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PUBLIC UTILITIES COMMISSION
DEPARTMENT OF BUDGET AND FINANCE
465 S. KING STREET, #103
HONOLULU, HAWAII 96813

March 15, 2006

To distribution list

Re: Docket No. 05-0069 - Application for Approval and/or Modification of Demand-Side and Load Management Programs and Recovery of Program Costs and DSM Utility Incentives

Dear Parties and Participants:

Enclosed for your use is a copy of the report submitted to the Commission by the United States Environmental Protection Agency ("EPA"), the Commission's consultant on the issues raised in this proceeding. The Commission will allow you to respond, if you so desire, to the EPA's report within ten days of the filing of the order amending the schedule of proceedings, Order No. 22319. The Commission intends to file an interim decision and order on HECO's interim proposals as soon thereafter as possible. Should you have any questions, please contact Catherine P. Awakuni at 586-2017.

Sincerely,

Carlito P. Caliboso
Chairman

CPC:CPA:eh

Enclosure

c: Joe Bryson, EPA

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OFFICE OF AIR AND RADIATION

Climate Protection Partnerships Division
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Washington, DC 20460

March 3, 2006

FILED
2006 MAR -7 P 4:00
PUBLIC UTILITIES COMMISSION

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

Subject: Docket No. 05-0069, Interim DSM Proposals

Dear Commissioners:

The U.S. EPA is pleased to provide the Hawaii Public Utilities Commission (HI PUC) our review of the Interim Demand-Side Management Proposals put forward by the Hawaiian Electric Company, Inc (HECO). Under the Energy Efficiency and Renewable Energy (EERE) Projects initiative with states, EPA is providing assistance to help the HI PUC evaluate opportunities for cost-effective energy efficiency programs that will further Hawaii's clean energy objectives. In this instance, the HI PUC has asked EPA and its consultants for assistance in reviewing HECO's Interim DSM Proposals (Docket No. 05-0069).

We have completed the requested review. Please find our review attached.

If you have any questions, please contact me at (202) 343-9190 or Joe Bryson, who lead the review effort, at (202) 343-9631.

Sincerely,

Kathleen Hogan
Director
Climate Protection Partnerships Division

EPA Review of HECO Interim Demand-Side Management Proposals (Docket No. 05-0069)

I. Introduction

The U.S. EPA is pleased to provide the Hawaii Public Utilities Commission (HI PUC) with comments on the Interim Demand-Side Management Proposals put forward by the Hawaiian Electric Company, Inc (HECO). Under the Energy Efficiency and Renewable Energy (EERE) Projects partnership with states, EPA is providing expertise to help Hawaii examine options to meet its clean energy goals.[1]

In this instance, the HI PUC has asked EPA and its consultants for assistance in reviewing HECO's Interim DSM Proposals. In particular EPA was asked to review the interim proposals to determine whether they, based on a general review, appear reasonable and cost effective. EPA was asked to consider the HI Integrated Resource Planning Framework[2] – specifically section IV.H – for context on the kinds of analyses HECO is generally required to perform.[3] Issues pertaining to cost and lost margin recovery, and shareholder incentives are not addressed.

EPA recognizes that the parties to the proceeding have agreed, with some reservations, that the HI PUC should authorize the proposed interim programs to help address the reserve capacity shortfall. It is our understanding that only temporary approval of these programs would be provided, and continuation of the programs would be considered within the context of the full suite of DSM programs proposed.[4] Within this context the EPA and its consultants reviewed the Interim DSM Proposals with a goal of providing comments that (1) may help to enhance the effectiveness of the proposed programs, (2) suggest ways to increase confidence in the projected energy savings and demand reductions, and (3) consider the cost effectiveness of the programs.. Given the abbreviated time frame for the proposed interim measures, action on some points if deemed appropriate, may not be feasible. Thus, some of these comments may be more appropriate to consider when evaluating the programs for the longer term.

