Incentives	729,886	1,090,568
Direct Labor		
Base	21,855	145,807
Incremental	<u>0</u>	<u>109,003</u>
Total Labor	21,855	254,810
Outside Sevices		
Implementation	366,064	262,609
Tracking	3,183	18,774
Evaluation	0	44,890
Engineering studies	54,636	100,000
Advertising	38,245	76,030
Admin/Misc	60,100	62,087
Total	\$1,273,969	\$1,909,768

* Annual Program Modification and Evaluation Report filed November 30, 2004

**BACKUP FOR COMPONENT/PROGRAM LEVEL SAVINGS, PARTICIPANTS AND COSTS
COMMERCIAL AND INDUSTRIAL CUSTOM REBATES (CICR)**

SUMMARY - PROGRAM DETAILS

Program	2006 Aggregate		
	Annual Energy (kWh)	Peak Demand (kW)	Incentives
TOTAL -- GROSS CUSTOMER LEVEL	16,114,439	2,279	\$1,090,568

PARTICIPANTS AND ENERGY AND DEMAND SAVINGS

Program/Measures	Per-Participant Impact (1)(2)		Number of Participants per Year (3)		2006 Impact (Interim)	
	Annual Energy (kWh)	Peak Demand (kW)	2006	Peak Demand (kW)	Annual Energy (kWh)	Peak Demand (kW)
Composite Participant	111,828	15.814	144		16,114,439	2,279
TOTAL -- GROSS CUSTOMER LEVEL					16,114,439	2,279
TOTAL -- GROSS SYSTEM LEVEL					18,140,762	2,565

INCENTIVE CALCULATIONS:

Program/Measures	Per Participant			Total Customer Cost 2006	Aggregate Incentive Budget 2006
	Equipment Cost (4)	% Rebate	Total Incentive(5)		
Composite Participant	\$63,716	12%	\$7,568	\$9,181,414	\$1,090,568
TOTAL				\$9,181,414	\$1,090,568

SOURCE/NOTES:

- (1) Data extracted from HECO'S DSMIS data for CICR, based on timeframe of 10/97 through 9/05 (See spreadsheet titled DSMIS Data for Customized 11-05.XLS).
- (2) Per-participant impacts represented at the Customer Level.
- (3) Participation levels increased by 10% to reflect elimination of 2-year payback.
- (4) Customer costs reflect DSMIS actuals for timeperiod 3/99-10/05.
- (5) Incentive for customized calculated based on formula of \$125/kW plus \$0.05/kWh.

DETAILED SUMMARY FOR 2006 START YEAR -- 2006 PARTICIPANTS ONLY SUMMARY
Commercial & Industrial Custom Rebates (CICR)

Discount Rate	8%
General Escalation Rate	3.5%

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Participant Test	\$9,176,640	\$6,908,693	\$2,207,947	1.32																	
Ratepayer Impact Measure Test	\$10,745,742	\$11,076,669	(\$330,927)	0.97																	
Utility Cost Test	\$10,745,742	\$1,900,029	\$8,845,713	5.66																	
Total Resource Cost Test	\$10,745,742	\$7,778,154	\$2,267,588	1.38																	

Net System Savings (Annual)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Demand (kW)	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839
Energy (kWh)	56,678,114	56,678,114	56,678,114	56,678,114	56,678,114	56,678,114	56,678,114	56,678,114	56,678,114	56,678,114	56,678,114	56,678,114	56,678,114	56,678,114	56,678,114	56,678,114	56,678,114	56,678,114	56,678,114	56,678,114
Total Energy (kWh)	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839	13,768,839

Rates

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Summer Demand (\$/kW)	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00
Energy (\$/kWh)	\$0.0941	\$0.0873	\$0.1014	\$0.0996	\$0.0941	\$0.0977	\$0.1014	\$0.1052	\$0.1092	\$0.1134	\$0.1177	\$0.1221	\$0.1268	\$0.1316	\$0.1366	\$0.1418	\$0.1472	\$0.1528	\$0.1586	\$0.1646

BENEFIT CALCULATIONS:

Avoided Costs (Utility-Ratepay)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Demand (kW)	\$24,403	\$25,127	\$26,200	\$27,890	\$29,320	\$30,424	\$31,679	\$33,074	\$34,632	\$36,328	\$38,137	\$39,993	\$41,893	\$43,824	\$45,780	\$47,753	\$49,737	\$51,727	\$53,727	\$55,727
Energy (kWh)	\$62,879	\$71,208	\$74,638	\$77,907	\$80,433	\$83,018	\$85,645	\$88,312	\$91,018	\$93,762	\$96,540	\$99,351	\$102,193	\$105,064	\$107,963	\$110,889	\$113,841	\$116,816	\$119,812	\$122,827
Total	\$10,745,742	\$9,966,882	\$9,724,483	\$10,477,997	\$10,877,613	\$11,288,942	\$11,711,842	\$12,146,372	\$12,592,594	\$13,050,573	\$13,530,374	\$14,031,609	\$14,554,727	\$15,099,425	\$15,766,239	\$16,454,739	\$17,164,539	\$17,895,239	\$18,646,539	\$19,418,039

Avoided Costs (Total Resource)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Demand (kW)	\$24,403	\$25,127	\$26,200	\$27,890	\$29,320	\$30,424	\$31,679	\$33,074	\$34,632	\$36,328	\$38,137	\$39,993	\$41,893	\$43,824	\$45,780	\$47,753	\$49,737	\$51,727	\$53,727	\$55,727
Energy (kWh)	\$62,879	\$71,208	\$74,638	\$77,907	\$80,433	\$83,018	\$85,645	\$88,312	\$91,018	\$93,762	\$96,540	\$99,351	\$102,193	\$105,064	\$107,963	\$110,889	\$113,841	\$116,816	\$119,812	\$122,827
Total	\$10,745,742	\$9,966,882	\$9,724,483	\$10,477,997	\$10,877,613	\$11,288,942	\$11,711,842	\$12,146,372	\$12,592,594	\$13,050,573	\$13,530,374	\$14,031,609	\$14,554,727	\$15,099,425	\$15,766,239	\$16,454,739	\$17,164,539	\$17,895,239	\$18,646,539	\$19,418,039

Avoided Costs (Participant)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Electric Demand	\$89,093	\$89,093	\$89,093	\$89,093	\$89,093	\$89,093	\$89,093	\$89,093	\$89,093	\$89,093	\$89,093	\$89,093	\$89,093	\$89,093	\$89,093	\$89,093	\$89,093	\$89,093	\$89,093	\$89,093
Electric Energy	\$728,612	\$756,299	\$785,039	\$814,870	\$845,835	\$877,973	\$911,340	\$945,971	\$981,918	\$1,019,231	\$1,057,961	\$1,098,164	\$1,139,894	\$1,183,210	\$1,228,172	\$1,274,726	\$1,322,926	\$1,372,726	\$1,424,126	\$1,477,126
Total	\$9,176,640	\$8,845,392	\$8,744,132	\$9,034,963	\$9,344,928	\$9,670,770	\$10,004,433	\$1,035,064	\$1,071,011	\$1,108,324	\$1,147,055	\$1,187,257	\$1,228,987	\$1,272,303	\$1,317,265	\$1,363,860	\$1,412,260	\$1,462,460	\$1,514,460	\$1,568,460

