

✓BKK



August 24, 2006

William A. Bonnet  
Vice President  
Government & Community Affairs

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

PUBLIC UTILITIES  
COMMISSION

2006 AUG 24 P 3:17

FILED

Dear Commissioners:

Subject: Docket No. 05-0069  
Energy Efficiency Docket

On July 14, 2006, HECO/HELCO/MECO filed responses to information requests on its Final Statement of Position ("FSOP") received from the parties/participants to the subject proceeding.

In its response to CA/HECO-IR-9, HECO/HELCO/MECO provided as attachments updated Exhibits 7, 8, 10 and 12, which were originally included in its FSOP, filed June 1, 2006. In discussions with the Rocky Mountain Institute with respect to the updated exhibits, certain errors and omissions in the spreadsheets included as Exhibits 7, 10 and 12 to the IR-response were identified. Attached is a revised response to CA/HECO-IR-9 and revised Exhibits 7, 10 and 12. Also attached to the revised IR-response are pages 2-3 summarizing the revisions to Exhibits 7, 10 and 12 and providing a brief explanation of the benefit/cost tests. As a result of these revisions, Exhibit 13 to HECO's FSOP also needed to be updated. Exhibit 8, which was not revised from that provided in the IR-response, is also being provided herein as an attachment so that these related exhibits are together to better facilitate their review. HECO/HELCO/MECO apologize for any inconvenience that these revisions may cause the parties/participants. If you have any questions on this matter, please contact Dean Matsuura at 543-4622.

Sincerely,

Attachments

cc: Division of Consumer Advocacy  
R. Young, Esq.  
H. Curtis  
C. Freedman  
W. Bollmeier II  
H. A. Dutch Achenbach  
L. D. H. Nakazawa, Esq.

K. Davoodi  
B. Moto, Esq.  
K. Datta  
R. Reed  
J. Crouch  
G. T. Aoki, Esq.

CA/HECO-IR-9      **Ref: Final Statement of Position**

On page 44, the Company states that an increase in the customer incentive in the REWH and RNC programs was not reflected in exhibits 7 and 8. Please provide updated copies of exhibits 7, 8, and 10 with the change reflected.

HECO Response:

Please see the attached updated Exhibits 7, 8, 10 and 12 which include the increased REWH and RNC incentive. For illustrative purposes, the calculation of DSM program cost-effectiveness includes utility compensation Alternative No. 2 as proposed by HECO on page 79 of its FSOP. Alternative No. 2 is just one of the three utility compensation proposals being offered by HECO in this docket. The updated exhibits also reflect the revisions listed on page 2 of this response. Page 3 of this response provides a brief explanation of the benefit/cost tests. Also attached is Exhibit 13 from HECO's FSOP, which required updating for the revised program costs. The revisions reduced the 20-year planning horizon Lifetime Benefits and Net Benefits, which in turn reduced the benefit/cost ratios. These updated exhibits replace the same exhibits in HECO's FSOP filed June 1, 2006.



DSM cost tests.xls

<b>Participant Cost Test</b>	
Benefits	Costs
Reduction in Bill Incentive Paid by Utility Tax credits received	Cost of equipment purchased Sales Tax Installation cost O&M costs Removal costs

Measures the benefits and costs to the customer due to participation in the DSM program.

<b>Program Administrator (Utility) Cost Test</b>	
Benefits	Costs
Avoided energy/capacity cost	Program costs Customer rebates Shareholder Incentive

Measures net costs or benefits of a DSM program based on costs incurred by the program administrator.

<b>Ratepayer Impact Measure Test</b>	
Benefits	Costs
Avoided energy/capacity cost	Program costs Customer rebates Shareholder Incentive Decreased revenue

Measures what happens to customer rates due to changes in utility revenues and operating costs caused by the program. For example, rates will go up if revenues collected after program implementation are less than the total costs incurred by the utility in implementing the program.

<b>Total Resource Cost Test</b>	
Benefits	Costs
Avoided energy/capacity cost  Reduction in Bill Incentives paid by utility Tax credits received	Program costs <del>Customer rebates</del> <del>Shareholder Incentive</del> <del>Decreased revenue</del> Cost of equipment purchased Sales Tax Installation cost O&M costs Removal costs

Combination of the effects of DSM on both customers participating and not participating in the programs. In other words, the summation of the benefit and cost terms of the Ratepayer Impact Measure and Participant Cost Tests. The incentives received by the participants and paid by the utility cancel out. The reductions in participants bills and reduction in revenue also cancel







Revised 08-24-06  
CA/HECO-IR-9  
DOCKET NO. 05-0069  
PAGE 7 OF 55

Exhibit 7  
Docket No. 05-0069  
Page 4

Component	PROGRAM: Energy Solutions for the Home										PROGRAM: Residential Curb Incentives										
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	
Cumulative Savings (Net System Level):	16.194	26.133	32.204	49.926	49.926	49.926	49.926	49.926	49.926	49.926	46.676	43.425	39.231	36.913	34.596	32.274	29.957	27.639	25.322	23.005	20.688
	4.05	6.94	8.77	18.70	18.70	18.70	18.70	18.70	18.70	18.70	17.23	15.76	14.28	13.15	12.01	11.47	10.60	9.73	8.86	8.00	7.13
Energy (MMWh)	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Peak Demand (MW)	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Implementation Costs:	\$1,231,250	\$981,250	\$856,250	\$656,250	\$781,250	\$798,438	\$816,003	\$833,955	\$852,302	\$871,053	\$890,216	\$909,801	\$929,816	\$950,272	\$971,178	\$992,544	\$1,014,380	\$1,036,697	\$1,059,504	\$1,082,813	\$1,106,620
	\$1,691	\$3,108	\$4,546	\$6,055	\$7,547	\$9,082	\$10,653	\$12,267	\$13,924	\$15,624	\$17,368	\$19,156	\$20,988	\$22,864	\$24,785	\$26,751	\$28,762	\$29,818	\$30,929	\$32,095	\$33,316
Base	\$1,691	\$3,108	\$4,546	\$6,055	\$7,547	\$9,082	\$10,653	\$12,267	\$13,924	\$15,624	\$17,368	\$19,156	\$20,988	\$22,864	\$24,785	\$26,751	\$28,762	\$29,818	\$30,929	\$32,095	\$33,316
Incremental	\$67,084	\$60,505	\$72,106	\$83,824	\$95,651	\$107,588	\$119,635	\$131,792	\$144,059	\$156,436	\$168,924	\$181,523	\$194,233	\$207,054	\$219,986	\$233,029	\$246,183	\$259,447	\$272,821	\$286,305	\$299,898
Total Labor	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660
Outside Services	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660	\$124,660
Tracking	\$15,111	\$22,222	\$23,066	\$24,853	\$26,778	\$28,841	\$30,943	\$33,085	\$35,267	\$37,488	\$39,748	\$42,047	\$44,385	\$46,762	\$49,178	\$51,634	\$54,130	\$56,666	\$59,242	\$61,858	\$64,514
Evaluation	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000
Admin/Misc	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Total Outside Services	\$871,111	\$872,318	\$869,756	\$867,967	\$867,173	\$867,243	\$867,332	\$867,440	\$867,567	\$867,713	\$867,878	\$868,062	\$868,265	\$868,487	\$868,728	\$868,988	\$869,267	\$869,565	\$869,882	\$870,218	\$870,573
Direct Labor & Outside Services @ 3.8%	\$738,195	\$739,823	\$741,601	\$743,523	\$745,590	\$747,801	\$750,156	\$752,665	\$755,333	\$758,160	\$761,147	\$764,294	\$767,601	\$771,069	\$774,698	\$778,490	\$782,346	\$786,267	\$790,254	\$794,307	\$798,427
Return on Costs	\$296,417	\$266,493	\$240,965	\$246,080	\$237,750	\$246,080	\$246,961	\$246,961	\$246,961	\$246,961	\$246,961	\$246,961	\$246,961	\$246,961	\$246,961	\$246,961	\$246,961	\$246,961	\$246,961	\$246,961	\$246,961
Total Program Cost	\$2,262,862	\$2,043,115	\$1,847,323	\$1,689,948	\$1,822,752	\$1,888,771	\$1,945,853	\$1,995,853	\$2,044,781	\$2,092,619	\$2,139,315	\$2,184,929	\$2,229,466	\$2,272,922	\$2,315,307	\$2,356,631	\$2,396,995	\$2,436,408	\$2,474,871	\$2,512,384	\$2,548,947
Implementation Costs less Curb Incentives	\$1,033,612	\$781,862	\$656,862	\$456,862	\$581,862	\$647,862	\$697,862	\$746,862	\$794,862	\$841,862	\$887,862	\$933,862	\$979,862	\$1,025,862	\$1,071,862	\$1,117,862	\$1,163,862	\$1,209,862	\$1,255,862	\$1,301,862	\$1,347,862

PROGRAM: Energy Solutions for the Home

PROGRAM: Residential Curb Incentives

PROGRAM: Energy Solutions for the Home

Component	PROGRAM: Energy Solutions for the Home										PROGRAM: Residential Curb Incentives										
	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	
Cumulative Savings (Net System Level):	2.76	5.92	10.96	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
	0.63	1.26	1.89	2.53	3.16	3.79	4.42	5.05	5.68	6.31	6.94	7.57	8.20	8.83	9.46	10.09	10.72	11.35	11.98	12.61	13.24
Energy (MMWh)	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086
Peak Demand (MW)	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086	40.086
Implementation Costs:	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000
	\$33,637	\$34,559	\$35,559	\$36,644	\$37,814	\$39,070	\$40,413	\$41,844	\$43,363	\$44,971	\$46,669	\$48,458	\$50,338	\$52,309	\$54,372	\$56,527	\$58,774	\$61,113	\$63,544	\$66,067	\$68,682
Base	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000	\$1,470,000
Incremental	\$110,172	\$112,824	\$115,559	\$118,379	\$121,284	\$124,274	\$127,349	\$130,500	\$133,727	\$137,041	\$140,442	\$143,929	\$147,503	\$151,164	\$154,912	\$158,747	\$162,669	\$166,678	\$170,775	\$174,959	\$179,229
Total Labor	\$33,637	\$34,559	\$35,559	\$36,644	\$37,814	\$39,070	\$40,413	\$41,844	\$43,363	\$44,971	\$46,669	\$48,458	\$50,338	\$52,309	\$54,372	\$56,527	\$58,774	\$61,113	\$63,544	\$66,067	\$68,682
Outside Services	\$516,732	\$521,222	\$525,666	\$530,059	\$534,402	\$538,695	\$542,938	\$547,131	\$551,274	\$555,367	\$559,410	\$563,403	\$567,346	\$571,239	\$575,082	\$578,875	\$582,618	\$586,311	\$589,954	\$593,547	\$597,090
Tracking	\$23,066	\$23,066	\$23,066	\$23,066	\$23,066	\$23,066	\$23,066	\$23,066	\$23,066	\$23,066	\$23,066	\$23,066	\$23,066	\$23,066	\$23,066	\$23,066	\$23,066	\$23,066	\$23,066	\$23,066	
Evaluation	\$65,780	\$65,780	\$65,780	\$65,780	\$65,780	\$65,780	\$65,780	\$65,780	\$65,780	\$65,780	\$65,780	\$65,780	\$65,780	\$65,780	\$65,780	\$65,780	\$65,780	\$65,780	\$65,780	\$65,780	
Admin/Misc	\$488,000	\$488,000	\$488,000	\$488,000	\$488,000	\$488,000	\$488,000	\$488,000	\$488,000	\$488,000	\$488,000	\$488,000	\$488,000	\$488,000	\$488,000	\$488,000	\$488,000	\$488,000	\$488,000	\$488,000	
Total Outside Services	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	\$1,233,266	
Direct Labor & Outside Services @ 3.8%	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	\$1,244,453	
Return on Costs	\$407,174	\$410,375	\$413,576	\$416,777	\$419,978	\$423,179	\$426,380	\$429,581	\$432,782	\$435,983	\$439,184	\$442,385	\$445,586	\$448,787	\$451,988	\$455,189	\$458,390	\$461,591	\$464,792	\$467,993	\$471,194
Total Program Cost	\$3,212,667	\$3,146,211	\$3,079,755	\$3,013,299	\$2,946,843	\$2,880,387	\$2,813,931	\$2,747,475	\$2,681,019	\$2,614,563	\$2,548,107	\$2,481,651	\$2,415,195	\$2,348,739	\$2,282,283	\$2,215,827	\$2,149,371	\$2,082,915	\$2,016,459	\$1,950,003	\$1,883,547
Implementation Costs less Curb Incentives	\$1,651,467	\$1,470,000	\$1,298,533	\$1,127,066	\$955,600	\$784,133	\$612,667	\$441,200	\$269,733	\$98,267	\$-73,200	\$-246,733	\$-420,267	\$-593,800	\$-767,333	\$-940,867	\$-1,114,400	\$-1,287,933	\$-1,461,467	\$-1,635,000	\$-1,808,533