EPA and its consultants have limited our primary review to HECO's December 5, 2005 letter, parties' responses of early January 2006, HECO's response to the responses of late January 2006, and the IRP Framework. We have conducted limited (not comprehensive) review of additional documentation of the DSM programs and other relevant information that exists in related HI PUC dockets. The comments are provided in the context of supporting HI PUC by generally assessing whether the proposed programs are reasonable and cost effective, and suggesting areas for improvement or further attention. The main documents reviewed by EPA and its consultants in the course of developing comments are listed below.

HECO:

- December 5, 2005, Request for approval of HECO Interim DSM Proposals

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[1] See March 16, 2005 Order 21698, Docket No. 05-0069, p. 11.
[2] *A Frame Work For Integrated Resource Planning*, PUC State of Hawaii, Revised May 22, 1992.
[3] In the case of these "interim" proposals it is our understanding that HECO may not need to fully address the IRP framework.
[4] E.g. see Consumer Advocate's January 10, 2006 response to Interim DSM Proposals, p. 3.

- January 31, 2006, HECO response to January 10, 2006 responses to HECO Interim DSM Proposals.

January 10, 2006 responses to HECO proposal:

- Hawaii Renewable Energy Alliance
- Department of Navy, NAVAC Pacific
- Rocky Mountain Institute
- Hawaii Division of Consumer Advocacy, Department of Commerce and Consumer Affairs
- The Hawaii Solar Energy Association

Other:

- *A Frame Work For Integrated Resource Planning*, PUC State of Hawaii, Revised May 22, 1992

II. Background

HECO is proposing to obtain 3.87 MW of demand reduction through enhancements to incentives for three existing C&I programs (CIEE, CINC, and CICR) and the extension of a pilot residential CFL program. These "interim" measures are intended to help address a projected reserve capacity shortfall of 70 MW in 2006. Key considerations and context for the selection of the interim measures include the following:

- A key factor in HECO's choice of interim measures was that "[t]he 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."[5]

- HECO is currently implementing load management programs for both commercial and industrial, and residential classes. 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. This request is pending approval by the PUC. HECO also planned to file modifications, by the end of 2005, to the CIDLC program to add voluntary load control and small business direct load control of residential central air-conditioning systems to the RDLC program.[6]

- According to HECO: "The Interim 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."

[5] Interim DSM Proposals, p. 5
[6] Interim DSM Proposals, p. 5

III. Comments On Program Approach

In order to place the proposed interim programs into the proper context it would be useful to know what other interim programs or approaches were considered, if at all. The rationale for the proposed HECO Interim DSM programs is to help address a reserve capacity shortfall of 70 MW in 2006. This would suggest that whether the proposed programs are reasonable and cost effective should be viewed from a demand reduction perspective. These programs provide some incentive for demand reduction, but utilize measures more commonly used to target annual energy savings. Thus, it would appear that the types of programs being proposed are not the most advantageous for reducing demand, but were selected for the ease in which they could be implemented given the very short time prior to summer capacity concerns.

Moreover, it is clear that these programs are not intended to constitute the main demand reduction effort. HECO is currently implementing commercial and residential load management programs and has requested an increase in resources for these programs toward increasing participation. The intent of the proposed programs perhaps can be best viewed as early delivery of efficiency programs that (1) can be easily and quickly implemented, and (2) do provide some demand reduction benefits. With this view energy savings are also an important consideration in whether these programs are reasonable and cost effective.

It is clear from the December 5th filing that the proposed DSM programs have been chosen over others because they are "significantly less involved and complex." What is not clear from the documentation reviewed is whether or not all possible options for interim measures were examined to address the current reserve capacity situation, and whether the potential for interim load management, rather than efficiency, programs was fully considered. Given that the proposed programs are modifications of current C&I programs and an expansion of a pilot CFL program, under the IRP Framework it may be that such an assessment is not required or warranted.