COST CALCULATIONS:

Cost Inputs:

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Participant Administration	\$672,461	\$672,461	\$672,461	\$672,461	\$672,461	\$672,461	\$672,461	\$672,461	\$672,461	\$672,461	\$672,461	\$672,461	\$672,461	\$672,461	\$672,461	\$672,461	\$672,461	\$672,461	\$672,461	\$672,461
Incentives	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574	\$1,074,574
Participant	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693	\$6,908,693
Total Participant Costs	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728	\$8,655,728

Total RIM Costs

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Total RIM Costs	\$11,076,669	\$10,744,132	\$10,618,706	\$10,934,928	\$11,344,928	\$11,744,928	\$12,154,928	\$12,574,928	\$13,004,928	\$13,444,928	\$13,894,928	\$14,354,928	\$14,824,928	\$15,294,928	\$15,774,928	\$16,264,928	\$16,764,928	\$17,274,928	\$17,794,928	\$18,324,928

Total Utility Costs

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Total Utility Costs	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029	\$1,900,029

Total TRC Costs

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Total TRC Costs	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154	\$7,778,154

Interim Energy Solutions for the Home Program ("Interim E\$H")

December 5, 2005

I.

PROGRAM OBJECTIVE

A. Program Objectives

This program will distribute approximately 180,000 compact fluorescent lamps ("CFLs") to residential customers in 2006. The objectives of the Interim E\$H Program are to:

- Reduce demand from HECO's peak by 2.47 MW (gross system level)
- Reduce annual energy consumption by 13,245 MWh (gross system level)
- Save customers \$35.87 annually on their electric bills @ \$0.183/kWh

The Interim E\$H Program is designed to place CFL lamps in the highest usage areas of the home to maximize their impact on system demand and customer bills. HECO is currently in a generation reserve capacity shortfall situation. Although HECO has sufficient generation capacity to meet current and projected customer needs, reserve capacity is eroding and HECO may not be able to meet system demands if generation unit goes off-line. As a result, HECO is requesting program modifications and a new interim program that will impact system peak and avoid reserve capacity related outages. The Interim E\$H Program is the new interim program.

The proposed interim program will reduce annual consumption by 13,245 MWh further contributing to HECO's DSM goals. Since much of the residential lighting load occurs at system peak, reducing energy consumption will have the impact of reducing HECO's overall system kWh cost. These energy reductions further reduce environmental impacts and accomplish DSM goals.

The average residential customer will reduce consumption by 196 kWh annually as a result of this program. This translates into a savings of \$35.87 annually.

B. Fit with HECO DSM Initiatives

The Interim E\$H Program is a component of HECO's proposed Energy Solutions for the Home Program ("E\$H"). The E\$H Program is being proposed as part of the portfolio of DSM energy efficiency programs in the Energy

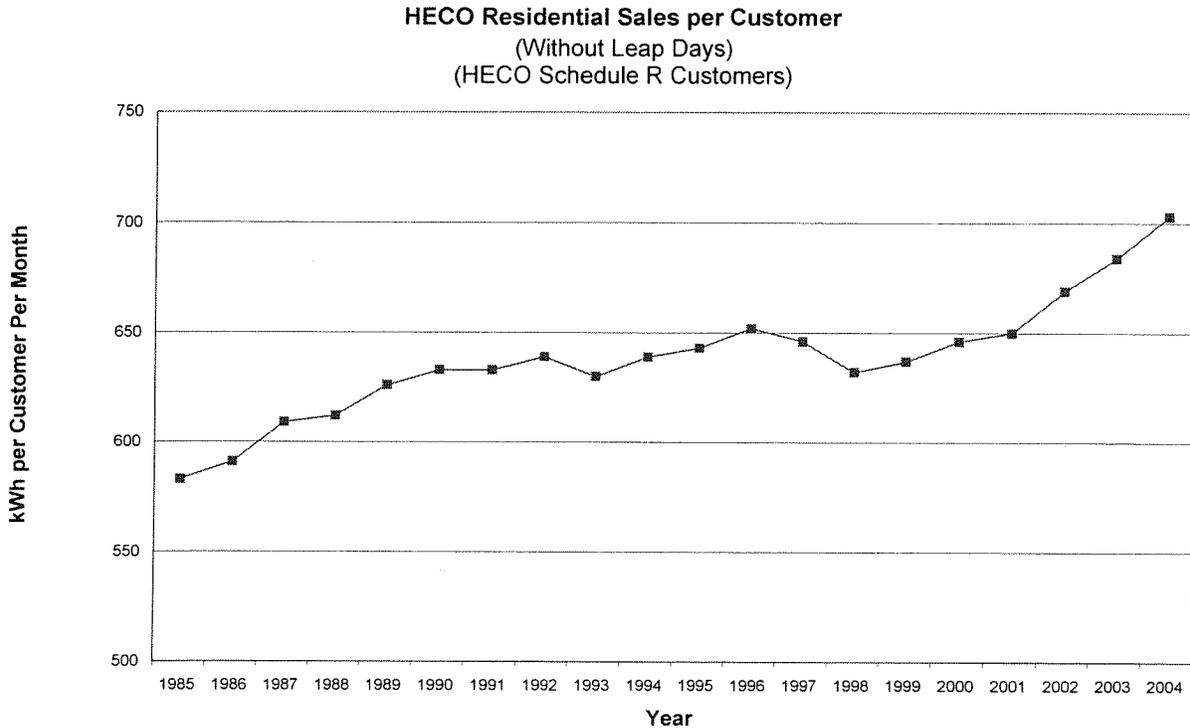
Efficiency Docket. HECO is requesting approval of this interim program at this time for the following reasons:

- The program can be implemented quickly with little HECO infrastructure development in order to realize the benefits immediately,
- It quickly contributes to the improvement of HECO's reserve capacity shortfall,
- It provides residential customers a means to mitigate the increasing cost of energy,
- It capitalizes on current events which have drawn attention to energy conservation,
- It saves energy and contributes to HECO's DSM goals,
- It continues the momentum established with HECO's 2005 CFL campaign, (See Section II.A. below).

C. Background

Annual residential consumption of energy per customer has steadily increased over the last several years, see graph. At the same time, HECO's generation resources have remained constant. Concurrently, the cost of fuel has increased substantially, placing additional stress on customer financial resources. HECO is responding to these trends by introducing new and modified programs to address residential end uses. Lighting has been selected as one of the first targets. Lighting accounts for about 13% of the average home's electrical use. Lighting is the third largest single user of electricity in the average home. HECO's current residential program already addresses the largest consumer of electricity in the average home without air conditioning -- water heating. Anecdotal feedback from a lighting manufacturer's representative and distributors indicates that over 1 million A-type incandescent light bulbs are sold through retail establishments from just one manufacturer. These sales are not declining. Sales of CFLs are about 60,000 lamps annually from the same single manufacturer and are increasing slowly.