PROGRAM: Residential Direct Load Control

Component	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
<b>Cumulative Savings (Net System Level):</b>																					
Energy (MWh)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Demand (MW)	6.16	11.00	14.50	14.65	14.65	14.65	14.65	14.65	14.65	14.65	14.65	14.65	14.65	14.65	14.65	14.65	14.65	14.65	14.65	14.65	14.65
<b>Implementation Costs:</b>																					
Total Incentives	\$275,773	\$672,003	\$908,664	\$1,013,001	\$1,013,001	\$1,035,287	\$1,058,064	\$1,081,341	\$1,105,130	\$1,129,443	\$1,154,291	\$1,179,685	\$1,205,639	\$1,232,163	\$1,259,270	\$1,286,974	\$1,315,288	\$1,344,224	\$1,373,797	\$1,404,020	
Direct Labor																					
Base	\$131,473	\$181,440	\$185,956	\$190,615	\$196,282	\$202,713	\$210,412	\$218,412	\$226,712	\$235,327	\$244,269	\$253,551	\$263,186	\$273,167	\$283,500	\$294,344	\$305,629	\$317,359	\$329,541	\$342,170	\$355,245
Incremental	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Labor	\$131,473	\$181,440	\$185,956	\$190,615	\$196,282	\$202,713	\$210,412	\$218,412	\$226,712	\$235,327	\$244,269	\$253,551	\$263,186	\$273,167	\$283,500	\$294,344	\$305,629	\$317,359	\$329,541	\$342,170	\$355,245
Outside Services																					
Implementation	\$2,695,768	\$2,139,750	\$1,826,428	\$1,633,680	\$1,470,669	\$1,337,154	\$1,228,886	\$1,140,874	\$1,072,821	\$1,015,130	\$966,361	\$921,583	\$881,743	\$846,819	\$816,815	\$791,729	\$771,561	\$751,308	\$731,974	\$713,559	\$696,067
Equipment	\$62,250	\$99,128	\$118,136	\$124,955	\$129,703	\$134,632	\$139,748	\$145,058	\$150,561	\$156,261	\$162,157	\$168,248	\$174,534	\$181,015	\$187,691	\$194,562	\$201,628	\$208,889	\$216,346	\$224,000	\$231,856
Communication Expense/Upgrades	\$10,000	\$60,000	\$100,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000
Distributed Equipment	\$1,111	\$2,222	\$3,066	\$3,943	\$4,853	\$5,797	\$6,776	\$7,786	\$8,826	\$9,895	\$10,993	\$12,120	\$13,276	\$14,461	\$15,675	\$16,918	\$18,190	\$19,491	\$20,821	\$22,179	\$23,565
Tracking	\$1,111	\$2,222	\$3,066	\$3,943	\$4,853	\$5,797	\$6,776	\$7,786	\$8,826	\$9,895	\$10,993	\$12,120	\$13,276	\$14,461	\$15,675	\$16,918	\$18,190	\$19,491	\$20,821	\$22,179	\$23,565
Evaluation	\$78,500	\$81,500	\$85,000	\$89,000	\$93,500	\$98,500	\$104,000	\$110,000	\$116,500	\$123,500	\$131,000	\$139,000	\$147,500	\$156,500	\$166,000	\$176,000	\$186,500	\$197,500	\$209,000	\$221,000	\$233,500
Advertising	\$325,000	\$415,000	\$525,000	\$650,000	\$790,000	\$945,000	\$1,115,000	\$1,300,000	\$1,500,000	\$1,715,000	\$1,945,000	\$2,190,000	\$2,450,000	\$2,725,000	\$3,015,000	\$3,320,000	\$3,640,000	\$3,975,000	\$4,325,000	\$4,690,000	\$5,060,000
Admin/Misc.	\$13,559	\$14,500	\$15,500	\$16,500	\$17,500	\$18,500	\$19,500	\$20,500	\$21,500	\$22,500	\$23,500	\$24,500	\$25,500	\$26,500	\$27,500	\$28,500	\$29,500	\$30,500	\$31,500	\$32,500	\$33,500
Total Outside Services	\$3,197,660	\$2,832,354	\$2,392,346	\$2,181,133	\$1,962,832	\$1,742,832	\$1,522,832	\$1,302,832	\$1,082,832	\$862,832	\$642,832	\$422,832	\$202,832	\$12,832	\$12,832	\$12,832	\$12,832	\$12,832	\$12,832	\$12,832	\$12,832
Direct Labor & Outside Services @ 3.5%	\$3,329,133	\$2,913,794	\$2,478,302	\$2,271,747	\$2,058,864	\$1,844,917	\$1,629,294	\$1,413,286	\$1,196,631	\$979,162	\$760,661	\$541,163	\$320,631	\$109,663	\$109,663	\$109,663	\$109,663	\$109,663	\$109,663	\$109,663	\$109,663
Direct Labor & Outside Services @ 2.2%	\$3,329,133	\$2,913,794	\$2,478,302	\$2,271,747	\$2,058,864	\$1,844,917	\$1,629,294	\$1,413,286	\$1,196,631	\$979,162	\$760,661	\$541,163	\$320,631	\$109,663	\$109,663	\$109,663	\$109,663	\$109,663	\$109,663	\$109,663	\$109,663
Return on Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Program Cost	\$3,704,906	\$3,639,341	\$3,455,223	\$3,455,223	\$3,455,223	\$3,455,223	\$3,455,223	\$3,455,223	\$3,455,223	\$3,455,223	\$3,455,223	\$3,455,223	\$3,455,223	\$3,455,223	\$3,455,223	\$3,455,223	\$3,455,223	\$3,455,223	\$3,455,223	\$3,455,223	\$3,455,223
Implementation costs less cost incentives	\$3,204,133	\$2,967,539	\$2,538,559	\$2,318,268	\$2,097,465	\$1,876,291	\$1,654,911	\$1,433,411	\$1,211,911	\$990,411	\$768,911	\$547,411	\$325,911	\$104,411	\$104,411	\$104,411	\$104,411	\$104,411	\$104,411	\$104,411	\$104,411

PROGRAM: Commercial/Industrial Direct Load Control

Component	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
<b>Cumulative Savings (Net System Level):</b>																					
Energy (MWh)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Demand (MW)	2.98	11.31	17.51	24.60	26.03	28.31	30.34	32.11	33.80	34.93	35.18	35.35	35.52	35.69	35.77	35.86	35.94	36.02	36.10	36.18	36.26
<b>Implementation Costs:</b>																					
Total Incentives	\$227,550	\$690,800	\$868,850	\$1,191,000	\$1,297,575	\$1,435,041	\$1,577,928	\$1,726,407	\$1,880,666	\$2,041,247	\$2,208,275	\$2,386,257	\$2,574,815	\$2,774,565	\$2,985,215	\$3,206,575	\$3,438,375	\$3,680,375	\$3,932,375	\$4,194,375	\$4,466,375
Direct Labor																					
Base	\$428,249	\$438,959	\$450,036	\$460,985	\$471,814	\$482,523	\$493,112	\$503,581	\$513,930	\$524,159	\$534,268	\$544,257	\$554,126	\$563,875	\$573,504	\$583,013	\$592,402	\$601,671	\$610,820	\$619,849	\$628,758
Incremental	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Labor	\$428,249	\$438,959	\$450,036	\$460,985	\$471,814	\$482,523	\$493,112	\$503,581	\$513,930	\$524,159	\$534,268	\$544,257	\$554,126	\$563,875	\$573,504	\$583,013	\$592,402	\$601,671	\$610,820	\$619,849	\$628,758
Outside Services																					
Equipment	\$200,000	\$210,000	\$220,000	\$230,000	\$240,000	\$250,000	\$260,000	\$270,000	\$280,000	\$290,000	\$300,000	\$310,000	\$320,000	\$330,000	\$340,000	\$350,000	\$360,000	\$370,000	\$380,000	\$390,000	\$400,000
Hardware	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000	\$81,000
Software and associated equipment	\$28,300	\$31,750	\$35,000	\$38,250	\$41,500	\$44,750	\$48,000	\$51,250	\$54,500	\$57,750	\$61,000	\$64,250	\$67,500	\$70,750	\$74,000	\$77,250	\$80,500	\$83,750	\$87,000	\$90,250	\$93,500
Meters	\$27,960	\$29,020	\$30,080	\$31,140	\$32,200	\$33,260	\$34,320	\$35,380	\$36,440	\$37,500	\$38,560	\$39,620	\$40,680	\$41,740	\$42,800	\$43,860	\$44,920	\$45,980	\$47,040	\$48,100	\$49,160
Distributed Equipment	\$22,222	\$23,066	\$23,910	\$24,754	\$25,598	\$26,442	\$27,286	\$28,130	\$28,974	\$29,818	\$30,662	\$31,506	\$32,350	\$33,194	\$34,038	\$34,882	\$35,726	\$36,570	\$37,414	\$38,258	\$39,102
Tracking	\$66,402	\$68,402	\$70,402	\$72,402	\$74,402	\$76,402	\$78,402	\$80,402	\$82,402	\$84,402	\$86,402	\$88,402	\$90,402	\$92,402	\$94,402	\$96,402	\$98,402	\$100,402	\$102,402	\$104,402	\$106,402
Evaluation	\$133,300	\$136,650	\$140,000	\$143,350	\$146,700	\$150,050	\$153,400	\$156,750	\$160,100	\$163,450	\$166,800	\$170,150	\$173,500	\$176,850	\$180,200	\$183,550	\$186,900	\$190,250	\$193,600	\$196,950	\$200,300
Engineering Studies	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000
Advertising	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
Admin/Misc.	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Total Outside Services	\$1,044,112	\$1,201,326	\$1,358,540	\$1,515,754	\$1,672,968	\$1,830,182	\$1,987,396	\$2,144,610	\$2,301,824	\$2,459,038	\$2,616,252	\$2,773,466	\$2,930,680	\$3,087,894	\$3,245,108	\$3,402,322	\$3,559,536	\$3,716,750	\$3,873,964	\$4,031,178	\$4,188,392
Direct Labor & Outside Services @ 3.5%	\$1,472,361	\$1,639,985	\$1,985,020	\$2,181,734	\$2,378,448	\$2,575,162	\$2,771,876	\$2,968,590	\$3,165,304	\$3,362,018	\$3,558,732	\$3,755,446	\$3,952,160	\$4,148,874	\$4,345,588	\$4,542,302	\$4,739,016	\$4,935,730	\$5,132,444	\$5,329,158	\$5,525,872
Direct Labor & Outside Services @ 2.2%	\$1,472,361	\$1,614,811	\$1,962,212	\$2,158,926	\$2,355,640	\$2,552,354	\$2,749,068	\$2,945,782	\$3,142,496	\$3,339,210	\$3,535,924	\$3,732,638	\$3,929,352	\$4,126,066							