It is noted that none of the parties objected per se to approval of these interim programs but had reservations concerning cost and lost margin recovery, shareholder incentives and implications for approval of the full suite of proposed DSM programs now under review. Within this context the EPA and its consultants reviewed the Interim DSM Proposals with a goal of providing comments that (1) may help to enhance the effectiveness of the proposed programs, (2) suggest ways to increase confidence in the projected energy savings and demand reduction, and (3) consider the cost effectiveness of the programs. This limited review should be considered in the context of the interim proposals, however, the issues and matters discussed in this limited review may also have relevance in consideration of these programs within the longer term suite of DSM proposals pending before the PUC.

Commercial and Industrial

Below are comments pertaining to the proposed approach for the C&I programs.

- According to HECO 1101, Docket No. 04-0113,[7] lighting accounts for 43% of peak demand for potential Interim DSM Commercial and Industrial program participants.

[7] Note: DSM measures from Docket No. 04-0113 were separated and put into the instant docket, Docket No. 05-0069

Lighting measures are included but not specifically targeted by the CIEE and CINC programs. Prioritizing lighting measures during the interim time frame may provide higher demand reduction results.

- An important distinction should be made between the CIEE and CINC programs due to the differences in delivery mechanisms. Full demand reductions may not be realized in new construction in the interim time frame. Other important distinctions, such as higher energy savings and demand reduction results per measure, support an emphasis on applying DSM measures to the existing population of facilities during the interim time frame.

Residential

Below are comments pertaining to the proposed approach for the residential program (E$H).

- According to Docket No. 04-0113, the residential electricity demand peaks with 45% of the total accounted for by air conditioning (23%) and refrigeration (22%). Lighting makes up 17% of peak demand and is targeted by CFL measures due to cost-effectiveness. It is not clear what consideration was given to measures applied to air conditioning and refrigeration. These measures should be more valuable to achieve peak demand savings than they are energy savings. They only account for a combined 27-30% of annual consumption.

Alternative Residential CFL Program Structure

It is not clear from the details provided in the December 5th filing if alternative rebate and incentive structures were considered for the proposed Interim E$H program. From our experience, alternate models being used in several residential lighting programs offer rebates directly to the manufacturers of CFLs and/or retailers. Advantages of alternate models, over consumer coupon based programs, include:

- They provide the ability to offer the lowest retail price to the consumer
- They are simpler and cheaper to administer than coupon based programs
- They are preferred by national retail chains

The parties should identify, examine, and consider alternate models used in other states, such as NYSERDA, San Diego Gas and Electric, and Sacramento Municipal Utility District, and utilities in Massachusets.

In general the two types of alternate models that provide rebates directly to manufacturers and retailers are referred to as "product buydowns" which offer incentives at the wholesale level, and "product markdowns" which operate at the retail level.

Product Buydowns
Under this alternate model, rebates are offered directly to lighting manufacturers and the discount is applied to the wholesale price. This discount is further magnified through the retail mark-up process, making the savings even greater by the time it reaches the

customer. The overhead costs associated with this model are significantly lower as manufacturers and retailers contribute toward marketing, advertising and tracking responsibilities. Generally, participating retail outlets are required to have electronic point of sales systems to track sales of qualifying CFLs. In some cases, incentives are provided in two payments: (1) when product shipping and receiving documentation is received, and (2) when sample store level documentation of sales is provided.

Product Markdowns
Under this alternate model, rebates are offered directly to lighting manufacturers and/or retailers and are paid out based entirely on store level sales data. The retail price of the product is marked-down by an agreed upon amount and the retailer or manufacturer submits an invoice for recovery of the markdown. Retail outlets are required to have electronic point of sales systems to track sales of qualifying CFLs as rebates are paid out based on documented sales. Similar to product buydowns, program overhead costs can be significantly reduced over coupon based programs.

HECO has an advantage over some other utilities that have employed these upstream market incentives that should make a program even easier to manage. Unlike areas such as the Northeast, where verifying that a CFL has been purchased and installed within a particular utility's service territory can be difficult due to the number of utilities involved, HECO has the benefit of geographic limitations in moving towards buy-downs or markdowns. As long as the manufacturer or retailer provides accurate, credible Point of Sale (POS) data or shipment data, HECO should be able to count that sale towards its goal of 180,000 CFLs.