In addition, HECO's experience with new home construction indicates that an average household can have as many as 27 light sockets. This means that the potential for CFLs is in the millions. This evidence supports the anecdotal information indicating that over one million incandescent bulbs are sold on Oahu annually. Not all these applications are optimal for CFLs reinforcing the need for education and promotion. However, there is clearly enough potential to place 180,000 CFLs in households in 2006. The 60,000 number is the number of times three bulbs are purchased using the HECO incentive. Some of these may be the standard CFL and some may be for different applications within the home such as dimming or enclosed fixtures. As a result, some consumers may purchase CFLs multiple times.



Estimates of residential lighting energy usage can vary from 13% to 19%, based on operational experience of HECO's program managers, customer surveys, and end-use forecasting. The 13% stated is based on HECO's residential appliance saturation surveys. In HECO's Phase II report supporting the IRP-3 assessment (see page 23 of 169 of Exhibit HECO-1102 in Gregory Wikler's direct testimony, HECO T-11, in Docket No. 04-0113), lighting was estimated to represent an even higher amount of total energy usage (at 19%). This figure was based on the Consultant's review of HECO's saturation surveys and end-use forecasting model results. It was equivalent to refrigeration and represented a higher amount than water heating (at 17%).

II.

PROGRAM SCOPE

A. Overview

The Interim E\$H Program will use the existing Oahu distribution channels for retail lighting products. These preexisting channels are well established and use multiple manufacturers, distributors, and retailers. The program will consist of the following:

- Customer incentive in the form of a coupon.
- Marketing and advertising:
 - Educational radio campaigns
 - Educational newspaper print ads
 - Educational collateral material with the coupon
 - Promotional events.
- Trade ally (manufacturers, distributors, retailers) outreach

The estimated budget for the Interim E\$H Program is shown on page 10.

HECO is testing one delivery mechanism in the fourth quarter of 2005. This method provides consumers a rebate via a coupon redeemable from participating local retailers. HECO is providing a coupon worth \$1 off the price of two CFLs at participating retailers. The consumer gives the coupon to the retailer upon purchase and the retailer deducts the \$1 from the consumers purchase price. Retailers present coupons and proof of purchase information to their distributor (WEBCo) who submits information for reimbursement from General Electric, Inc. ("GE") and HECO. This campaign is jointly sponsored and funded by HECO, GE, and WEBCo, a local distributor. HECO capitalized on an unique opportunity to partner with these entities for the last quarter of 2005.

This mechanism was selected to test consumer and retailer acceptance to this type of program. The theme for the campaign is "See the Light, Make the Change." Thus far, response from retailers has far exceeded expectations. It is too early to determine response from consumers. As a result, the marketing methodology (coupon, rebate, retailer discount) for the interim program has not been fully determined.

B. Customer incentive

The cost of CFLs has declined substantially from their original market price when they were introduced in the 1980's. However, their cost is still substantially higher than an incandescent lamp. Also, consumers have little knowledge of the benefits of CFL's compared to incandescent lamps and some have even fallen victim to inconsistent product quality or mis-application. As a result, some incentive and education is required in order to motivate the market and overcome existing market inertia. HECO has researched programs in other jurisdictions and obtained feedback from distributors, manufacturers, and retailers. This input indicates that, initially, an average customer incentive of \$2.50 per lamp should be adequate to accomplish goals when combined with an effective marketing campaign. This assumes an average cost of \$5.75 per lamp. The table below indicates typical sizes and potential incentives for CFLs. In general, lamps with the Energy Star label will qualify for the incentive. These lamps are stocked at many retailers such as Longs Drugs, WalMart, Foodland, City Mill, etc.

Table 1 – CFL Prices and Suggested Incentives

	Standard (single pack)	Wattages	Dimmable	3-Way	For Enclosed Fixtures	Damp Location	Wet Location	Par 20	Par 30	Par 40	Globe
Longs Drugs	6.29 - 8.99	10,15,20,26	NS	NS	NS	NS	NS	NS	NS	NS	NS
Times Supermarket	5.89	10,15,20,26	NS	NS	NS	NS	NS	NS	NS	NS	NS
Foodland	5.89	10,15,20,26	NS	NS	NS	NS	NS	NS	NS	NS	NS
City Mill	4.99 - 7.99	10,15,20,26	NS	NS	NS	NS	NS	NS	NS	NS	NS
Daiei	6.29	10,15,20,26	NS	NS	NS	NS	NS	NS	NS	NS	NS
7-Eleven	6.29	10,15,20,26	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lowes	4.95 - 9.85	10,15,20,26	NS	NS	NS	NS	NS	NS	11.89	NS	NS
Home Depot	7.99 - 11.99	10 - 28	NS	NS	10.89	NS	NS	NS	16.79	NS	7.97
Light Bulb Source	5.20 - 8.89	4 -36	19.95 - 24.99	19.99	NS	10.99	10.99	12.99	11.99	9.99	12.99
Suggested incentives	1.00		5.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50

NS = not sold

The customer incentive will be in the form of a coupon:

- A directly mailed coupon offering an instant incentive when redeemed at a participating Oahu retailer.
- A downloadable coupon offering an instant incentive when redeemed at a participating Oahu retailer.
- Special printings of coupons for large association of apartment owners accounts with one HECO account offering an instant incentive when redeemed at a participating Oahu retailer, e.g., Nauru Tower, Marco Polo and Hawaiki Tower.
- Special printings of coupons for military bases offering an instant incentive when redeemed at participating military commissaries.

C. Marketing and Education

HECO will use the normal marketing methods to promote this program. These include radio, print advertising, e-mail, and limited television commercials. Marketing is a crucial element of the program to increase consumer awareness of the program and how customers can benefit by participation. Spending on marketing is inversely proportional to incentive spending. If incentives decrease, marketing expenses increase as the appeal to intrinsic values and education needs to increase. The proposed Interim E\$H Program has a rough balance between marketing and incentive expenses.

Another key component of the Interim E\$H Program is consumer education. HECO is planning a vigorous education initiative to avoid problems other utilities have incurred with CFL programs. Some of these issues have been due to sub-standard products. Most of this can be avoided by qualifying only Energy Star products as eligible for the incentive. More significant may be mis-application of the CFL technology. Many CFLs cannot be used in enclosed fixtures without reducing lamp life. In order to minimize consumer dissatisfaction with the technology, HECO will include a significant education component with its marketing and outreach efforts.