### Program-Level Changes

Energy Efficiency Programs	Change from Rate Case
Commercial Industrial Energy Efficiency	Measures analyzed for rate case included: HE Cooling, CFL, T8, T5, LED Exit, Induction, Premium Efficient Motors and Window Tinting. Several measures added to analysis for Docket (in red): HE Cooling, CFL, T8, Delamping, T5, LED Exit, Induction, High Pressure Sodium, Metal Halide, Occupancy Sensors, Premium Efficient Motors and Window Tinting.
Commercial Industrial New Construction	Measures analyzed for rate case were: HE Cooling, CFL, T8, T5, Induction, Premium Efficient Motors and Window Tinting. Several measures added to analysis for Docket (in red): HE Cooling, CFL, T8, T5, Induction, High Pressure Sodium, Metal Halide, Occupancy Sensors, Premium Efficient Motors, Window Tinting and Customized Measures.
Commercial Industrial Custom Rebates	Analysis framework changed for Docket. Savings and customer cost based on review of historical program data (from DSMIS records) with appropriate adjustments made to reflect measures that are now included in CIEE program.
Energy Solutions for the Home	Central AC was changed to split system AC due to more prevalent market for the latter. EnergyStar appliances were assumed to be one of 3 possibilities: clothes washer, refrigerator, dishwasher whereas in the rate case it was assumed that the typical participant would take all three. Incentive amounts increased in Docket vs. Rate Case for Room AC (\$75 vs. \$59), Packaged AC (\$110 from \$107 for Central AC), Ceiling fans (\$40 vs. \$39) and equipment servicing (\$50 vs. \$47). Incentive amount decreased for CFL (\$7.50 vs. \$23 to reflect better information about equipment cost), EnergyStar appliances (\$50 vs. \$130 to reflect assumption change of 1 appliance vs. 3 appliances).
Residential Efficient Water Heat	No change.
Residential New Construction	CFL package was added to RNC program. Incentive level for Tank and Timer increased to reflect the ongoing \$60/year payment to customers who participate in HECO's cycling of their water heaters during periods of system constraint. Incentive level for Gold Plus option of Build Green was increased to 50% of customer's cost to provide extra encouragement for natural ventilation.
Residential Low Income	CFL package was made identical to ESH program (e.g., number of bulbs and cost of bulbs). Equipment servicing was removed from the program due to limited market for Central AC among low income customers.
Residential Direct Load Control	Adjustment to number of participants made based on implementation experience. Planned delay in startup for air conditioning component relative to rate case assumption.
Commercial Industrial Direct Load Control	Addition of voluntary load control and small DLC program components whereas the prior program design only anticipated having large C&I customers participating.

### Number of New Participants

IEE

Component	Number of First Year Participants		Rationale for Change
	Rate Case	Proposed Docket	
a. HE Cooling	150	125	According to DSMIS database, fewer cooling measures than originally anticipated.
b. CFL Lighting	50	75	New measure is expected to draw a larger number of participants; this perspective is based on positive market response to HECO's current CFL experience in the residential sector.
c. HE Lighting - T8	100	150	Better than expected market response suggests higher levels of participation than originally anticipated.
d. Delamping	NA	25	Measure not included in initial analysis; changed made based on additional input from HECO Energy Services personnel.
e. HE Lighting - T5	25	25	No change.
f. HE Lighting - LED Exit	75	75	No change.
g. HE Lighting - Induction	38	10	According to DSMIS database (for CICR), very few measures adopted by customers historically.
h. HE HPS HID	NA	10	Measure not included in initial analysis; changed made based on additional input from HECO Energy Services personnel.
i. HE Metal Halide	NA	10	Measure not included in initial analysis; changed made based on additional input from HECO Energy Services personnel.
j. Occupancy Sensors	NA	50	Measure not included in initial analysis; changed made based on additional input from HECO Energy Services personnel.
k. Premium Efficiency Motors	72	50	According to DSMIS database, fewer installations than originally thought. Value of 50 represents a modest increase relative to historical program trends.
l. Window Tinting	75	25	Measure not included in initial analysis; changed made based on additional input from HECO Energy Services personnel.

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 11 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 2



**Number of New Participants**

ICR

Component	Number of First Year Participants		Rationale for Change
	Rate Case	Proposed Docket	
a. Customized Measures	60	70	According to DSMIS, when prescriptive measures taken out of customized, the historical number of participants is significantly reduced. However, with a planned elimination of the 2-year payback criteria, the number of participants is expected to rise relative to historical levels (adjusted for the exclusion of prescriptive measures).

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 13 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 4

### Number of New Participants

ESH

Component	Number of First Year Participants		Rationale for Change
	Rate Case	Proposed Docket	
a. CFL Package	20,000	60,000	Interim program proposes significant increase in participation levels for this program relative to rate case projections. This reflects HECO's subsequent projections of short-term capacity shortfalls and its plans to ramp up this program significantly in the short term. During the 2007-2009 timeframe, projected participation levels drop off significantly as the market becomes saturated. By 2010, HECO projects no further ESH program activities for CFLs and instead will focus on other longer-term measures.
b. HE Room A/C	7,723	4,000	After conducting a review of the market size for Room Acs, it was concluded that the original participation level would mean that HECO is reaching 50% of the equipment turnover market each year, which was deemed too optimistic. Thus, the level was reduced to 25%, which amounts to roughly 4,000 units per year.
c. HE Split System A/C	2,500	625	HECO does not track split system AC saturation, but estimates that roughly 5000 units turnover each year. HECO expects to capture about 12.5% of the turnover market each year for this measure.
d. Energy Star Ceiling Fans	5,000	2,500	The original projection of 5000 households per year was determined to be far too aggressive given the capital cost that customers would need to outlay to qualify for a rebate. As such, the participation levels were cut in half to reflect more realistic targets.
e. Energy Star Appliances	5,000	5,000	No change.

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 14 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 5

**Number of New Participants**

f. Equipment Servicing	2,500	1,250	This would only apply to CAC and split system AC units, which there are about 35000 units in the service territory. The original figure represented 7% of the market. HECO expects far fewer applications of this measure than originally anticipated, due in large part to the up-front cost that would have to borne by the customer in order to qualify for the rebate.
------------------------	-------	-------	--

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 15 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 6

### Number of New Participants

**EWH**

Component	Number of First Year Participants		Rationale for Change
	Rate Case	Proposed Docket	
a. Solar Water Heat	1,400	1,400	No change.
b. HE Electric Water Heat	1,400	1,400	No change.

**NC**

Component	Number of First Year Participants		Rationale for Change
	Rate Case	Proposed Docket	
a. Solar Water Heat	550	1,000	The 550 participants per year level is reached in the third year. HECO believes that with the addition of federal tax credits and the high levels of new construction on Oahu, there will be a bump-up in participants over the 2006-07 timeframe.
b. HE Electric Water Heat	1,500	400	Based on historical evidence, HECO felt that the original participation levels were far greater than it has seen in the past. With no change in the incentive levels offered, participation was reduced to levels approximately in line with historical RNC levels.
c. Tank and Timer	771	500	Based on historical evidence, HECO felt that the original participation levels were far greater than it has seen in the past. With no change in the incentive levels offered, participation was reduced to levels approximately in line with historical RNC levels.
d. CFLs	NA	1,000	This is a new addition to the RNC program and HECO expect to offer a CFL package over the full 20-year time horizon.
e. BuiltGreen-Bronze	100	100	No change.
f. BuiltGreen-Silver	75	75	No change.
g. BuiltGreen-Gold	50	50	No change.
h. BuiltGreen-Gold Plus	50	50	No change.

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 16 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 7

### Number of New Participants

LI

Component	Number of First Year		Rationale for Change
	Rate Case	Proposed Docket	
a. CFL Package	4,000	4,000	No change.
b. Water Heat Package	2,000	2,000	No change.
c. Equipment Servicing	692	0	HECO felt that this measure would be difficult for the outside implementation contractors to implement given that they don't possess the necessary expertise to do servicing of cooling equipment. Also, because of the relatively small number of CAC and split system AC units in this market segment, the measure was dropped from the program.

DLC

Component	Number of First Year		Rationale for Change
	Rate Case	Proposed Docket	
a. Water Heating	8,000	8,990	Implementation experience suggests that rate case projections were slightly underrepresented thus the 12% increase in 2006 participation levels.
b. Air Conditioning	900	100	Projected ramp-up of new program element implies that rate case participation levels won't be achieved until year 3 of the program offering (2008).

DLC

Component	Number of First Year		Rationale for Change
	Rate Case	Proposed Docket	
a. Direct Load Control	10	10	No change.
b. Voluntary Load Control	NA	15	This program element added to tap markets that typically don't participate in DLC programs.
c. Small Customer DLC	NA	80	This program element added to tap markets that typically don't participate in DLC programs.

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 17 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 8

### Unit Level Impacts

EE

Component	Unit-Level Savings				Rationale for Change
	Rate Case		Proposed Docket		
	Energy (kWh/Part)	Peak Demand (kW)	Energy (kWh/Part)	Peak Demand (kW)	
a. HE Cooling	44,383	5.03	67,587	9.68	Greater emphasis on larger systems, drawing on historical experience which indicates higher average impacts led to adjustments in proportion of participants across different building types.
b. CFL Lighting	33,305	5.62	32,740	5.61	Roughly the same in both cases.
c. HE Lighting - T8	29,782	4.16	32,735	4.80	Impacts slightly increased based on historical averages suggesting higher impacts.
d. Delamping	NA	NA	91,376	11.11	Measure not included in initial analysis; changed made based on additional input from HECO Energy Services personnel.
e. HE Lighting - T5	12,385	2.50	54,655	9.01	Impacts increased significantly to reflect HECO field experience which suggests that larger installations are typically made.
f. HE Lighting - LED Exit	3,070	0.35	3,070	0.35	No change.
g. HE Lighting - Induction	30,585	5.15	2,877	0.62	Impacts reduced significantly to reflect HECO field experience which suggests very few installations, and those that are made typically yield smaller impacts based on estimated small share of total floorarea affected.
h. HE HPS HID	NA	NA	5,818	1.19	Measure not included in initial analysis; changed made based on additional input from HECO Energy Services personnel.
i. HE Metal Halide	NA	NA	23,669	4.76	Measure not included in initial analysis; changed made based on additional input from HECO Energy Services personnel.
j. Occupancy Sensors	NA	NA	3,210	0.69	Measure not included in initial analysis; changed made based on additional input from HECO Energy Services personnel.
k. Premium Efficiency Motors	44,726	8.39	6,653	1.16	Impacts reduced significantly based on DSMIS data. KEMA impact evaluation results used as input for unit-level impact. Previous estimates were based on faulty assumptions in BEST model.
l. Window Tinting	10,208	0.66	10,208	0.66	No change.

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 18 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 9

**Unit Level Impacts**

CINC

Component	Unit-Level Savings				Rationale for Change
	Rate Case		Proposed Docket		
	Energy (kWh/Part)	Peak Demand (kW)	Energy (kWh/Part)	Peak Demand (kW)	
a. HE Cooling	40,196	4.22	51,643	8.86	Greater emphasis on larger systems, drawing on historical experience which indicates higher average impacts led to adjustments in proportion of participants across different building types.
b. CFL Lighting	24,478	3.79	24,074	3.74	Roughly the same in both cases.
c. HE Lighting - T8	25,203	0.09	27,721	0.10	Roughly the same in both cases, and estimates in line with recent historical averages for the program.
d. HE Lighting - T5	9,703	1.90	47,064	12.84	Impacts increased significantly to reflect HECO field experience which suggests that larger installations are typically made.
e. HE Lighting - Induction	22,347	3.44	4,502	0.88	Impacts reduced significantly to reflect HECO field experience which suggests very few installations, and those that are made typically yield smaller impacts based on estimated small share of total floorarea affected.
f. HE HPS HID	NA	NA	4,545	0.88	Measure not included in initial analysis; changed made based on additional input from HECO Energy Services personnel.
g. HE Metal Halide	NA	NA	18,486	3.69	Measure not included in initial analysis; changed made based on additional input from HECO Energy Services personnel.
h. Occupancy Sensors	NA	NA	3,210	0.69	Measure not included in initial analysis; changed made based on additional input from HECO Energy Services personnel.
i. Premium Efficiency Motors	31,533	6.77	6,653	1.16	Impacts reduced significantly based on DSMIS data. KEMA impact evaluation results used as input for unit-level impact. Previous estimates were based on faulty assumptions in BEST model.
j. Window Tinting	8,878	0.54	8,878	0.54	Roughly the same in both cases.
k. Customized Measures	NA	NA	105,777	11.40	Measure not included in initial analysis. Impacts based on DSMIS historical experience, adjusted with exclusion of measures now included in prescriptive portion of CINC program.