Regardless of the delivery mechanism, key marketing components will need to be maintained by HECO to help support program success, including utilization of an integrated marketing campaign that would include use of television and radio advertising, newspaper and magazine advertisements, and point of purchase (POP) materials. Where possible, HECO could also explore initiating a cooperative advertising component to its industry initiatives. Activities could include developing POP materials and other in-store support, or external-store support like retail circulars or tabs, website promotions and print or broadcast advertising.

HECO would be well advised to try to align these marketing efforts with national ENERGY STAR product and brand campaign initiatives such as *Change a Light, Change the World*. Aligning promotional timing, including media buys, distribution of POP materials, and media outreach, with this national campaign can allow HECO to use national campaign messaging and collateral, which includes a broad array of customizable POP templates and media kit materials, Web banners and graphics, fact sheets and product backgrounders, as well as pre-printed campaign posters and brochures. Use of these national resources can help reduce program costs and also leverage the brand awareness forged by the ENERGY STAR program to help educate consumers on the benefits and features of these products. Utilities and agencies have used the resources for campaigns throughout the year. Under the 2005 campaign, Hawaii's governor Linda Lingle joined 30 other governors marking the 1st annual ENERGY STAR Change a Light Day on October 5th.[8] For 2006, EPA is asking partners to consider using Earth Day in April as a spring board to build momentum for the campaign.

[8] See http://www.energystar.gov/index.cfm?fuseaction=cal.showCALDay#governors

A possible alternate approach would be to directly install CFLs at both Residential and Commercial buildings. These programs are typically conducted using a "neighborhood blitz" approach, where CFLs are installed in all the buildings in a targeted neighborhood, and are often done in conjunction with other services, such as home weatherization, a home energy audit or water conservation measures.

IV. Comments On Projected Demand Reduction and Energy Savings

Not all of the assumptions used to develop projected energy and demand savings in support of the Interim DSM Proposals are clearly shown.[9] We recommend that HECO clearly document all of the factors that were used to determine per measure savings. This will substantially aid in any program evaluation efforts and evaluation of these interim programs could be very useful in helping to design future, longer term efforts. For example, response to enhancements in incentives for C&I efforts could help to refine projections of participation for various proposed incentives in future programs.

Commercial and Industrial Programs

In the December 5th filing, HECO points out that the CIEE program has experienced a "slowing of growth in program participation." HECO attributes this to "applications of technology at customer sites that have longer paybacks under the existing program customer incentive levels." What is not clear is whether or not other factors were considered as potentially responsible for the reduction in program participation. For instance, it is possible that the market is saturated at the current level of technological efficiency. A more thorough assessment could be made if technology saturations for the proposed measures were made available. Other factors tied to the elimination of the two-year payback requirement for the CICR program should be more clearly stated. The demand and energy savings for the 2006 Interim program are respectively 60% and 75% greater than that reported in the 2005 Modification and Evaluation report, while the budget increases by about 33%. Justification could be as simple as showing that projects with the potential for large demand savings were excluded from the previous program due to the payback requirement. Because payback is tied to energy, not peak, demand savings, answering the question, "how much demand savings was unrealized from the 2005 program because of the two-year payback requirement?" would address this issue.

HVAC Measures

As shown in the table below, HECO's work-papers indicate that the New Construction program (CINC) saves more per ton than the existing buildings program (CIEE) for restaurants and large retail buildings.

[9] The analysis provided in Docket No. 04-0113 is the apparent source of savings estimates and targeted annual energy savings and lifecycle measure impacts for DSM measures.

	HE Cooling Efficiency Increase	
Program	Restaurant	Large Retail
CINC	685 kWh/ton	830 kWh/ton
CIEE	643 kWh/ton	776 kWh/ton

These estimates are counterintuitive, as one would expect that the retrofit of existing air conditioning units would produce a greater efficiency improvement than new construction upgrades. This is due to the fact that the efficiency of air conditioning units has improved over the years. The differential between a new high efficiency unit and a unit installed 10 or more years ago is greater than the differential between the same high efficiency unit and a new standard efficiency unit. Further, often due to a lack of timely maintenance, older installed units are operating at less than their design efficiencies. This increases energy savings for retrofit measures.