D. Trade Ally Outreach

Trade allies are a significant element in a CFL program as they enhance and support the efforts of the utility program as well as play a pivotal role in the distribution channel. The Interim E\$H Program will include a significant effort to involve retailers, distributors, and manufacturers. Following are the goals of this component:

- Coordinated marketing and advertising to maximize the impact of the dollars spent in the area.
- Increased incentives as trade allies add their specials and incentives to HECO's program incentives.
- HECO may capitalize on trade ally infrastructure to administratively support the program through fulfillment or redemption activities.
- Past HECO experience confirms that better community participation and support are realized if local establishments help promote a conservation technology. By including the local establishments the Interim E\$H Program will accomplish:
 - More Retailers stocking CFLs.
 - More Retailers stocking higher first cost CFLs for:
 - Enclosed or limited airflow fixtures
 - Damp locations
 - Wet locations
 - Three-way fixtures
 - Dimmable circuits
 - Specialty shapes
 - Reflectors
- Increase the understanding of the Retailers and their staff to help promote CFLs.
- Attracting good quality CFLs by letting our local Distributors select CFL manufactures with low warranty claims issues and good warranty replacement processes.

III.

ELIGIBILITY REQUIREMENTS

The Interim E\$H Program will be available to all residential consumers through local retail establishments. Since all consumers use electricity for lighting and geography practically limits purchases from anyone outside the service territory, there is no need to limit participation. HECO is proposing this interim program to initiate the transition from residential REWH and RNC DSM programs that target water heating to a more comprehensive portfolio of programs that address all major end uses within the home. The more comprehensive program is the Energy Solutions for the Home Program which is be part of the Energy Efficiency Docket. The proposed interim program will be incorporated into the E\$H Program assuming the E\$H Program is approved by the Commission. The Interim E\$H Program proposed will be used to target the best applications for CFLs within the home—those applications currently using the most energy and operating during the system peak. Upon incorporation into the E\$H Program, other applications will be added.

IV.

PROGRAM IMPACTS

HECO projects this program will place 180,000 CFLs into homes during the first full year. Assuming a full year implementation, this results in 2.47 MW reduction in demand at the gross system level and 13,245 MWh of energy saved annually at the gross system level. The basis for savings is presented on page 11. The demand reduction is represented at the time of system peak and accounts for lamps not being used. The annual hours of operation are assumed to be 1,460 hours based on assumptions used by the US EPA for the EnergyStar program. This program passes the Total Resource Cost ("TRC") test at 2.72, as shown on page 12.

V.

PROGRAM EVALUATION

HECO will provide an evaluation plan for the Interim E\$H Program in its next Accomplishments and Surcharge Report. The evaluation plan will address issues such as the program's performance, targeting, delivery mechanisms, and technology.

VI.

PROGRAM ANALYSIS

A. Program Cost

Program costs include consumer incentives, labor, marketing, evaluation, and administration support for the program budget is provided on pages 13 to 15. The incentives are consistent with those provided by other utilities and have met with favorable acceptance in HECO's test campaign.

B. Program Benefits

The program reduces demand at system peak by 2.47 MW and saves 13,245 MWh of energy annually. This system peak reduction will help HECO to manage its reserve capacity shortfall situation.

C. Cost-Effectiveness Analysis

The benefits and costs of the program were analyzed using the Strategist modeling program. The proposed Interim E\$H Program has a TRC of 2.72. The avoided capacity and energy costs are based on IRP-2 and the 2003 forecast of fuel prices, as shown on page 12.

VII.

RECOVERY MECHANISM

A. Cost Recovery

The Interim E\$H Program will require HECO to incur expenses for customer incentives, Direct Labor and Outside Services.

HECO requests the Commission to allow the use of the currently implemented and Commission approved DSM adjustment component of the IRP Cost Recovery Provision to recover program costs. In order to continue the reduction of administrative burdens, HECO requests that the Commission continue to allow contemporaneous expense recovery.

B. Lost Margins

HECO is not requesting lost margins for this interim program.

C. Shareholder Incentives

HECO is not requesting approval of shareholder incentives for this interim program.

D. Rate Impacts

The estimated impact of the recovery of costs for the Interim E\$H Program on HECO's Schedule R residential rates is \$0.0005 per kWh. The bill impact to a typical residential bill using 600 kWh per month is \$0.30. This estimate uses HECO's May, 2005 sales forecast for 2006 Schedule R sales.

VIII.

PROGRAM REPORTING

Since this is an interim program and may not endure through the normal reporting period, HECO proposes to include updated information about the Interim E\$H Program in its annual Program Modification and Evaluation Report. In addition, HECO will report on progress during the Energy Efficiency Docket as support for the E\$H Program.

IX.

PROGRAM FLEXIBILITY

A CFL program of the scope and depth of the proposed Interim E\$H Program has not been implemented before in Hawaii. Lamp applications are likely to transition during program implementation to respond to customer needs and incentive levels may need to reflect these changes. For example, the \$2.50 per lamp incentive may motivate customers to install a non-dimming, non-three-way, non-enclosed CFL fixture costing an average of \$5.75, but a \$5 per lamp incentive may be necessary to motivate a customer to install an amalgam-based CFL in an enclosed or limited airflow fixture costing \$13 per lamp in a kitchen. Therefore, HECO is requesting program flexibility to establish incentive levels based on needs without prior approval by the Commission. In addition, some flexibility will be necessary concerning the relationship between incentives and marketing costs. This reflects customer motivation and awareness. Finally, HECO requests flexibility to exceed the program budget by 25% if the program exceeds expectations in order to maintain momentum and avoid customer dissatisfaction due to program cessation.

HECO Energy Solutions for the Home Program
(Interim E\$H Program for CFLs)

2006 Interim Budget

	<u>2006</u> <u>Interim</u>
Participation	
New Participants	60,000
Ave. Lamps per Participant	3
Total Lamps	180,000
MW Enrolled/Reduced (Gross System)	2.47
MWH Reduced (Gross System)	13,245
Incentives	450,000
Direct Labor	
Base	30,468
Incremental	<u>9,073</u>
Total Labor	39,541
Outside Services	
Implementation	120,000
Tracking	11,111
Evaluation	15,000
Advertising	330,000
Admin/Misc	25,000
Total	\$990,652

* Program begins in January.