CICR

Component	Unit-Level Savings				Rationale for Change
	Rate Case		Proposed Docket		
	Energy (kWh/Part)	Peak Demand (kW)	Energy (kWh/Part)	Peak Demand (kW)	
a. Customized Measures	152,416	28.79	160,223	20.93	Original estimates based on profile of typical large C&I measures. After consultations with HECO program staff, historical program data was deemed a more appropriate proxy for characterizing per-participant impacts. Impacts based on DSMIS historical experience, adjusted with exclusion of measures now included in the CIEE program.

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 19 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 10

**Unit Level Impacts**

ESH

Component	Unit-Level Savings				Rationale for Change
	Rate Case		Proposed Docket		
	Energy (kWh/Part)	Peak Demand (kW)	Energy (kWh/Part)	Peak Demand (kW)	
a. CFL Package	196	0.04	196	0.04	No change.
b. HE Room A/C	259	0.13	373	0.19	Adjustments to reflect different baseline and high efficiency EERs than originally estimated.
c. HE Split System A/C	487	0.32	545	0.31	Slight adjustments to account for mix of CAC and split system AC whereas before the assumption was strictly CAC.
d. Energy Star Ceiling Fans	395	0.01	395	0.01	No change.
e. Energy Star Appliances	945	0.19	313	0.12	Impacts reduced to reflect assumption that only 1 appliance would be rebated per household, whereas in the prior analysis it was assumed that a customer would adopt all three measure types (Energy Star clothes washer, dishwasher and refrigerator).
f. Equipment Servicing	487	0.32	620	0.39	Slight adjustments to account for mix of CAC and split system AC whereas before the assumption was strictly CAC.

REWH

Component	Unit-Level Savings				Rationale for Change
	Rate Case		Proposed Docket		
	Energy (kWh/Part)	Peak Demand (kW)	Energy (kWh/Part)	Peak Demand (kW)	
a. Solar Water Heating	3,250	0.73	2,230	0.51	Original values based on generic modeling approach; revised values reflect recent KEMA evaluation estimates.
b. HE Electric Water Heat	200	0.02	160	0.03	Original values based on generic modeling approach; revised values reflect recent KEMA evaluation estimates.

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 20 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 11



**Unit Level Impacts**

**RLI**

Component	Unit-Level Savings				Rationale for Change
	Rate Case		Proposed Docket		
	Energy (kWh/Part)	Peak Demand (kW)	Energy (kWh/Part)	Peak Demand (kW)	
a. CFL Package	65.00	0.01	196	0.04	Package made identical to ESH package for consistency (3 bulbs vs. 2 bulbs in previous analysis).
b. Water Heat Package	787.00	0.16	777	0.19	Measure package changed based on HECO field experience suggesting that water heater wraps not effective measure. Revisions resulted in lower energy savings but higher demand impact (due to BEST model anomalies).
c. Equipment Servicing	487.00	0.32	NA	NA	HECO felt that this measure would be difficult for the outside implementation contractors to implement given that they don't possess the necessary expertise to do servicing of cooling equipment. Also, because of the relatively small number of CAC and split system AC units in this market segment, the measure was dropped from the program.

**RDLC**

Component	Unit-Level Savings				Rationale for Change
	Rate Case		Proposed Docket		
	Energy (kWh/Part)	Peak Demand (kW)	Energy (kWh/Part)	Peak Demand (kW)	
a. Water Heating	0.00	0.68	0	0.60	Rate case impact was represented at the gross system level rather than the gross customer level.
b. Air Conditioning	0.00	0.79	0	0.79	No change.

**CIDLC**

Component	Unit-Level Savings				Rationale for Change
	Rate Case		Proposed Docket		
	Energy (kWh/Part)	Peak Demand (kW)	Energy (kWh/Part)	Peak Demand (kW)	
a. Direct Load Control	0.00	350.00	0	75-350	Rate case impact was represented at the gross system level rather than the gross customer level. Range of savings depends on whether customer agrees to have an under-frequency relay (UFR) installed.
b. Voluntary Load Control	NA	NA	0	75-350	Feature not included in rate case. Range of savings depends on whether customer agrees to have a UFR installed.
b. Small Customer DLC	NA	NA	0	5.00	Feature not included in rate case.

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 22 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 13

## Incentives and Implementation

CIEE

Component	First Year Amount		Rationale for Change
	Rate Case (2005TY)	Proposed Docket (2006)	
TOTAL INCENTIVE COSTS	\$2,188,753	\$2,265,425	Overall, larger number of participants projected relative to rate case projections. Measure level incentives unchanged from rate case.
<b>IMPLEMENTATION COSTS:</b>			
<b>Direct Labor</b>			
Base	\$108,246	\$104,220	Differences due to HECO internal methods for estimating labor costs, and are a function of total program costs and general corporate overhead rates.
Incremental	\$367,501	\$276,642	
Total Labor	\$475,747	\$380,862	
<b>Outside Services</b>			
Implementation	\$229,767	\$160,053	Projected lower costs based on more recent field experience.
Tracking	\$3,500	\$17,778	Higher costs than originally anticipated due to added measures to the program.
Evaluation	\$35,632	\$81,178	Costs estimated from historical M&E experience; prior value based on industry standard.
Preliminary Energy Assessments	\$200,000	\$187,500	Projected lower costs based on more recent field experience.
Advertising	\$259,035	\$170,589	Projected lower costs based on more recent field experience.
Admin/Misc	\$239,667	\$109,077	Projected lower costs based on more recent field experience.
Total Outside Services	\$967,601	\$726,175	
TOTAL IMPLEMENTATION:	\$1,443,348	\$1,107,037	

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 23 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 14

### Incentives and Implementation

CINC

Component	First Year Amount		Rationale for Change
	Rate Case (2005TY)	Proposed Docket (2006)	
TOTAL INCENTIVE COSTS	\$812,837	\$936,019	Overall, larger number of participants projected relative to rate case projections. Measure level incentives unchanged from rate case. Also, addition of Customized measures results in higher overall costs.
<b>IMPLEMENTATION COSTS:</b>			
<b>Direct Labor</b>			
Base	\$48,165	\$114,573	Differences due to HECO internal methods for estimating labor costs, and are a function of total program costs and general corporate overhead rates.
Incremental	\$166,087	\$222,725	
Total Labor	\$214,252	\$337,298	
<b>Outside Services</b>			
Implementation	\$171,910	\$72,501	Projected lower costs based on more recent field experience.
Tracking	\$3,500	\$17,778	Higher costs than originally anticipated due to added measures to the program.
Evaluation	\$14,495	\$38,864	Costs estimated from historical M&E experience; prior value based on industry standard.
Design Assistance	\$100,000	\$100,000	No change.
Advertising	\$79,182	\$81,599	Projected slightly higher costs based on more recent field experience.
Admin/Misc	\$72,154	\$53,890	Projected lower costs based on more recent field experience.
Total Outside Services	\$441,241	\$364,632	
TOTAL IMPLEMENTATION:	\$655,493	\$701,930	

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 24 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 15

### Incentives and Implementation

ICR

Component	First Year Amount		Rationale for Change
	Rate Case (2005TY)	Proposed Docket (2006)	
TOTAL INCENTIVE COSTS	\$1,824,715	\$743,936	Overall, smaller number of participants projected relative to rate case due to the shift of several measures over to CIEE. Incentive levels unchanged from rate case.
<b>IMPLEMENTATION COSTS:</b>			
<b>Direct Labor</b>			
Base	\$61,661	\$145,807	Differences due to HECO internal methods for estimating labor costs, and are a function of total program costs and general corporate overhead rates.
Incremental	\$299,864	\$371,503	
Total Labor	\$361,525	\$517,310	
<b>Outside Services</b>			
Implementation	\$309,482	\$36,225	Projected lower costs based on more recent field experience.
Tracking	\$3,500	\$17,778	Higher costs than originally anticipated due to added measures (i.e., those with < 2 year payback) to the program.
Evaluation	\$29,147	\$44,890	Costs estimated from historical M&E experience; prior value based on industry standard.
Feasibility Studies	\$125,000	\$175,000	Projected higher costs due to more emphasis on pure customized measures plus further assessment required due to addition of < 2-year payback measures.
Advertising	\$145,770	\$107,061	Projected lower costs due to fewer participants in the program and good customer awareness of the program.
Admin/Misc	\$146,841	\$66,176	Projected lower costs based on more recent field experience.
Total Outside Services	\$759,740	\$447,130	
<b>TOTAL IMPLEMENTATION:</b>	<b>\$1,121,265</b>	<b>\$964,440</b>	

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 25 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 16



## Incentives and Implementation

SEWH

Component	First Year Amount		Rationale for Change
	Rate Case (2005TY)	Proposed Docket (2006)	
TOTAL INCENTIVE COSTS	\$1,120,000	\$1,470,000	Change customer incentive for SWH from \$750 to \$1000.
IMPLEMENTATION COSTS:			
<b>Direct Labor</b>			
Base	\$58,790	\$33,637	Differences due to HECO internal methods for estimating labor costs, and are a function of total program costs and general corporate overhead rates.
Incremental	\$161,040	\$10,017	
Total Labor	\$219,830	\$43,654	
<b>Outside Services</b>			
Implementation	\$399,282	\$516,732	Projected higher costs based on field experience.
Tracking	\$4,000	\$11,111	Costs made equivalent across all residential programs.
Evaluation	\$21,949	\$65,780	Costs estimated from historical M&E experience; prior value based on industry standard.
Advertising	\$391,263	\$488,000	Projected higher costs based on field experience.
Admin/Misc	\$102,083	\$119,216	Projected higher costs based on field experience.
Total Outside Services	\$918,577	\$1,200,839	
<b>TOTAL IMPLEMENTATION:</b>	<b>\$1,138,407</b>	<b>\$1,244,493</b>	

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 27 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 18

### Incentives and Implementation

INC

Component	First Year Amount		Rationale for Change
	Rate Case (2005TY)	Proposed Docket (2006)	
TOTAL INCENTIVE COSTS	\$1,027,000	\$1,252,000	Costs increased due to revised number of participants and increase of incentive for SWH from \$750 to \$1000. Incentive levels also increased for BuiltGreen GoldPlus, which now covers 50% of customer cost to encourage natural ventilation and added \$60/year incentive for tank and timer participants.
<b>IMPLEMENTATION COSTS:</b>			
<b>Direct Labor</b>			
Base	\$52,074	\$71,770	Differences due to HECO internal methods for estimating labor costs, and are a function of total program costs and general corporate overhead rates.
Incremental	\$53,274	\$55,004	
Total Labor	\$105,348	\$126,774	
<b>Outside Services</b>			
Implementation	\$340,366	\$379,903	Projected higher costs based on water heat field experience.
Tracking	\$5,000	\$11,111	Costs made equivalent across all residential programs.
Evaluation	\$16,044	\$21,820	Costs estimated from historical M&E experience (for WH measures) plus estimated for new program components (i.e., BuiltGreen); prior value based on industry standard.
Advertising	\$92,945	\$115,500	Projected higher costs based on water heat field experience.
Admin/Misc	\$40,811	\$65,099	Projected higher costs based on water heat field experience.
Total Outside Services	\$495,166	\$593,433	
TOTAL IMPLEMENTATION:	\$600,514	\$720,207	

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 28 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 19

## Incentives and Implementation

LI

Component	First Year Amount		Rationale for Change
	Rate Case (2005TY)	Proposed Docket (2006)	
TOTAL INCENTIVE COSTS	\$730,798	\$589,000	Reduction due to the elimination of servicing electrical equipment.
IMPLEMENTATION COSTS:			
<b>Direct Labor</b>			
Base	\$0	\$20,972	Differences due to HECO internal methods for estimating labor costs, and are a function of total program costs and general corporate overhead rates. Direct labor costs added to provide management of outside contractors (prior assumption lumped into admin/misc category).
Incremental	\$0	\$6,245	
Total Labor	\$0	\$27,217	
<b>Outside Services</b>			
Implementation	\$50,000	\$120,000	Costs increased because of greater than originally expected costs associated with the delivery of added EE measures.
Tracking	\$3,500	\$11,111	Costs made equivalent across all residential programs.
Evaluation	\$9,562	\$54,172	Projected higher costs based on revised assumption; prior value based on industry standard.
Advertising	\$0	\$75,000	Budget explicitly addresses program advertising (prior assumption lumped into admin/misc category).
Admin/Misc	\$171,937	\$40,000	Lower due to reallocation of administration costs to above-listed categories.
Total Outside Services	\$234,999	\$300,283	
<b>TOTAL IMPLEMENTATION:</b>	<b>\$234,999</b>	<b>\$327,500</b>	