CIEE Baseline HVAC Efficiency

The air conditioning unit efficiency in the base case of HECO's work-papers is assumed to have an Energy Efficiency Ratio (EER)[10] of 8.9. The efficiencies listed are reasonable for all sizes of HVAC systems and are reasonable for the CIEE program.[11]

CINC Baseline HVAC Efficiency (Units greater than 5.5 ton cooling capacity)

For HVAC units serving new construction commercial buildings it is suggested that the impact of any local energy codes be considered. These codes may require a higher EER than the 8.9 EER which HECO assumes for the baseline. A higher baseline EER would reduce the projected energy and demands savings.

CINC Baseline HVAC Efficiency (Units less than 5.5 ton cooling capacity)

It is important to note that units smaller than 5.5 tons are subject to Seasonal Energy Efficiency Ratio (SEER)[12] based efficiency standards. These smaller units will be subject to the new federal manufacturing standard of 13 SEER (~11 EER), which went into effect January 23, 2006. The previous standard was 10 SEER. Once the existing stock of air conditioners with less than 13 SEER efficiency is exhausted this assumption will no longer be valid." The current ENERGY STAR specification for units in this capacity range is 13 Seasonal Energy Efficiency Ratio (SEER). Use of SEER values of 10 for the base case and 13 for the efficiency case may be preferable to use of EERs for energy savings projections. Use of these SEER values over the EER values of 8.9 and 11 would show higher projected energy savings.

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[10] EER is a measure of efficiency that represents the ratio of total cooling capacity (Btu/hour) to electrical energy input (Watts). A higher EER means higher efficiency.

[11] However, see the comment below pertaining to SEER as the reference for units with less than 5.5 tons capacity.

[12] SEER is a measure of equipment energy efficiency over the cooling season. It represents the total cooling of a central air-conditioner or heat pump (in Btu) during the normal cooling season as compared to the total electric energy input (in watthours) consumed during the same period.

Lighting Measures

The assumptions for lighting efficiency upgrades are not provided in HECO's work-papers. However, there is a clear difference in the savings calculations for the CINC and CIEE programs.

	HE Lighting Efficiency Increase		
Program	**Large Office**	**Small Office**	**School**
CINC	0.172 kWh/sqft	0.130 kWh/sqft	0.140 kWh/sqft
CIEE	0.199 kWh/sqft	0.297 kWh/sqft	0.177 kWh/sqft

It is necessary to know what the assumed differences are in order to make an assessment as to whether or not they are reasonable. Other lighting measures presented as part of Docket No. 04-0113 such as CFL and T-5 lighting are not included. Justification should be provided for the exclusion of these measures and could be as simple as noting the availability of other technologies or cost-effectiveness.

Lighting measures in the CINC program save 0.095 kW per participant and account for less than one percent of the program's demand savings.[13] However, lighting measures in the CIEE program save 4.16 kW per participant and account for 26% percent of that program's demand savings. Both the CINC and CIEE programs have goals of 100 participants. Applying the same number of measures as lighting retrofits instead of new construction measures would yield over 40 times more demand savings based on the values in the work papers. It makes sense for long term programs to strike a balance between new construction and retrofit measures, but lighting retrofits of existing buildings appear to better target peak demand savings in the interim time frame.

Motor Measures

According to HECO 1101, Docket No. 04-0113 commercial ventilation (due to use of electric motors) accounts for just seven percent of peak demand and ten percent of annual consumption. However, the impacts for ventilation motor measures are greater in the proposed CIEE and CINC programs than lighting measures - which represent 43% of demand and 31% of annual energy used by commercial buildings.

Engineering recommendations to optimize ductwork and decrease pressure drop for fan applications can lead to significant energy and demand savings beyond that of basic motor upgrades. By themselves, prescriptive motor measures for new construction may miss opportunities to significantly reduce peak demand and motor energy usage.