** Incentive is based on an average of \$2.50 per CFL

**BACKUP FOR COMPONENT/PROGRAM LEVEL SAVINGS, PARTICIPANTS AND COSTS
ENERGY SOLUTIONS FOR THE HOME (ESH)**

SUMMARY - PROGRAM DETAILS

Program	2006 Aggregate	
	Annual Energy (kWh)	Peak Demand (kW)
	11,765,263	2,196
TOTAL		\$450,000

PARTICIPANTS AND ENERGY AND DEMAND SAVINGS

Program/Measures	Per-Participant Impact (1)/(2)		Number of Participants per Year	2006 Impact (interim)	
	Annual Energy (kWh)	Peak Demand (kW)		Annual Energy (kWh)	Peak Demand (kW)
a. CFL package	196	0.037	60000	11,765,263	2,196
TOTAL -- GROSS CUSTOMER LEVEL				11,765,263	2,196
TOTAL -- GROSS SYSTEM LEVEL				13,244,696	2,472

INCENTIVE CALCULATIONS:

Program/Measures	Per Participant		Total Customer Cost 2006	Aggregate Incentive Budget 2006
	Equipment Cost (4)	% Rebate		
a. CFL package	\$17.25	\$2.50/bulb	\$7.50	\$450,000
TOTAL			\$1,035,000	\$450,000

SOURCE/NOTES:

- (1) Data extracted from Building Energy Simulation Tool (BEST) model runs developed by HECO consultant GEP specifically for this project. Values reflect building characteristics from Oahu.
- (2) Per-participant impacts represented at the Customer Level.
- (3) CFL savings based on going from 60watt incandescent to 20 watt CFL - each bulb is assumed to be utilized in the home; 3 bulbs per home; assumed hours of operation = 1460 hours/year (based on EnergyStar program assumptions); Energy savings of 58.4 kWh (40 watts x 1460 hours) is then run in the BEST model; additional savings reflect HVAC interactions resulting from lighting heat gain reductions; final figures are 64 kWh for single family and 67kWh for multi-family; weighted average impact is 65.4 kWh/bulb or 196 kWh per household; kW impacts of 0.04 kW reflect system coincidence and are extracted from the load reduction of the measure at the time of HECO's system peak.
- (4) Based on assumption that retail cost for the participant would be \$5.75 per bulb.

Backup Calculations - Per Participant Impacts and Costs:

Measure	Representative Prototype (a)	Weight of Prototype in Measure (b)	Impacts per Measure (c)				Impacts per Participant	
			Base Case	Efficiency Case	Measure Life	Units	Assumed Unit Value	Weighted Measure kWh
a. CFL	SFAM-Existing MFAM-Existing	50% 50%	60W Incandescent 60W Incandescent	20W CFL 20W CFL	5 5	per lamp per lamp	0.037 0.037	196

BACKUP TABLE NOTES:

- (a) SFAM=single-family home; MFAM=multi-family home; Existing=existing vintage; New=new construction vintage
- (b) Weights developed by HECO consultant GEP using engineering estimates.
- (c) Data extracted from Building Energy Simulation Tool (BEST) model runs developed by HECO consultant GEP during Phase II of this project. Values reflect building characteristics from Oahu.

DETAILED SUMMARY FOR 2006 START YEAR -- 2006 PARTICIPANTS ONLY SUMMARY
Energy Solutions for the Home (ESH)

Discount Rate	8%
General Escalation Rate	3.8%

	Benefits	Costs	Net Benefits	B/C Ratio
Participant Test	\$3,835,006	\$879,750	\$2,955,256	4.36
Participants Impact Measure Test	\$3,838,852	\$4,817,006	(\$778,146)	0.80
Utility Cost Test	\$1,838,852	\$982,000	\$856,852	3.91
Total Resource Cost Test	\$3,838,852	\$1,411,750	\$2,427,102	2.72

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025		
Net System Savings (Annual)																						
Demand (kW)	2,101	2,101	2,101	2,101	2,101	2,101	2,101	2,101	2,101	2,101	2,101	2,101	2,101	2,101	2,101	2,101	2,101	2,101	2,101	2,101	2,101	
Energy (kWh)	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	
Total Energy (kWh)	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	11,257,991	
RATES																						
Summer Demand (\$/kW)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Energy (\$/kWh)	\$0.1130	\$0.1172	\$0.1217	\$0.1263	\$0.1311	\$0.1361	\$0.1413	\$0.1467	\$0.1522	\$0.1580	\$0.1640	\$0.1702	\$0.1767	\$0.1834	\$0.1904	\$0.1976	\$0.2051	\$0.2129	\$0.2210	\$0.2294	\$0.2384	
BENEFIT CALCULATIONS:																						
Avoided Costs (Total Resource)																						
Demand (kW)	\$264,685	\$274,743	\$285,183	\$296,020	\$307,269	\$318,931	\$331,007	\$343,597	\$356,699	\$370,315	\$384,446	\$399,092	\$414,253	\$429,930	\$446,123	\$462,833	\$480,050	\$497,774	\$516,005	\$534,751	\$554,011	
Energy (kWh)	\$566,527	\$588,055	\$610,401	\$633,597	\$657,673	\$682,629	\$708,465	\$735,191	\$762,817	\$791,343	\$820,770	\$851,107	\$882,354	\$914,511	\$947,578	\$981,555	\$1,016,442	\$1,052,239	\$1,089,056	\$1,126,893	\$1,165,750	
Total	\$831,212	\$862,798	\$895,585	\$929,617	\$964,942	\$1,001,560	\$1,039,472	\$1,078,788	\$1,119,516	\$1,161,658	\$1,205,316	\$1,250,499	\$1,297,207	\$1,345,441	\$1,395,201	\$1,446,588	\$1,500,602	\$1,557,233	\$1,616,451	\$1,678,344	\$1,742,911	
Avoided Costs (Participant)																						
Demand (kW)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Energy (kWh)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Cost Calculations:																						
Cost Inputs:																						
Program Administration	\$532,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Incentives	\$450,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Participant	\$879,750	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total Participant Costs	\$1,861,750	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total TRC Costs	\$1,861,750	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	

Interim E\$H Work Papers

Section VII D—Rate Impacts

The basis for this calculation was simply the program cost divided by the annual residential sales. The forecasted residential sales for 2006 are from the HECO rate case reference Docket No. 04-0113, Page 18 of 49.

Program cost	\$990,652
Revenue Tax Factor	<u>x 1.0975</u>
Total Program Cost	\$1,087,241
Residential Sales for 2006	2,218,400 MWh

Cost per kWh is \$0.0005 per kWh

Appendix -- Budget

There is no standardized or prescriptive method for developing budgets for DSM programs. HECO relies on its experience with existing programs and compares the budgets to other company's programs. This budget was developed as follows:

Incentives

The incentives were estimated based on an average of \$2.50 per CFL.

Direct Labor

Direct labor is for a program manager required to manage the program. Based on similar program experience at HECO, this is estimated to be less than 25% of the program manager's available time, uses HECO's standard labor rate, and corresponding overheads.

Outside Services

Implementation

Based on past experience with a showerhead campaign a few years ago with approximately 35,000 showerheads, HECO found that collecting coupons, updating customer information and taking care of customer issues is very time consuming. The process of entering the participating customers into its database system of record is a very labor intensive process. It took three people, three weeks of man hours to update our database for just 35,000 customers. Based on this, HECO is going to utilize more electronic technology to process and track an estimated 60,000 customers purchasing an average of three CFLs. In addition to this HECO will need to process payments for the coupon redemption to a large number of redemption or clearing houses, which HECO is forecasting to be very labor intensive as well.

Tracking

Based on forecast provided by HECO's consultant.