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 29 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 20

## Incentives and Implementation

DLC

Component	First Year Amount		Rationale for Change
	Rate Case (2005TY)	Proposed Docket (2006)	
TOTAL INCENTIVE COSTS	\$448,200	\$375,773	Incentive amount discounted for new 2006 participants to recognize that not all participants come onto the program at the beginning of the year thus there is a reduction in the total year incentive.
<b>IMPLEMENTATION COSTS:</b>			
<b>Direct Labor</b>			
Base	\$20,764	\$131,473	Differences due to HECO internal methods for estimating labor costs, and are a function of total program costs and general corporate overhead rates.
Incremental	\$190,503	\$0	
Total Labor	\$211,267	\$131,473	Direct labor costs added to provide management of outside contractors
<b>Outside Services</b>			
Implementation	\$2,152,763	\$2,696,788	Costs increased because of greater than originally expected costs due to implementation experience.
Equipment	NA	\$72,250	Equipment costs were embedded in the implementation category above.
Tracking	\$0	\$11,111	Costs made equivalent across all residential programs.
Evaluation	\$0	\$78,952	Projected higher costs based on revised assumption; prior value based on industry standard.
Advertising	\$62,500	\$325,000	Budget explicitly addresses program advertising (prior assumption lumped into admin/misc category).
Admin/Misc	\$6,229	\$13,559	Lower due to reallocation of administration costs to above-listed categories.
Total Outside Services	\$2,221,492	\$3,197,660	
<b>TOTAL IMPLEMENTATION:</b>	<b>\$2,432,759</b>	<b>\$3,329,133</b>	

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 30 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 21

## Incentives and Implementation

IDLC

Component	First Year Amount		Rationale for Change
	Rate Case (2005TY)	Proposed Docket (2006)	
TOTAL INCENTIVE COSTS	\$573,125	\$227,550	Incentive amount discounted for new 2006 participants to recognize that not all participants come onto the program at the beginning of the year thus there is a reduction in the total year incentive.
IMPLEMENTATION COSTS:			
<b>Direct Labor</b>			
Base	\$12,746	\$428,249	Differences due to HECO internal methods for estimating labor costs, and are a function of total program costs and general corporate overhead rates.
Incremental	\$106,697	\$0	
Total Labor	\$119,443	\$428,249	Direct labor costs added to provide management of outside contractors
<b>Outside Services</b>			
Implementation	\$56,250	\$0	Costs represented in HECO labor.
Equipment	\$25,950	\$335,260	Equipment costs were not expensed in the rate case.
Tracking	\$0	\$22,222	
Evaluation	\$0	\$85,902	
Engineering Studies	NA	\$133,300	
Advertising	\$6,228	\$280,000	
Admin/Misc	\$0	\$187,928	
Total Outside Services	\$88,428	\$1,044,612	
<b>TOTAL IMPLEMENTATION:</b>	<b>\$207,871</b>	<b>\$1,472,861</b>	

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 31 OF 55  
 Exhibit 8  
 Docket No. 05-0069  
 Page 22





**TABLE 1. CIEE: DETAILED SUMMARY FOR 2006 START YEAR - 20-YEAR PLANNING HORIZON SUMMARY**  
**PROGRAM NAME: COMMERCIAL INDUSTRIAL ENERGY EFFICIENCY**

Discount Rate	5%
General Escalation Rate	2.2%
Measure Lifetime (years)	15

Participant Test	Costs	Net Benefits	B/C Ratio
\$282,323,896	\$73,172,479	\$209,151,415	3.86
\$120,999,359	\$329,581,396	(\$208,582,036)	0.37
Utility Cost Test	\$47,257,501	\$73,741,858	2.56
Total Resource Cost Test	\$94,308,896	\$26,690,463	1.28

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
<b>Cumulative Savings (Net System Level)</b>																				
Peak Demand Reduction (kW)	2,294	4,567	6,851	9,135	11,418	13,697	15,981	17,860	19,463	21,396	22,384	23,373	24,361	25,349	26,337	27,325	27,305	27,337	27,369	27,401
Energy Savings (kWh)	15,266,176	30,532,351	45,798,527	61,064,703	76,330,878	91,597,053	106,863,228	118,281,670	131,429,865	144,577,860	151,432,516	158,287,172	165,141,829	171,996,485	178,851,141	185,705,797	186,132,243	186,558,689	186,985,135	187,411,581
<b>Rates</b>																				
Demand (\$/kW)	\$46.00	\$47.01	\$48.05	\$49.10	\$50.18	\$51.29	\$52.42	\$53.57	\$54.75	\$55.95	\$57.18	\$58.44	\$59.73	\$61.04	\$62.38	\$63.76	\$65.16	\$66.59	\$68.06	\$69.55
Energy (\$/kWh)	\$0.1611	\$0.1646	\$0.1683	\$0.1720	\$0.1758	\$0.1796	\$0.1836	\$0.1876	\$0.1917	\$0.1960	\$0.2003	\$0.2047	\$0.2092	\$0.2138	\$0.2185	\$0.2233	\$0.2282	\$0.2332	\$0.2383	\$0.2436
<b>BENEFIT CALCULATIONS:</b>																				
<b>NPV</b>																				
Avoided Costs (Utility Revenue)	\$411,813	\$826,933	\$1,241,897	\$1,656,914	\$0	\$0	\$0	\$0	\$0	\$32,740,406	\$38,133,480	\$35,888,081	\$34,419,844	\$33,066,871	\$31,793,248	\$31,358,668	\$30,374,562	\$29,433,064	\$11,260,225	\$20,388,248
Demand	\$1,673,423	\$3,271,983	\$4,690,273	\$6,527,981	\$7,549,405	\$8,194,897	\$10,925,926	\$12,264,196	\$14,307,415	\$20,191,782	\$20,990,123	\$18,828,788	\$18,028,788	\$18,749,665	\$18,701,127	\$19,545,706	\$20,306,865	\$20,737,029	\$25,697,232	\$29,993,967
Energy	\$2,065,236	\$4,098,367	\$6,122,160	\$8,146,396	\$7,946,405	\$8,194,897	\$10,925,926	\$12,264,196	\$14,307,415	\$12,948,614	\$18,043,357	\$17,109,283	\$15,369,846	\$14,317,206	\$13,082,121	\$12,813,162	\$10,068,687	\$9,696,025	\$14,437,007	\$6,605,119
Total	\$4,150,472	\$8,267,343	\$12,064,213	\$16,820,710	\$15,495,810	\$16,389,794	\$21,851,852	\$24,528,392	\$28,614,830	\$45,689,022	\$59,133,553	\$53,947,348	\$49,789,690	\$47,806,776	\$44,585,376	\$43,976,936	\$40,443,349	\$39,329,089	\$50,171,239	\$36,608,286
<b>NPV</b>																				
Avoided Costs (Participant)	\$105,047	\$214,716	\$329,160	\$448,536	\$573,004	\$702,487	\$820,911	\$942,290	\$1,067,189	\$1,197,147	\$1,279,998	\$1,366,915	\$1,454,984	\$1,547,330	\$1,643,025	\$1,738,849	\$1,776,185	\$1,820,466	\$1,862,680	\$1,905,882
Demand	\$2,469,381	\$4,938,761	\$7,408,141	\$9,877,521	\$11,346,901	\$12,816,281	\$14,285,661	\$15,755,041	\$17,224,421	\$20,193,801	\$20,990,123	\$18,828,788	\$18,028,788	\$18,749,665	\$18,701,127	\$19,545,706	\$20,306,865	\$20,737,029	\$25,697,232	\$29,993,967
Energy	\$2,584,438	\$5,168,876	\$7,753,314	\$10,337,752	\$13,922,190	\$17,506,628	\$21,091,066	\$24,675,504	\$28,259,942	\$31,844,380	\$35,428,818	\$39,013,256	\$42,597,694	\$46,182,132	\$49,766,570	\$53,350,008	\$56,934,446	\$60,518,884	\$64,103,322	\$67,687,760
Total	\$5,053,825	\$10,107,650	\$15,161,474	\$20,215,300	\$25,269,124	\$30,322,948	\$35,376,772	\$40,430,596	\$45,484,420	\$50,538,244	\$55,592,068	\$60,645,900	\$65,699,732	\$70,753,564	\$75,807,388	\$80,861,212	\$85,915,044	\$90,968,876	\$96,022,708	\$101,076,540
<b>COST CALCULATIONS:</b>																				
<b>NPV</b>																				
Cost Impacts	\$1,612,906	\$1,643,834	\$1,674,762	\$1,717,067	\$1,759,590	\$1,821,017	\$1,884,659	\$1,950,597	\$2,018,916	\$2,089,703	\$2,163,050	\$2,239,051	\$2,317,803	\$2,399,409	\$2,483,973	\$2,571,605	\$2,662,419	\$2,756,531	\$2,854,064	\$2,955,145
Incentives	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425	\$2,265,425
Participant	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290
<b>Total Participant Costs</b>	\$73,172,479	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290	\$6,917,290
<b>Total RIM Costs</b>	\$328,581,396	\$6,442,759	\$6,442,759	\$6,442,759	\$6,442,759	\$6,442,759	\$6,442,759	\$6,442,759	\$6,442,759	\$6,442,759	\$6,442,759	\$6,442,759	\$6,442,759	\$6,442,759	\$6,442,759	\$6,442,759	\$6,442,759	\$6,442,759	\$6,442,759	\$6,442,759
<b>Total Utility Costs</b>	\$47,257,501	\$3,878,331	\$3,878,331	\$3,878,331	\$3,878,331	\$3,878,331	\$3,878,331	\$3,878,331	\$3,878,331	\$3,878,331	\$3,878,331	\$3,878,331	\$3,878,331	\$3,878,331	\$3,878,331	\$3,878,331	\$3,878,331	\$3,878,331	\$3,878,331	\$3,878,331
<b>Total TRC Costs</b>	\$94,308,896	\$7,530,196	\$7,530,196	\$7,530,196	\$7,530,196	\$7,530,196	\$7,530,196	\$7,530,196	\$7,530,196	\$7,530,196	\$7,530,196	\$7,530,196	\$7,530,196	\$7,530,196	\$7,530,196	\$7,530,196	\$7,530,196	\$7,530,196	\$7,530,196	\$7,530,196

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 34 OF 55  
 Exhibit 10  
 Docket No. 05-0069  
 Page 3



**TABLE 3. CICR: DETAILED SUMMARY FOR 2006 START YEAR - 20-YEAR PLANNING HORIZON SUMMARY**  
**PROGRAM NAME: COMMERCIAL INDUSTRIAL CUSTOM REBATES**