Motor upgrades from standard efficiency, EPACT 1992 compliant, to NEMA premium efficiency lead to efficiency improvements of 1-2. Motors manufactured before 1992 may have full load efficiencies less than today's standard, leading to possible efficiency improvements of greater than two percent for the CIEE program.

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[13] There may be an inconsistency in the reported 0.095 kW and the annual 25,203 kWh per participant savings claimed. Simply multiplying the demand savings by 8760 hours per year returns 832 kWh, which is substantially less than the annual energy savings claimed.

Using a simple conversion of 746 watts per horsepower and a two percent efficiency improvement would yield an estimate of 15 W demand savings. This is inconsistent with the demand savings from HECO's work-papers for the CIEE and CINC program, which are tabulated below.

	Premium Efficiency Motors Demand Savings		
Program	Large Office	Small Hotel	Large Hotel
CIEE	50.3 W/HP	62.4 W/HP	48.7 W/HP
CINC	40.2 W/HP	70.3 W/HP	35.3 W/HP

Further documentation on the assumptions used is necessary to determine if the savings claimed for motors are reasonable. Motor upgrades alone may not produce the savings stated. In new construction, low-pressure drop designs can lead to fan motor demand and energy savings that meet or exceed those presented. However, it's not clear if savings from such design features are included in the HECO projected savings.

Residential CFL Program

It is not readily apparent from the workpapers provided how various adjustment factors were applied to HECO's savings calculation. One known assumption is the net-to-gross ratio. HECO states in its response to the Consumer Advocate's comments that a net-to-gross ratio of 0.85 (assuming an industry-benchmark based estimate of 15% free ridership) was applied to its net system savings estimates. However, it is typical in Residential CFL programs to also see adjustment factors applied to savings calculations for failures/breakage, persistence, and other factors. Application of these factors would further reduce impact estimates.

The program is structured so that only ENERGY STAR CFLs will be qualified as eligible for incentives. This should eliminate problems with inferior products that could impact program persistence factors. However, the customer education section has very little detail related to the other important aspects of CFL lights such as selecting replacement wattages, color rendering and light quality. All these aspects could have significant impacts on program persistence.
Under the "Eligibility Requirements" for the Interim E$H program, HECO indicates that it will target the highest use applications within the home. However, it is not clear from the detail provided how HECO will accomplish this objective. Since this is not a direct implementation program, targeting applications with that level of specificity would be challenging. In order to accomplish this objective, HECO would most likely need to include this as part of the customer education program. The detail provided does not indicate that this information is part of the customer education program.

Demand Savings

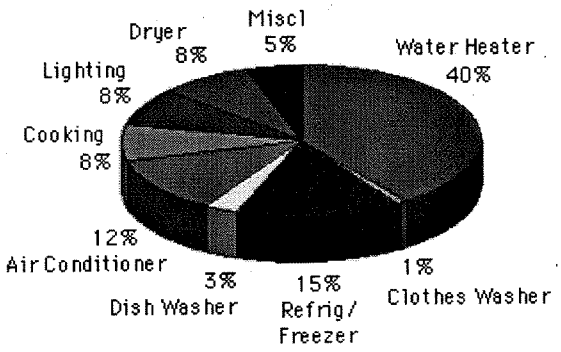
The demand savings are 0.008 kW per CFL for single-family and 0.016 kW per CFL for multifamily, but there is no justification why multifamily savings are double that of single family. Justification could be as simple as showing higher wattage lamps for multifamily or greater

coincidence with the peak demand period. According to HECO-1101, Docket No. 04-0113, single family homes make up 54% of peak demand and multifamily comprise 46%.

Energy Savings

The daily hours of operation for CFLs are assumed to be four hours (1,460/yr) by HECO. This assumption appears to be sourced to an energy savings calculator that was developed by the U.S. EPA and U.S. DOE for use on the ENERGY STAR program website.[14] This calculator is directed at bulk purchasing for institutions rather than homeowners and the default assumptions are intended for institutional users. The four hours per day assumption appears to be a little high for a residential program. However, differences in the hours of daylight left after customers go home from work in the HECO service area, as compared to other parts of the United States, may justify a higher average daily hours of use. It is recommended that HECO compare the value they used to values used in other utility jurisdictions including Pennsylvania, California, Connecticut, and Vermont.