Evaluation

Based on estimates of similar activities.

Advertising

Advertising estimates are based on HECO's experience with the 2005 "See the Light, Make the Change" CFL campaign and previous experience. In general, when addressing consumers, lower incentive dollars require greater funds for promotion as the need for education and advertising is necessary to move the general public. The promotion budget for this program reflects a balance between incentives and promotion. The promotion plan also reflects the need to have visibility in many different forms and media. Education is needed to inform customers concerning the reasons they should switch from the cheaper incandescent lamps to the more energy efficient and longer lasting CFLs. Then additional education is needed to teach the general public how to properly select the appropriate CFL for optimum performance for fixtures that require 3-way bulbs, dimmable, enclosed fixtures, damp location, wet location and specialty applications.

This campaign will include many channels of education resulting in higher participation:

1. Providing and creating materials for the retailers and their staff, and a promotional purchase program for the retailer employees, so they can see the benefits from personal use, and give the retailers an understanding of why this campaign is so important.
2. For the general public HECO will consider the use of direct mailers, local newspaper, mass transit, internet, point of purchase, local schools and radio to educate the public on CFL applications. Once they understand the benefits they can then go to a local retailer and purchase the CFLs.
3. HECO would also like to do special point of purchase materials for both retailers and military retail operations, which may include a "shopping list", special stickers on the packaging showing dollar saving using Oahu rates, etc.

The costs of promotion for a year long program is derived from the experience gained in the "See the Light, Make the Change" CFL campaign which was a three month program:

Cost for three months, \$97,092.

- a. \$3,000 of radio production cost.
- b. \$65,000 of radio commercials.
- c. \$14,092 for printing the bill inserts for one month.
- d. \$10,000 for printing coupons in newspapers, flyers and newsletters.
- e. \$5,000 for printing tear pads or Instant Redeemable Coupons.
- f.

Projected cost for a year of campaigning, \$330,000

- a. \$6,000 for radio production
- b. \$200,000 for radio commercials.
- c. \$30,000 for printing bill inserts for two months.
- d. \$44,000 for newspaper, flyers and newsletters.
- e. \$20,000 for printing coupons.
- f. \$30,000 for point of purchase materials.

Admin/Misc

Based on similar program experience. This includes office space rental, office supplies and other miscellaneous expenses.

HECO Reserve Capacity Shortfall

In its March 10, 2005 Adequacy of Supply report (“2005 AOS report”), HECO informed the Commission that “HECO expects to have sufficient generation capacity to meet the forecasted peak demands of electricity use.¹ However, HECO anticipates reserve capacity shortfalls in 2005 and projects these shortfalls to continue at least until 2009, which is the earliest that HECO expects to be able to permit, acquire, install and place into commercial operation its next central station generating unit. (The planned generating unit addition is a simple cycle combustion turbine, sized in the 100 MW range, to be located at a site in Campbell Industrial Park.)”²

Summary of the Reserve Capacity Shortfall

The extent to which generating system reliability would fall below HECO’s 4.5 years per day generating system reliability guideline was quantified in Table 3, on page 17, of HECO’s 2005 AOS report, and is replicated below.

Table 3:
Generation System Reliability
(Base Load Management DSM, Enhanced Energy
Efficiency DSM, CHP, and EFOR)

Year	Generation System Reliability (years/day)
2005	1.2
2006	1.0
2007	0.9
2008	1.6
2009	1.1

The magnitude of the reserve capacity shortfall was quantified in Table 4, on page 18, of HECO’s 2005 AOS report, and is replicated below.

¹ HECO clarified this statement in response to CA-IR-560, part c., in Docket No. 04-0113 (HECO Test Year 2005 Rate Case).

² Pages 5 and 6 of the report

Table 4:
Reserve Capacity Shortfall
(Base Load Management DSM, Enhanced Energy
Efficiency DSM, CHP, and EFOR)

Year	Reserve Capacity Shortfall (MW)
2005	-60
2006	-70
2007	-70
2008	-50
2009	-60

It should be noted that HECO also indicated in its 2004 AOS report, filed with the PUC on March 31, 2004, that “since firm capacity from the new central-station generating unit will not be in place before 2009, HECO’s generating system reliability could fall below the 4.5 years per day threshold in 2006 and beyond if other firm capacity is not installed by them, or if the peak reduction benefits of additional or accelerated energy efficiency and load management DSM programs and those of CHP or DG are not realized, beginning in 2005.”

Status of Action Plan and Mitigation Measures

In Section 5, on page 24, of the 2005 AOS report, HECO described its Action Plan and Mitigation Measures. The elements of the Action Plan and Mitigation Measures included the following:

- Implement Enhanced Energy Efficiency DSM Program
- Implement Utility CHP Program
- Improve Availability of HECO Generating Units
- Maintain or Improve Availability of Independent Power Producers
- Accelerate the Installation of the Next Generating Unit
- Additional Mitigation Measures Under Consideration
 - Installation of distributed generators (“DG”) at various HECO substations, and evaluation other possible sites.
 - A demand load response program to seek additional interruptible loads for customers unwilling or unable to participate in the CIDLC load management program.
 - A Residential AC Load Control Program, which will add residential air-conditioner load control to the existing residential direct load control program, which currently focuses solely on water heating.
 - A public notification program.

With respect to the Action Plan and Mitigation Measures, HECO stated “HECO’s action plans and mitigation measures are not intended to be a single plan of action. Instead, HECO’s action plans and mitigation measures are meant to be part of a process to continuously re-evaluate, re-assess, and modify the appropriate actions and measures that should be planned for in response to changing circumstances.”³

A status report on the Action Plan and Mitigation Measures was provided to the Commission in HECO’s response to various Consumer Advocate Information Request submitted in Docket No. 04-0113 (HECO Test Year 2005 Rate Case). In particular, HECO’s responses to CA-IR-446, 448, 535, 558 and 574 provided updates as of June 8 and June 9, 2005 when these responses were filed with the Commission.

On May 13, 2005, in Decision and Order No. 21820, in Docket No. 04-0320, the Commission approved Amendments No. 5 and No. 6 to the Power Purchase Agreement between HECO and Kalaeloa Partners, L.P. The actual amount of capacity that will be provided is 28 MW as determined by a capacity test performed in the combined cycle unit.

On October 28, 2005, HECO filed with the Commission its IRP-3 major integrated resource plan evaluation. Section 6.3 provided a description of the existing and enhanced DSM programs and a projection of their peak reduction benefits. Sections 11.8 and 11.9 provided an overview of the risk mitigation measures to help prevent a reserve capacity shortfall. Section 15.4 provided details of the risk mitigation measures.

With respect to DG at HECO sites, three units of 1.64 MW (total of 4.92 MW) each went into service at the Ewa Nui substation on October 26, 2005. Three units of 1.64 MW (total of 4.92 MW) each went into service at the Iwilei Tank Farm on November 9, 2005. Three additional units of 1.64 MW (total of 4.92 MW) each are targeted for service at the Helemano substation on December 16, 2005.