Discount Rate	6%																				
General Escalation Rate	2.2%																				
Measure Lifetime (Years)	15																				
<b>Participant Test</b>																					
Participant Test	\$202,360,803	Costs	\$202,360,803	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Ratepayer Impact Measure T1	\$73,730,977	Net Benefits	\$119,629,936	2.46																	
Utility Cost Test	\$73,730,977	Ratepayer Impact Measure T2	\$227,201,725	0.32																	
Total Resource Cost Test	\$73,730,977	Utility Cost Test	\$24,840,922	2.97																	
		Total Resource Cost Test	\$68,889,055	0.75																	
			\$68,889,055																		
<b>Cumulative Savings (Net System Level)</b>																					
Peak Demand Reduction (kW)	1,246	2,491	3,736	4,981	6,227	7,472	8,718	9,963	11,208	12,454	13,699	14,944	16,190	17,435	18,680	19,926	21,171	22,417	23,662	24,907	26,153
Energy Savings (kWh)	9,684,078	19,368,156	29,052,233	38,736,311	47,915,389	57,094,467	67,081,544	76,864,622	86,247,700	95,830,778	105,413,856	114,996,933	124,580,011	134,163,089	143,746,167	153,329,245	162,912,323	172,495,401	182,078,479	191,661,557	201,244,635
Demand (kW)	\$46.00	\$47.01	\$48.05	\$49.10	\$50.18	\$51.29	\$52.42	\$53.57	\$54.75	\$55.95	\$57.18	\$58.44	\$59.73	\$61.04	\$62.39	\$63.78	\$65.16	\$66.59	\$68.05	\$69.55	\$71.08
Energy (\$/kWh)	\$0.1611	\$0.1646	\$0.1683	\$0.1720	\$0.1758	\$0.1796	\$0.1836	\$0.1876	\$0.1917	\$0.1959	\$0.2003	\$0.2047	\$0.2092	\$0.2138	\$0.2185	\$0.2233	\$0.2282	\$0.2332	\$0.2383	\$0.2436	\$0.2490
<b>BENEFIT CALCULATIONS:</b>																					
<b>Benefit Costs (Utility Rate)</b>																					
Demand	\$224,580	\$450,682	\$677,254	\$903,259	\$0	\$0	\$0	\$0	\$0	\$0	\$19,056,734	\$23,337,406	\$22,978,731	\$22,874,722	\$22,743,315	\$22,550,100	\$21,478,660	\$20,760,131	\$20,112,480	\$19,685,462	\$13,869,401
Energy	\$1,050,462	\$2,053,931	\$2,937,960	\$4,097,262	\$4,739,008	\$5,773,271	\$6,978,211	\$7,949,064	\$9,389,899	\$10,967,753	\$12,679,401	\$14,479,401	\$16,359,753	\$18,279,401	\$20,209,401	\$22,109,401	\$24,009,401	\$25,909,401	\$27,809,401	\$29,709,401	\$31,609,401
Total	\$1,275,042	\$2,504,613	\$3,615,214	\$4,990,521	\$4,739,008	\$5,773,271	\$6,978,211	\$7,949,064	\$9,389,899	\$10,967,753	\$12,679,401	\$14,479,401	\$16,359,753	\$18,279,401	\$20,209,401	\$22,109,401	\$24,009,401	\$25,909,401	\$27,809,401	\$29,709,401	\$31,609,401
<b>Avoided Costs (Total Resources)</b>																					
Demand	\$224,580	\$450,682	\$677,254	\$903,259	\$0	\$0	\$0	\$0	\$0	\$0	\$19,056,734	\$23,337,406	\$22,978,731	\$22,874,722	\$22,743,315	\$22,550,100	\$21,478,660	\$20,760,131	\$20,112,480	\$19,685,462	\$13,869,401
Energy	\$1,050,462	\$2,053,931	\$2,937,960	\$4,097,262	\$4,739,008	\$5,773,271	\$6,978,211	\$7,949,064	\$9,389,899	\$10,967,753	\$12,679,401	\$14,479,401	\$16,359,753	\$18,279,401	\$20,209,401	\$22,109,401	\$24,009,401	\$25,909,401	\$27,809,401	\$29,709,401	\$31,609,401
Total	\$1,275,042	\$2,504,613	\$3,615,214	\$4,990,521	\$4,739,008	\$5,773,271	\$6,978,211	\$7,949,064	\$9,389,899	\$10,967,753	\$12,679,401	\$14,479,401	\$16,359,753	\$18,279,401	\$20,209,401	\$22,109,401	\$24,009,401	\$25,909,401	\$27,809,401	\$29,709,401	\$31,609,401
<b>Avoided Costs (Participant)</b>																					
Demand	\$7,287	\$117,094	\$179,505	\$244,606	\$312,484	\$383,230	\$456,938	\$533,704	\$613,628	\$696,806	\$783,349	\$873,363	\$966,959	\$1,064,250	\$1,165,354	\$1,271,193	\$1,382,821	\$1,499,321	\$1,625,785	\$1,762,215	\$1,908,710
Energy	\$1,543,834	\$3,155,660	\$4,637,529	\$6,591,940	\$8,421,203	\$10,227,763	\$12,314,137	\$14,382,912	\$16,539,753	\$18,779,401	\$21,110,679	\$23,539,488	\$26,059,815	\$28,680,732	\$31,405,402	\$34,235,921	\$37,172,281	\$40,215,491	\$43,365,551	\$46,623,461	\$50,000,121
Total	\$1,801,121	\$3,272,890	\$4,817,034	\$6,836,546	\$8,733,687	\$10,710,984	\$12,771,075	\$14,916,619	\$17,150,378	\$19,475,257	\$21,894,028	\$24,409,851	\$27,025,773	\$29,744,962	\$32,570,756	\$35,507,312	\$38,554,632	\$41,717,012	\$44,995,636	\$48,390,592	\$51,903,831
<b>COST CALCULATIONS:</b>																					
<b>Cost Inputs:</b>																					
Implementation	\$1,220,698	\$1,255,101	\$1,284,988	\$1,316,294	\$1,344,572	\$1,383,880	\$1,446,023	\$1,488,069	\$1,553,069	\$1,610,159	\$1,669,354	\$1,730,755	\$1,794,445	\$1,860,509	\$1,929,038	\$2,000,120	\$2,073,857	\$2,150,945	\$2,232,488	\$2,318,586	\$2,408,243
Incentive	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938	\$743,938
Participant	\$6,529,133	\$6,819,186	\$7,092,447	\$7,359,812	\$7,621,677	\$7,878,665	\$8,130,281	\$8,376,001	\$8,615,624	\$8,849,660	\$9,078,618	\$9,302,018	\$9,520,372	\$9,733,181	\$9,940,945	\$10,143,168	\$10,340,350	\$10,532,091	\$10,718,900	\$10,900,278	\$11,076,725
Total Participant Costs	\$82,656,680	\$8,819,165	\$9,982,447	\$11,149,812	\$12,321,677	\$13,497,865	\$14,678,601	\$15,864,015	\$17,053,624	\$18,246,880	\$19,444,218	\$20,646,118	\$21,852,168	\$23,062,068	\$24,275,418	\$25,491,818	\$26,711,868	\$27,936,168	\$29,165,318	\$30,398,918	\$31,636,568
Total RMI Costs	\$227,201,725	\$3,665,752	\$5,271,728	\$7,045,968	\$8,996,765	\$10,822,194	\$12,543,128	\$14,163,128	\$15,689,907	\$17,118,116	\$18,449,080	\$19,678,083	\$20,801,624	\$21,816,116	\$22,719,116	\$23,507,116	\$24,176,116	\$24,721,116	\$25,149,116	\$25,457,116	\$25,641,116
Total Utility Costs	\$24,840,922	\$1,999,038	\$2,028,934	\$2,060,220	\$2,088,507	\$2,114,182	\$2,222,051	\$2,282,192	\$2,384,684	\$2,439,608	\$2,517,051	\$2,597,102	\$2,679,851	\$2,765,394	\$2,853,629	\$2,944,258	\$3,037,787	\$3,133,816	\$3,232,945	\$3,334,674	\$3,439,503
Total TRC Costs	\$68,889,055	\$6,749,829	\$8,074,265	\$9,267,446	\$9,468,196	\$9,891,745	\$9,123,623	\$9,382,083	\$9,807,331	\$9,859,577	\$10,119,044	\$10,365,958	\$10,600,554	\$10,843,078	\$11,084,762	\$11,324,316	\$11,561,340	\$11,796,344	\$12,028,918	\$12,259,662	\$12,489,186

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 36 OF 55  
 Exhibit 10  
 Docket No. 05-0069  
 Page 5









**TABLE 6. RDLC: DETAILED SUMMARY FOR 2006 START YEAR – 20-YEAR PLANNING HORIZON SUMMARY**  
**PROGRAM NAME: RESIDENTIAL DIRECT LOAD CONTROL**  
**NOT INCLUDED IN ANALYSIS**

Discount Rate	8%
General Escalation Rate	2.2%
Measure Lifetime (years)	15

	Benefits	Costs	Net Benefits	B/C Ratio
Participant Test	\$0	\$0	\$0	NA
Ratepayer Impact Measure Test	\$70,689,388	\$26,415,933	\$44,273,455	2.68
Utility Cost Test	\$70,689,388	\$26,415,933	\$44,273,455	2.68
Total Resource Cost Test	\$70,689,388	\$15,779,411	\$54,909,977	4.48

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025		
<b>Cumulative Savings (Net System Level)</b>																						
Peak Demand Reduction (kW)	6,161	11,004	14,504	14,854	14,854	14,854	14,854	14,854	14,854	14,854	14,854	14,854	14,854	14,854	14,854	14,854	14,854	14,854	14,854	14,854		
Energy Savings (kWh)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<b>Rates</b>																						
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		
Energy (\$/kWh)	\$0.1988	\$0.2011	\$0.2068	\$0.2101	\$0.2147	\$0.2194	\$0.2242	\$0.2292	\$0.2342	\$0.2394	\$0.2446	\$0.2500	\$0.2555	\$0.2611	\$0.2669	\$0.2728	\$0.2788	\$0.2849	\$0.2912	\$0.2976		
<b>BENEFIT CALCULATIONS:</b>																						
<b>Avoided Costs (Utility Rate)</b>	<b>NPV</b>																					
Demand		\$1,111,025	\$1,991,028	\$2,629,136	\$2,657,180	\$0	\$0	\$0	\$0	\$0	\$22,424,207	\$24,964,824	\$22,532,709	\$20,705,280	\$19,115,882	\$17,689,919	\$16,849,404	\$16,301,428	\$15,777,675	-\$6,029,029	-\$10,903,689	
Energy		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total	\$70,689,388	\$1,111,025	\$1,991,028	\$2,629,136	\$2,657,180	\$0	\$0	\$0	\$0	\$0	\$22,424,207	\$24,964,824	\$22,532,709	\$20,705,280	\$19,115,882	\$17,689,919	\$16,849,404	\$16,301,428	\$15,777,675	-\$6,029,029	-\$10,903,689	
<b>Avoided Costs (Total Resource)</b>																						
Demand		\$1,111,025	\$1,991,028	\$2,629,136	\$2,657,180	\$0	\$0	\$0	\$0	\$0	\$22,424,207	\$24,964,824	\$22,532,709	\$20,705,280	\$19,115,882	\$17,689,919	\$16,849,404	\$16,301,428	\$15,777,675	-\$6,029,029	-\$10,903,689	
Energy		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total	\$70,689,388	\$1,111,025	\$1,991,028	\$2,629,136	\$2,657,180	\$0	\$0	\$0	\$0	\$0	\$22,424,207	\$24,964,824	\$22,532,709	\$20,705,280	\$19,115,882	\$17,689,919	\$16,849,404	\$16,301,428	\$15,777,675	-\$6,029,029	-\$10,903,689	
<b>Avoided Costs (Participant)</b>																						
Demand		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Energy		\$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	
<b>COST CALCULATIONS:</b>																						
<b>Cost Inputs:</b>																						
Implementation		\$3,329,133	\$2,967,339	\$2,538,559	\$795,443	\$784,307	\$814,111	\$845,047	\$877,159	\$910,491	\$945,090	\$981,003	\$1,018,281	\$1,056,976	\$1,097,141	\$1,138,832	\$1,182,108	\$1,227,028	\$1,273,655	\$1,322,054	\$1,372,292	
Incentives		\$375,773	\$672,003	\$906,664	\$1,013,001	\$1,013,001	\$1,035,287	\$1,058,064	\$1,081,341	\$1,105,130	\$1,129,443	\$1,154,291	\$1,179,685	\$1,205,639	\$1,232,163	\$1,259,270	\$1,286,974	\$1,315,288	\$1,344,224	\$1,373,797	\$1,404,020	
Participant		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
<b>Total Participant Costs</b>	<b>NPV</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
<b>Total PIM Costs</b>		\$26,415,933	\$3,704,906	\$3,639,341	\$3,445,223	\$1,808,444	\$1,797,308	\$1,849,398	\$1,903,111	\$1,958,500	\$2,015,621	\$2,074,533	\$2,135,294	\$2,197,967	\$2,262,614	\$2,329,303	\$2,398,102	\$2,469,082	\$2,542,315	\$2,617,879	\$2,695,851	\$2,776,312
<b>Total Utility Costs</b>		\$26,415,933	\$3,704,906	\$3,639,341	\$3,445,223	\$1,808,444	\$1,797,308	\$1,849,398	\$1,903,111	\$1,958,500	\$2,015,621	\$2,074,533	\$2,135,294	\$2,197,967	\$2,262,614	\$2,329,303	\$2,398,102	\$2,469,082	\$2,542,315	\$2,617,879	\$2,695,851	\$2,776,312
<b>Total TRC Costs</b>		\$15,779,411	\$3,329,133	\$2,967,339	\$2,538,559	\$795,443	\$784,307	\$814,111	\$845,047	\$877,159	\$910,491	\$945,090	\$981,003	\$1,018,281	\$1,056,976	\$1,097,141	\$1,138,832	\$1,182,108	\$1,227,028	\$1,273,655	\$1,322,054	\$1,372,292