Another factor possibly influencing the energy savings estimates is the lighting proportion of the total household energy consumption. The Residential Services section of HECO's website provides a pie chart that indicates that lighting is eight percent of the total bill.[15]



However, the figures provided on page 3 of Exhibit B of the Interim DSM Proposal indicate a much higher percentage of total energy usage at 19%, which is consistent with the report submitted as HECO-1101, Docket No. 04-0113. This figure is more than double the average provided on HECO's website. If the pie chart on HECO's website is based on more current billing data than the previous filing, the CFL savings estimates may be affected.

[14] http://www.energystar.gov/index.cfm?c=cfls.pr_cfls – On right side of web-page, under "For Business", "Savings Calculator"

[15] http://www.heco.com/CDA/default/0,1999,TCID%253D2%2526EmbedCID%253D0%2526CCID%253D2311%2526LCID%253D2321%2526CTYP%253DARTC,00.html

Incremental Measure Cost

HECO's assumption of $5.75 for the average price per lamp appears low when compared to pricing provided on Table 1 from page 5 of Exhibit B. Calculating a simple average price using the lower range of prices in the table results in a price of $5.98. Thus the average of the lowest prices in the table is higher than the average for all bulbs used by HECO.

Retailer	Price
Longs Drugs	$ 6.29
Times Supermarket	$ 5.89
Foodland	$ 5.89
City Mill	$ 4.99
Dailei	$ 6.29
7-Eleven	$ 6.29
Lowes	$ 4.95
Home Depot	$ 7.99
Light Bulb Source	$ 5.20
Average	**$ 5.98**

These sample retail figures do not indicate the available wattages or prices by wattage. This calls into further question the assumption of $5.75 as HECO is using 20-watt CFLs as the baseline in its costing assumptions. The expectation is that the average retail price for a 20-watt CFL should be between $6.50 and $7.00. Utilizing a higher average cost per CFL would increase the Total Customer cost figure provided on page 11 of Exhibit B.

V. Economic Review

Commercial Programs

As shown in the table below, incentives comprise the majority of total program costs for the proposed Interim C&I programs.

	CIEE		CINC		CICR	
Cost	2006 Budget	Percent Total	2006 Budget	Percent Total	2006 Budget	Percent Total
Incentives	$ 1,217,721	57%	$ 890,709	58%	$ 1,090,568	57%
Labor	$ 104,220	5%	$ 114,573	7%	$ 254,810	13%
Implementation	$ 387,010	18%	$ 260,286	17%	$ 262,609	14%
Tracking	$ 18,932	1%	$ 15,628	1%	$ 18,774	1%
Evaluation	$ 81,178	4%	$ 38,864	3%	$ 44,890	2%
Engineering Studies	$ 112,500	5%	$ 100,000	7%	$ 100,000	5%
Advertising	$ 117,484	5%	$ 57,986	4%	$ 76,030	4%
Admin Misc	$ 115,651	5%	$ 50,384	3%	$ 62,087	3%
Subtotal Admin	$ 936,975	*43%*	$ 637,721	*42%*	$ 819,200	*43%*
Total Program Cost	**$ 2,154,696**		**$ 1,528,430**		**$ 1,909,768**	
kWh Reduced (Gross System)	13,357,988		12,657,168		18,140,762	
$/kWh	**$ 0.161**		**$ 0.121**		**$ 0.105**	

We recommend a review of the underlying assumptions that lead to a 42% administrative costs share. This would help to document any unique attributes in the HECO service territory that

contribute to higher relative administration costs. Further, we suggest a comparison to programs in other utility jurisdictions of similar size and characteristics. This should help create confidence in the reasonableness of the interim programs.