Current Reserve Capacity Situation

HECO continues to experience a reserve capacity shortfall. As an indication of the severity of the situation, HECO experienced during the week of November 7, 2005 a period where its reserve capacity was very low and HECO called for customers to conserve electricity. Please see the attached New Release dated November 9, 2005, pages 9 to 12 of this Exhibit. Within the shortfall period, service to electric water heaters of over 5,000 participants in HECO’s Residential Direct Load Control Program was interrupted in order to mitigate the effects of the shortfall.

HECO is currently in the process of updating its forecasts for energy efficiency DSM, load management DSM and CHP impacts. HECO is also evaluating additional installations of DG. HECO is also compiling information on the forced outage rates on its generating units for the

³ Page 27 of the 2005 AOS report.

past year and will update its forecast of Equivalent Forced Outage Rates. Once all updated inputs have been compiled, HECO will re-evaluate its reserve capacity shortfall. HECO will file its 2006 AOS report in January 2006. The report will contain the results of its analysis using updated information.

Reserve Capacity Shortfall Calculation

Notwithstanding actual events that indicate a reserve capacity shortfall, HECO offers the following additional information in order to further support its conclusion that it has a reserve capacity shortfall:

General Calculation Methodology for Generating System Reliability and Reserve Capacity Shortfall

As given in Section 4.2 on page 15 of HECO's 2005 AOS report, HECO's generating system reliability guideline is 4.5 years per day. As noted in Appendix 3, page 7, and in Appendix 6, page 1 of the report, the inputs used to determine generating system reliability for a given system over a given period of time are:

- daily peak forecast;
- Normal Top Load Ratings and number of generating units;
- planned maintenance schedule; and
- Equivalent Forced Outage Rates ("EFOR") of each generating unit.

These data are input into a computer model which then calculates the loss of load probability ("LOLP") in days per year using the algorithm described in Appendix 3 of the report.

Generating system reliability is the inverse of LOLP. Where generating system reliability is determined to be less than 4.5 years per day (as shown in Table 3 above), a determination is made as to how many more megawatts of capacity would be needed on the system in order to increase generating system reliability to 4.5 years per day. That amount is the reserve capacity shortfall as shown in Table 4 above.

Input Data

A forecast of daily peaks was used in the calculation of generating system reliability in the 2005 AOS report.

The Normal Top Load Ratings, as well as the type of unit and duty (peaking, cycling or baseload) of the units, were provided in HECO's response to CA-IR-446, 535 and 558 in Docket No. 04-0113 (HECO Test Year 2005 Rate Case). Additional information on existing supply-side resources can be found in Section 8.2 of HECO's IRP Plan, filed on October 28, 2005 in Docket No. 03-0253. Section 8.2.1 describes HECO's resources; Section 8.2.2 describes IPP resources; and Section 8.2.2.1 describes the 28 MW recently made available through Amendments Nos. 5 and 6 to the Kalaeloa Partners, L.P. power purchase agreement.

The planned maintenance schedule used in the calculation of generating system reliability in the 2005 AOS report was the schedule dated February 5, 2005. This was provided in HECO's response to CA-IR-43 in Docket No. 04-0113.

The EFORs for each HECO generating unit were provided in HECO's response to CA-IR-446 in Docket No. 04-0113. The EFOR for each non-utility generating unit is 1% for Kalaeloa, 1% for AES and 10% for H-Power.

Detailed LOLP Calculation

The number of calculations that must be performed in an LOLP determination is 2^N , where N is the number of units on the system, for each increment of time in the period in question. This is because each unit can have one of two states: on or off. For HECO's LOLP calculation, the period in question is one year and the increment of time is one day. (Hence, the resulting reliability value is in terms of years per day.)

For the illustrative calculation shown in Appendix 3, pages 7 to 9, of HECO's 2005 AOS report, there are three hypothetical units, and the probability calculation is for one day. Therefore, there are 2^3 , or 8 calculations (or states).

There are 19 units on the HECO system. Therefore, for each day, there will be 2^{19} , or 524,288 calculations. For the entire year, there will be 191 million calculations. As indicated above, HECO uses a computer program to perform the calculations.

In order to better illustrate the calculation shown for the hypothetical example in Appendix 3 of the 2005 AOS report, the actual information for the HECO system can be entered into a spreadsheet. HECO can make available to the Commission and Consumer Advocate the spreadsheet template and input data.

Type of Capacity Needed

As indicated on pages 24 to 27 of the 2005 AOS report and in HECO's responses to CA-IR-446, 535 and 558 in Docket No. 04-0113, HECO is pursuing a portfolio of demand-side and supply-side resources to mitigate the reserve capacity shortfall. No single measure by itself can overcome the shortfall. As indicated in HECO's response to CA-IR-448, the type of capacity that would best meet system needs based on the system demand profile in the near-term would be a simple cycle peaking unit.

Conclusion

HECO reported in its 2004 AOS report that it projected a reserve capacity shortfall beginning in 2006 and will last until the next generating unit can be installed. In its 2005 AOS report, HECO indicated that it has a reserve capacity shortfall and that it will persist until the next generating unit can be installed. HECO has provided substantial documentation on its assessment of generating system reliability. HECO actually experienced a period in November 2005 when it needed to interrupt service to participants in its Residential Direct Load Control Program in order to mitigate the effects of the reserve capacity shortfall during that period.

HECO is pursuing a number of measures to mitigate the reserve capacity shortfall. HECO is in the process of re-evaluating the reserve capacity shortfall situation using updated information and will submit its 2006 AOS report in January 2006.

The following provides a listing of relevant responses to the CA-IRs in Docket No. 04-0113. The information contained therein may be useful in validating HECO's conclusion that it has a reserve capacity shortfall.

Information Request	Brief Description of Topic
CA-IR-271	Historical and projected Loss of Load Probability values.
CA-IR-272	Generating system reliability under different scenarios.
CA-IR-273	Measures to meet needs for additional capacity, including from Kalaeloa and DSM.
CA-IR-274	Continued operation of all existing units.
CA-IR-275	Expected load reductions or additional capacity from DSM, CHP, renewable energy and other measures.
CA-IR-277	Capacity and energy requirements for base, high and low scenarios.
CA-IR-278	Basis of projection of need for additional capacity.
CA-IR-279	Contingency analyses.
CA-IR-404	Other options for capacity, including CHP and IPP options.
CA-IR-433	Table of HECO and IPP generating unit data, including rating, type of unit, fuel used, commercial operation date, and other information.
CA-IR-434	Supporting documentation for sales and peak forecast.
CA-IR-435	Forecast of interruptible loads.
CA-IR-436	Capacity that can be accommodated by HECO's Campbell Industrial Park site.
CA-IR-437	Information on as-available energy producers.
CA-IR-439	Improving availabilities of HECO generating units.
CA-IR-444	Timing of communication of the reserve capacity shortfall to the Commission.
CA-IR-445	Generating system reliability under different scenarios.
CA-IR-446	Mitigating the risk of a reserve capacity shortfall.
CA-IR-447	Extent to which renewable resources can mitigate the reserve capacity shortfall.
CA-IR-448	Simple cycle combustion turbine is the type of capacity needed; options explored.
CA-IR-449	Projection of Equivalent Forced Outage Rates.
CA-IR-453	Contingency analyses.
CA-IR-461	Projection of Equivalent Forced Outage Rates.
CA-IR-557	Chronology of generating system reliability analyses.
CA-IR-558	HECO's 2004 Adequacy of Supply report filed in March 2004 identified a reserve capacity shortfall in the period 2006 until the next