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 41 OF 55  
 Exhibit 10  
 Docket No. 05-0069  
 Page 10

**TABLE 9. CIDLC: DETAILED SUMMARY FOR 2006 START YEAR - 20-YEAR PLANNING HORIZON SUMMARY**  
**PROGRAM NAME: COMMERCIAL INDUSTRIAL DIRECT LOAD CONTROL**

Discount Rate	8%
General Escalation Rate	2.2%
Measure Lifetime (Years)	15

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Participant Total	\$15,583,049	\$0	\$15,583,049	NA																	
Ratepayer Impact Measure T1	\$161,920,855	\$123,448,516	4.21																		
Utility Cost Total	\$22,899,290	\$139,031,565	7.07																		
Total Resource Cost	\$161,920,855	\$154,898,191	23.05																		

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025		
<b>Cumulative Savings (Net System Level)</b>																						
Peak Demand Reduction (kW)	2,983	11,314	17,505	24,698	28,033	28,313	30,339	32,112	33,801	34,826	35,180	35,348	35,517	35,686	35,771	35,855	35,939	36,024	36,024	36,024	36,024	
Energy Savings (kWh)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Risks</b>																						
Demand (\$/kW)	\$48.00	\$47.01	\$48.05	\$48.10	\$50.18	\$51.29	\$52.42	\$53.57	\$54.75	\$55.95	\$57.18	\$58.44	\$59.73	\$61.04	\$62.38	\$63.76	\$65.16	\$66.59	\$68.06	\$69.55	\$71.05	
Energy (\$/kWh)	\$0.1611	\$0.1648	\$0.1683	\$0.1720	\$0.1758	\$0.1796	\$0.1836	\$0.1876	\$0.1917	\$0.1960	\$0.2003	\$0.2047	\$0.2092	\$0.2138	\$0.2185	\$0.2233	\$0.2282	\$0.2332	\$0.2383	\$0.2436	\$0.2493	
<b>BENEFIT CALCULATIONS:</b>																						
<b>NPV</b>																						
Avoided Costs (Utility Rate)	\$537,973	\$2,047,064	\$3,173,255	\$4,490,135	\$0	\$0	\$0	\$0	\$0	\$53,444,688	\$59,831,368	\$54,352,399	\$50,182,943	\$46,551,027	\$43,180,439	\$41,225,852	\$39,979,028	\$39,785,431	\$14,820,848	\$28,803,967		
Demand	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Energy	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Total	\$537,973	\$2,047,064	\$3,173,255	\$4,490,135	\$0	\$0	\$0	\$0	\$0	\$53,444,688	\$59,831,368	\$54,352,399	\$50,182,943	\$46,551,027	\$43,180,439	\$41,225,852	\$39,979,028	\$39,785,431	\$14,820,848	\$28,803,967		
<b>Avoided Costs (Total Resource)</b>																						
Demand	\$137,228	\$531,682	\$841,067	\$1,207,820	\$1,306,422	\$1,452,080	\$1,590,238	\$1,720,205	\$1,850,487	\$1,964,198	\$2,011,672	\$2,065,797	\$2,121,330	\$2,178,307	\$2,231,487	\$2,285,973	\$2,341,766	\$2,398,907	\$2,451,683	\$2,505,820		
Energy	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Total	\$137,228	\$531,682	\$841,067	\$1,207,820	\$1,306,422	\$1,452,080	\$1,590,238	\$1,720,205	\$1,850,487	\$1,964,198	\$2,011,672	\$2,065,797	\$2,121,330	\$2,178,307	\$2,231,487	\$2,285,973	\$2,341,766	\$2,398,907	\$2,451,683	\$2,505,820		
<b>COST CALCULATIONS:</b>																						
<b>Cost Incentive:</b>																						
Implementation	\$1,472,361	\$1,614,617	\$1,265,212	\$1,267,311	\$224,096	\$232,611	\$241,451	\$250,628	\$260,149	\$270,035	\$280,296	\$290,948	\$302,004	\$313,480	\$325,382	\$337,757	\$350,592	\$363,914	\$377,743	\$392,087		
Incentives	\$227,650	\$690,900	\$980,850	\$1,191,000	\$1,297,575	\$1,435,041	\$1,577,828	\$1,726,407	\$1,880,656	\$2,001,247	\$2,045,275	\$2,090,271	\$2,136,257	\$2,183,255	\$2,231,296	\$2,280,374	\$2,330,543	\$2,381,815	\$2,434,215	\$2,487,767		
Participant	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
<b>Total Participant Costs</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
<b>Total BLM Costs</b>	\$39,472,338	\$1,837,139	\$2,837,298	\$2,978,129	\$3,688,131	\$2,828,083	\$3,119,753	\$3,408,617	\$3,697,258	\$3,991,302	\$4,225,478	\$4,447,016	\$4,656,591	\$4,875,041	\$4,788,175	\$4,904,104	\$5,022,900	\$5,144,636	\$5,263,840	\$5,385,484		
<b>Total Utility Costs</b>	\$22,899,290	\$1,699,911	\$2,305,417	\$2,135,082	\$2,458,311	\$1,821,671	\$1,697,653	\$1,619,379	\$1,677,633	\$2,140,805	\$2,271,283	\$2,381,219	\$2,438,291	\$2,498,734	\$2,556,678	\$2,618,131	\$2,681,134	\$2,745,729	\$2,811,957	\$2,879,864		
<b>Total TRC Costs</b>	\$7,024,664	\$1,472,361	\$1,614,617	\$1,265,212	\$1,267,311	\$224,096	\$232,611	\$241,451	\$250,628	\$260,149	\$270,035	\$280,296	\$290,948	\$302,004	\$313,480	\$325,382	\$337,757	\$350,592	\$363,914	\$377,743	\$392,087	

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 42 OF 55  
 Exhibit 10  
 Docket No. 05-0069  
 Page 11

**Avoided Capacity and Energy Costs**

SCENARIO: Used year-by-year estimates for 20-year forecast horizon (2006-2025), then the escalated levelized value for years beyond.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
<b>Electric Avoided Cost</b>																							
Demand (\$/kW)	\$180	\$181	\$181	\$181	\$0	\$0	\$0	\$0	\$0	\$1,530	\$1,704	\$1,538	\$1,413	\$1,304	\$1,207	\$1,150	\$1,112	\$1,077	-\$411	-\$744	\$662	\$662	
Average Energy-(\$/kWh)	\$0.110	\$0.107	\$0.102	\$0.107	\$0.099	\$0.100	\$0.104	\$0.104	\$0.109	-\$0.140	-\$0.133	-\$0.119	-\$0.115	-\$0.109	-\$0.105	-\$0.100	-\$0.109	-\$0.111	\$0.138	\$0.144	-\$0.006	-\$0.006	
	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Demand (\$/kW)	\$662	\$662	\$662	\$662	\$662	\$662	\$662	\$662	\$662	\$662	\$662	\$662	\$662	\$662	\$662	\$662	\$662	\$662	\$662	\$662	\$662	\$662	\$662
Average Energy-(\$/kWh)	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006	-\$0.006

Source: HECO System Planning estimates (DSM AC 2006A r2B.xls) (see below)

Data from DSM AC 2006A r2.xls

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
<b>Year-by-year Estimates</b>																					
Demand (\$/kW)	193.13	193.78	194.14	194.20	0.00	0.00	0.00	0.00	0.00	1638.84	1824.52	1646.77	1513.22	1397.06	1292.84	1231.42	1191.37	1153.09	-440.62	-796.88	
Average Energy (\$/MWh)	117.40	114.77	109.45	114.48	105.92	107.54	111.43	111.05	116.59	-149.57	-142.09	-127.40	-123.54	-116.75	-111.99	-107.12	-117.06	-119.32	147.58	154.72	
Average Energy (\$/kWh)	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.12	-0.15	-0.14	-0.13	-0.12	-0.12	-0.11	-0.11	-0.12	-0.12	0.15	0.15	

Avoided Cost (Levelized) -- Costs held constant from 2026 to 2050.

Demand (\$/kW)	\$709
Average Energy (\$/kWh)	-\$0.0068

Adjustment of Avoided costs to reflect Net-to-System: Based on email from Alan Hee (8/9/06):

Please multiply the avoided costs from Exhibit 12 by  $(1-0.1117) \div (1-0.04864) = 0.93372$  so that they can be multiplied times the gross generation levels of kw and kwh

Adjustment Factor: 0.9337

Revised 08-24-06  
 CA/HECO-IR-9  
 DOCKET NO. 05-0069  
 PAGE 43 OF 55  
 Exhibit 10  
 Docket No. 05-0069  
 Page 12





enough to address the shortfall. Absent this resource, energy efficiency DSM programs would be given zero capacity value in the near-term years, as the impacts are not large enough to defer a generating unit addition. In this "work-around" method, a proxy Virtual DG resource is used in the alternate resource plan. The size of the Virtual DG resource is approximately equal to that of the peak reduction benefit of the energy efficiency DSM programs for the years in which a capacity value for the programs is being estimated. The energy efficiency DSM programs are displaced in the base resource plan. The underlying energy and capacity costs for this Virtual DG resource were derived from the costs for HECO's utility-sited DG.

Load Management Programs. Scenario A assumed that the company is able to successfully implement its CIDLC and RDLC programs. These programs are in both the base and alternate resource plans since the objective is to estimate the avoided costs of the energy efficiency DSM programs only. The underlying assumptions for these programs are from the January 2006 timeframe, and may differ from actual load management impacts obtained in the future.