Residential CFL Program

The level of the subsidy being offered under the proposed Interim E$H program assumes an average of $2.50 per lamp. This amount is consistent with the level used for the majority of residential lighting programs in other states that offer rebates.

The cost for overhead and administration under the proposed Interim E$H program is well over $500,000 compared to a total program cost of $990,652. Therefore, the cost of administering the proposed program is greater than the incentives being offered and is 55% of the total program cost.

	Interim E$H Program	
Cost	**2006 Budget**	**Percent Total**
Incentives	$ 450,000	**45%**
Labor	$ 39,451	4%
Implementation	$ 120,000	12%
Tracking	$ 11,111	1%
Evaluation	$ 15,000	2%
Engineering Studies	$ -	0%
Advertising	$ 330,000	33%
Admin Misc	$ 25,000	3%
Subtotal Admin	$ 540,562	***55%***
Total Program Cost	**$ 990,562**	
kWH Reduced (Gross System)	13,244,696	
$/kWh	$ 0.075	

This ratio of administrative costs to incentives appears relatively high. It is recommended that this budget be compared to the budgets for retail lighting programs in other jurisdictions.

VI. Conclusions and Recommendations

The proposed Interim DSM Proposals are apparently intended to augment the demand reduction from ongoing and proposed load management efforts. The load management programs will more directly address the capacity shortfall, however the proposed interim DSM programs can contribute in a relatively limited manner. Given this, and the fact that none of participating parties objects to these proposed programs as "interim" efforts, EPA recommends that the PUC approve the proposals. However, while proceeding with roll out of the programs, the following should be considered for the potential to enhance the effectiveness of the programs, refine demand and energy savings projections, and reduce program costs.

- It is clear from the December 5th filing that the proposed DSM programs have been chosen over others because they are "significantly less involved and complex." What is not clear from the documentation reviewed is whether or not all possible options for

interim measures were examined to address the current reserve capacity situation, and whether the potential for interim load management, rather than efficiency, programs was fully considered. Given that the proposed programs are modifications of current C&I programs and an expansion of a pilot CFL program it may be that such an assessment is not required or warranted. Clarification on what measures were considered in developing the proposals, and the procedure for selecting measures, would help build confidence in the measures HECO has proposed.

- C&I Programs

    - Consider targeting commercial lighting retrofits which may produce the most meaningful demand savings - based on the fact that lighting accounts for 43% of peak commercial demand. The CIEE lighting measures are estimated to reduce demand by over 40 times that of the commercial new construction upgrades. In general, applying DSM measures to the existing population of facilities during the interim time frame will provide more demand reduction than in new construction.

    - Not all of the assumptions used to develop projected energy and demand savings in support of the commercial Interim DSM Proposals are clearly shown. We recommend that HECO clearly document all of the factors that were used to determine per measure savings. This will substantially aid in any program evaluation efforts and evaluation of these interim programs could be very useful in helping to design future, longer term efforts. Questions as to the appropriateness of certain factors are raised in Section IV of this review. We recommend these questions, and corresponding suggestions, be considered for the potential to refine the projected energy and demand savings, and enhance program performance.

- Residential Program

    - Consider adding/expanding incentives and customer education for air conditioning and refrigeration use, which make up 45% of residential peak demand.

    - Consider alternate rebate models for the proposed CFL program that work directly with manufacturers and retailers. These models have been shown to reduce administration costs - this may help to reduce what appear to be relatively high proposed administration costs. Also consider aligning the marketing efforts with the ENERGY STAR *Change a Light, Change the World* campaign. Use of the resources available under this campaign can help reduce program costs and also leverage the brand awareness forged by the ENERGY STAR program to help educate consumers on the benefits and features of these products.

    - Similar to the C&I proposals, not all of the assumptions used to develop projected energy and demand savings in support of the residential Interim DSM Proposals are clearly shown. We recommend that HECO clearly document all

of the factors that were used to determine per measure savings. Questions as the appropriateness of certain factors are raised in Section IV of this review. We recommend these questions, and corresponding suggestions, be considered for the potential to refine the projected energy and demand savings, and enhance program performance.