	firm generating unit is added; mitigation measures identified at that time.
CA-IR-559	Contingency analyses performed for 2004 report.
CA-IR-560	Meaning of generating system reliability values.
CA-IR-561	HECO generating system reliability guideline of 4.5 years per day has been in effect since 1968.
CA-IR-562	HECO has not made any "commitments" to government leaders or agencies to preserve generating system reliability at or above 4.5 years per day.
CA-IR-563	Increase in reserve capacity shortfall from 2004 to 2005.
CA-IR-564	HECO has not increased its generating system reliability guideline to 7.0 years per day.
CA-IR-565	HECO has not made any "commitments" to government leaders or agencies to preserve generating system reliability at or above 7.0 years per day.
CA-IR-569	Impact of delays in DG and CHP proceedings.
CA-IR-571	Permitting lead times for new generating facilities; initiating of permitting for HECO's next generating unit.
CA-IR-572	Engineering lead times for new generating facilities; initiating of engineering for HECO's next generating unit.
CA-IR-573	Projection to re-attain the 4.5 years per day reliability; projection to attain a 7.0 years per day reliability.
CA-IR-574	Status report on Action Plan and Mitigation Measures identified in HECO's 2005 Adequacy of Supply report.
CA-IR-576	HECO generating unit characteristics.
CA-IR-580	HECO generating unit outputs at the time of the system peak.



Hawaiian Electric Company

NEWS • RELEASE

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- For Immediate Release -
2:00 p.m. November 9, 2005

HECO continues to ask Oahu customers to conserve *Additional steps taken to boost power reserves*

(Honolulu, HI) Hawaiian Electric Company (HECO) continues to ask Oahu residential customers to conserve electricity to help avoid power outages due to problems with several generating units.

For the past two days, HECO has issued a call for conservation to all customers, including larger commercial customers, asking for a voluntary reduction in electricity use to help avoid power outages due to lower than normal generation reserves.

Last night, to further increase those reserves during the evening peak, the company:

- Remotely turned off the water heaters of approximately 5,000 residents participating in HECO's EnergyScout program for a brief time, saving an additional three megawatts during the demand peak.
- Put into service over 9 MW from distributed generation units located at its Ewa Nui and Iwilei substations. These small diesel generators were recently added to help provide additional peak power in such emergency conditions.

"We want to thank everyone – both business and residential customers – for pitching in, and we want to get the word out that we need you to keep it up," said Jose Dizon, HECO spokesman. "Our reserve margin remains very tight and will stay that way until we get more units back on line. Until then, the unexpected loss of a generating unit could result in the loss of power to some of our customers."

Two HECO generating units are operating at reduced power levels (approximately one-half of their normal capacity) due to problems encountered over the weekend. (HPOWER, an independent power producer which sells power to HECO, was at reduced output earlier this week, but is now operating at its normal level.)

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HECO continues to ask Oahu customers to conserve
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Two other HECO units are also offline for repair work and scheduled maintenance. In addition, another HECO generating unit was shut down this weekend for emergency maintenance. In summary, out of 19 units on the system, two are operating below capacity and three are out of service entirely for various reasons.

"HECO is working to repair generating units as quickly as possible," Dizon added. "We would like to thank HPOWER for returning their unit to service as quickly as possible and Hawaii businesses and residents for cutting back where they can. We're not out of the woods yet. The duration of this condition of tight reserve margins will depend on how long the repairs take, which could be through the week or possibly longer."

Residential customers can assist in conserving electricity. Turn off air conditioners, other major appliances and lighting in unoccupied areas whenever possible. Minimize cooking and delay hot showers, electric dishwashing and drying and use of washing machines and electric dryers until after the peak demand period from 5 p.m. to 9 p.m. on weekdays.

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NOTE: Energy conservation tips from HECO's Live Energy Lite program are attached.

HAWAIIAN ELECTRIC COMPANY'S TOP TEN ENERGY TIPS FOR OAHU

These Top Ten Tips include simple and low-cost ways that every consumer can use to conserve energy and save money. Hawaiian Electric also strongly recommends solar water heating for long-term conservation and savings. Please call 94-POWER for more information on the HECO rebate and state tax credit for installing solar water heating.

Light with Compact Fluorescents

Changing just one 100-watt bulb to a CFL equivalent, based on four hours use per day, can save 108 kilowatt hours (kWh) a year.

Use Fans instead of Air Conditioners

Two fans, rather than an 8,000 BTUH room air conditioner running four hours a day, will save over 1,150 kWh.

Shorten Showers

Cutting just two minutes per shower could save up to 1,533 kWh per year.

Fix Leaky Faucets

A faucet leaking just one hot water drop per second uses 400 kWh per year.

Wash Clothes in Cold Water

Switching from Hot Wash/Warm Rinse to the Cold/Cold cycle on a standard, top-loading washing machine for just two loads a week can save 225 kWh per year.

Eliminate Energy Sneakers (Phantom Load)

Use a power strip to conveniently turn off computers (after properly logging off), monitors and printers as well as cellular phone, PDA and camera battery chargers when not in use can save 50 kWh per year.

Air Dry Dishes

Letting dishes air dry instead of using heated drying on the average dishwasher saves 110 kWh per year.

No Peeking

Limiting how often and how long you open the refrigerator will save electricity and protect the appliance. Also limit opening the oven while cooking or baking to save electricity, protect the appliance and speed up cooking times too.

Install Motion/Occupancy Detectors indoors and out

Using a motion sensor for outdoor (and bathroom) lighting can save, for example, reducing a single 150-watt outdoor flood light from six hours to one hour per night with saves up to 270 kWh.

Use Energy Star Appliances

When replacing or adding appliances, look for the Energy Star symbol on refrigerators, ovens and dishwashers, as well as DVD and VCR players, televisions and home office equipment. Visit www.EnergyStar.org to learn more.

Save \$3 on your electric bill with EnergyScout program

To assist in controlling the peak demand for electricity on Oahu, consider allowing HECO to install a free EnergyScout device on your electric water heater. This allows HECO to briefly turn off your water heater in case of a system emergency, though most people will not even notice it. In return for your participation in the program, HECO will take a \$3 per month off your electric bill, even if we do not have to turn off your water heater.