## 2006 Fuel Oil Price Forecast Nominal Dollars

### Hawaiian Electric Company

	Low Sulfur Fuel Oil (LSFO) 6.2 MBtu/Barrel			Diesel Oil (0.4% Sulfur) 5.85 MBtu/Barrel		
	Reference	High	Low	Reference	High	Low
2006	\$ 63.63	\$ 63.63	\$ 63.63	\$ 77.44	\$ 77.44	\$ 77.44
2007	\$ 61.91	\$ 66.18	\$ 59.93	\$ 75.53	\$ 80.45	\$ 73.25
2008	\$ 60.31	\$ 69.01	\$ 56.24	\$ 73.78	\$ 83.79	\$ 69.09
2009	\$ 58.61	\$ 71.94	\$ 52.37	\$ 71.91	\$ 87.25	\$ 64.73
2010	\$ 56.81	\$ 74.97	\$ 48.34	\$ 69.94	\$ 90.83	\$ 60.19
2011	\$ 57.90	\$ 79.97	\$ 47.30	\$ 71.30	\$ 96.70	\$ 59.10
2012	\$ 59.13	\$ 85.30	\$ 46.38	\$ 72.83	\$ 102.96	\$ 58.15
2013	\$ 60.39	\$ 90.89	\$ 45.49	\$ 74.40	\$ 109.50	\$ 57.26
2014	\$ 61.64	\$ 96.65	\$ 44.60	\$ 75.97	\$ 116.26	\$ 56.36
2015	\$ 62.93	\$ 102.65	\$ 43.74	\$ 77.58	\$ 123.29	\$ 55.49
2016	\$ 65.07	\$ 107.49	\$ 44.56	\$ 80.17	\$ 128.99	\$ 56.57
2017	\$ 67.39	\$ 112.67	\$ 45.48	\$ 82.98	\$ 135.10	\$ 57.76
2018	\$ 69.87	\$ 118.19	\$ 46.45	\$ 85.99	\$ 141.61	\$ 59.04
2019	\$ 72.41	\$ 123.91	\$ 47.44	\$ 89.07	\$ 148.34	\$ 60.33
2020	\$ 75.03	\$ 129.79	\$ 48.41	\$ 92.23	\$ 155.26	\$ 61.60
2021	\$ 78.03	\$ 134.94	\$ 49.73	\$ 95.85	\$ 161.36	\$ 63.28
2022	\$ 81.13	\$ 140.23	\$ 51.07	\$ 99.58	\$ 167.60	\$ 64.98
2023	\$ 84.29	\$ 145.61	\$ 52.41	\$ 103.38	\$ 173.96	\$ 66.69
2024	\$ 87.49	\$ 151.10	\$ 53.76	\$ 107.23	\$ 180.44	\$ 68.41
2025	\$ 90.77	\$ 156.70	\$ 55.12	\$ 111.18	\$ 187.05	\$ 70.14
2026	\$ 93.75	\$ 162.42	\$ 56.49	\$ 114.77	\$ 193.80	\$ 71.88
2027	\$ 96.80	\$ 168.25	\$ 57.87	\$ 118.45	\$ 200.68	\$ 73.64
2028	\$ 99.89	\$ 174.22	\$ 59.26	\$ 122.17	\$ 207.71	\$ 75.41
2029	\$ 103.00	\$ 180.26	\$ 60.65	\$ 125.92	\$ 214.84	\$ 77.18
2030	\$ 106.25	\$ 186.53	\$ 62.08	\$ 129.84	\$ 222.22	\$ 79.00

**2006 Fuel Oil Price Forecast (Preliminary)**  
**Real Dollars (\$2005)**

**Coal Price Forecast (Short Ton)**

	Oahu			Neighbor Island		
	Reference	High	Low	Reference	High	Low
2006	\$ 47.28	\$ 57.08	\$ 37.48	\$ 73.38	\$ 88.59	\$ 58.17
2007	\$ 48.14	\$ 58.12	\$ 38.16	\$ 74.72	\$ 90.20	\$ 59.23
2008	\$ 48.80	\$ 58.92	\$ 38.69	\$ 75.74	\$ 91.45	\$ 60.04
2009	\$ 49.68	\$ 59.98	\$ 39.38	\$ 77.11	\$ 93.09	\$ 61.12
2010	\$ 48.79	\$ 58.91	\$ 38.68	\$ 75.73	\$ 91.43	\$ 60.03
2011	\$ 47.31	\$ 57.11	\$ 37.50	\$ 73.42	\$ 88.64	\$ 58.20
2012	\$ 45.93	\$ 55.45	\$ 36.41	\$ 71.28	\$ 86.08	\$ 56.50
2013	\$ 44.54	\$ 53.77	\$ 35.30	\$ 69.12	\$ 83.45	\$ 54.79
2014	\$ 43.16	\$ 52.11	\$ 34.21	\$ 66.98	\$ 80.87	\$ 53.10
2015	\$ 41.83	\$ 50.50	\$ 33.16	\$ 64.92	\$ 78.38	\$ 51.46
2016	\$ 41.19	\$ 49.73	\$ 32.65	\$ 63.92	\$ 77.17	\$ 50.67
2017	\$ 41.26	\$ 49.81	\$ 32.70	\$ 64.03	\$ 77.31	\$ 50.76
2018	\$ 42.02	\$ 50.73	\$ 33.31	\$ 65.22	\$ 78.74	\$ 51.70
2019	\$ 42.43	\$ 51.23	\$ 33.64	\$ 65.86	\$ 79.51	\$ 52.20
2020	\$ 42.89	\$ 51.78	\$ 34.00	\$ 66.56	\$ 80.36	\$ 52.76
2021	\$ 43.27	\$ 52.24	\$ 34.30	\$ 67.15	\$ 81.07	\$ 53.23
2022	\$ 43.88	\$ 52.98	\$ 34.79	\$ 68.11	\$ 82.23	\$ 53.99
2023	\$ 43.53	\$ 52.55	\$ 34.50	\$ 67.55	\$ 81.56	\$ 53.55
2024	\$ 43.70	\$ 52.76	\$ 34.64	\$ 67.82	\$ 81.88	\$ 53.76
2025	\$ 43.86	\$ 52.95	\$ 34.77	\$ 68.07	\$ 82.18	\$ 53.96
2026	\$ 43.69	\$ 52.75	\$ 34.63	\$ 67.80	\$ 81.86	\$ 53.75
2027	\$ 43.36	\$ 52.36	\$ 34.37	\$ 67.30	\$ 81.25	\$ 53.35
2028	\$ 42.89	\$ 51.78	\$ 34.00	\$ 66.56	\$ 80.36	\$ 52.76
2029	\$ 41.96	\$ 50.68	\$ 33.26	\$ 65.12	\$ 78.62	\$ 51.62
2030	\$ 42.04	\$ 50.75	\$ 33.32	\$ 65.24	\$ 78.77	\$ 51.72

**2006 Fuel Oil Price Forecast (Preliminary)**  
**Nominal Dollars**

**Coal Price Forecast (Short Ton)**

	Oahu			Neighbor Island		
	Reference	High	Low	Reference	High	Low
2006	\$ 48.13	\$ 58.11	\$ 38.15	\$ 74.70	\$ 90.19	\$ 59.22
2007	\$ 49.87	\$ 60.21	\$ 39.53	\$ 77.41	\$ 93.46	\$ 61.36
2008	\$ 51.44	\$ 62.11	\$ 40.78	\$ 79.84	\$ 96.39	\$ 63.29
2009	\$ 53.26	\$ 64.30	\$ 42.22	\$ 82.66	\$ 99.80	\$ 65.53
2010	\$ 54.29	\$ 65.54	\$ 43.03	\$ 84.26	\$ 101.73	\$ 66.79
2011	\$ 54.13	\$ 65.35	\$ 42.90	\$ 84.00	\$ 101.42	\$ 66.59
2012	\$ 53.79	\$ 64.94	\$ 42.64	\$ 83.48	\$ 100.79	\$ 66.17
2013	\$ 53.36	\$ 64.43	\$ 42.30	\$ 82.82	\$ 99.99	\$ 65.65
2014	\$ 52.88	\$ 63.84	\$ 41.92	\$ 82.07	\$ 99.08	\$ 65.05
2015	\$ 52.69	\$ 63.61	\$ 41.76	\$ 81.77	\$ 98.72	\$ 64.82
2016	\$ 53.43	\$ 64.51	\$ 42.35	\$ 82.93	\$ 100.12	\$ 65.73
2017	\$ 55.01	\$ 66.42	\$ 43.61	\$ 85.38	\$ 103.08	\$ 67.68
2018	\$ 57.54	\$ 69.47	\$ 45.61	\$ 89.30	\$ 107.82	\$ 70.79
2019	\$ 59.63	\$ 72.00	\$ 47.27	\$ 92.55	\$ 111.74	\$ 73.37
2020	\$ 61.71	\$ 74.50	\$ 48.91	\$ 95.77	\$ 115.62	\$ 75.91
2021	\$ 63.92	\$ 77.18	\$ 50.67	\$ 99.21	\$ 119.78	\$ 78.64
2022	\$ 66.42	\$ 80.19	\$ 52.65	\$ 103.08	\$ 124.45	\$ 81.71
2023	\$ 67.45	\$ 81.43	\$ 53.46	\$ 104.68	\$ 126.38	\$ 82.97
2024	\$ 69.68	\$ 84.12	\$ 55.23	\$ 108.14	\$ 130.56	\$ 85.72
2025	\$ 71.83	\$ 86.72	\$ 56.94	\$ 111.48	\$ 134.59	\$ 88.37
2026	\$ 73.21	\$ 88.38	\$ 58.03	\$ 113.61	\$ 137.17	\$ 90.06
2027	\$ 74.23	\$ 89.62	\$ 58.84	\$ 115.20	\$ 139.08	\$ 91.32
2028	\$ 75.35	\$ 90.97	\$ 59.73	\$ 116.94	\$ 141.18	\$ 92.69
2029	\$ 75.60	\$ 91.27	\$ 59.93	\$ 117.33	\$ 141.65	\$ 93.01
2030	\$ 77.56	\$ 93.64	\$ 61.48	\$ 120.38	\$ 145.33	\$ 95.42



Hawaiian Electric Company, Inc.  
**Utility DSM Compensation**  
Assuming Rate Case Every 3 Years

Exhibit 13  
Docket No. 05-0069  
Page 1

Line		Calendar Years					
		1	2	3 <sup>a</sup>	4	5	6 <sup>a</sup>
	<b>Accrued Lost Margins</b>						
1	1st yr programs	\$1.5	\$3.0	\$3.0			
2	2nd yr programs		\$1.4	\$2.8			
3	3rd yr programs			\$1.2	\$1.2	\$1.2	\$1.2
4	4th yr programs				\$1.2	\$2.4	\$2.4
5	5th yr programs					\$1.2	\$2.4
6	6th yr programs						\$1.2
7	<b>Total Shortfall</b>	\$1.5	\$4.4	\$7.0	\$2.4	\$4.8	\$7.2
8	<b>Existing Surcharge Mechanism</b>						
9	Recover in Base Rates				\$7.0	\$7.0	\$7.0
10	Surcharge:						
11	Lost Margin Recovery	\$1.5	\$4.4	\$7.0	\$2.4	\$4.8	\$7.2
12	Shareholder Incentive <sup>b</sup>	\$6.6	\$6.2	\$5.7	\$5.7	\$5.7	\$5.7
13	<b>Surcharge Recovery</b>	\$8.1	\$10.6	\$12.7	\$8.1	\$10.5	\$12.9
14	<b>Rate Case Proposal (Recovered in Base Rates, Shortfall capped at 3 annual years)</b>						
15	Recover in Base Rates				\$7.0	\$7.0	\$7.0
16	Embed in Base Rates	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0
17	Return on Program Costs <sup>c</sup>	\$2.1	\$2.1	\$2.1	\$2.1	\$2.2	\$2.3
18	<b>Total in Base Rates</b>	\$8.1	\$8.1	\$8.1	\$15.1	\$15.2	\$15.3
19							
20	Surcharge: Return Base Over Recovery				-\$5.1		
21	<b>CA's Proposal</b>						
22	Recover in Base Rates				\$7.0	\$7.0	\$7.0
23	Surcharge:						
24	Lost Margin Recovery	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
25	Shareholder Incentive	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
26	<b>Surcharge Recovery</b>	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
27	<b>Company Proposal 1st Alternative, 5% Shared Savings</b>						
28	Recover in Base Rates				\$7.0	\$7.0	\$7.0
29	Surcharge						
30	Fixed Cost Shortfall						
31	5% Shared savings <sup>b</sup>	\$3.3	\$3.1	\$2.9	\$2.9	\$2.9	\$2.9
32	<b>Surcharge Recovery</b>	\$3.3	\$3.1	\$2.9	\$2.9	\$2.9	\$2.9
33	<b>Company Proposal 2nd Alternative 1-year Shortfall Recovery + 15% of Program Costs</b>						
34	Recover in Base Rates				\$7.0	\$7.0	\$7.0
35	Surcharge						
36	1-yr Fixed Cost Shortfall	\$1.5	\$2.9	\$2.6	\$2.4	\$2.4	\$2.4
37	15% of Program Cost <sup>c</sup>	\$2.1	\$2.1	\$2.1	\$2.1	\$2.2	\$2.3
38	<b>Surcharge Recovery</b>	\$3.6	\$5.0	\$4.7	\$4.5	\$4.6	\$4.7
39	<b>Capped at \$4.0 million</b>	\$3.6	\$4.0	\$4.0	\$4.0	\$4.0	\$4.0

Notes:

- a. Rate case year, new rates effective in the following year.
- b. Existing shared savings mechanism.  
Updated avoided energy and capacity costs, Program costs, using 2006 fuel price forecast.
- c. Updated program costs, excluding load management.