Attachment A

Acronym List

ACRONYM	ACRONYM EXTENSION
ACEEE	American Council for an Energy Efficient Economy
AIA	American Institute of Architects
AOAO	Associations of Apartment Owners
ARRA	American Recovery and Reinvestment Act
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASIL-PACOM	American Society of International Law – Pacific Command
BEEM	Business Energy Efficiency Measures
BESAM	Business Energy Services & Maintenance
BOMA	Building Owners and Managers Association International
BPF	Blue Planet Foundation
BREP	Business Renewable Energy Promotion
BWS	Board of Water Supply
CBEEM	Custom Business Energy Efficiency Measures
CEE	Consortium for Energy Efficiency
CESH	Custom Energy Solutions for the Home
CESP	Clean Energy Scenario Planning
CFL	Compact Fluorescent Lamps
CICR	Commercial & Industrial Custom Rebates
CIEE	Commercial & Industrial Energy Efficiency
CINC	Commercial & Industrial New Construction
CNHA	Council for Native Hawaiian Advancement
CSI	Construction Specifications Institute
DBEDT	Department of Business, Economic Development & Tourism
DHHL	Department of Hawaiian Home Lands
DOD	Department of Defense
DOE	Department of Energy
DOH	Department of Health
DSM	Demand Side Management
EEPS	Energy Efficiency Portfolio Standard
EER	Energy Efficiency Ratio
EMCS	Energy Management Control System
EPMIS	Energy Program Management Information System
ESH	Energy Solutions for the Home
EUEWG	End Use Efficiency Working Group
HBEA	Hawaii Building Engineers Association

ACRONYM	ACRONYM EXTENSION
HCAP	Honolulu Community Action Program
HCEI	Hawaii Clean Energy Initiative
HCEOC	Hawaii County Economic Opportunity Council
HECEP	Hawaii Energy Conservation and Efficiency Programs
HECO	Hawaiian Electric Company
HELCO	Hawaii Electric Light Company
HEPF	Hawaii Energy Policy Forum
HID	High Intensity Discharge
HMSA	Hawaii Medical Service Association
HPS	High Pressure Sodium
HREA	Hawaii renewable Energy Alliance
HSEA	Hawaii Solar Energy Association
HTR	Hard to Reach
HUD	Housing and Urban Development
IRP	Integrated Resource Planning
IT	Information Technology
KIUC	Kauai Island Utilities Cooperative
LED	Light Emitting Diode
MCAP	Maui Community Action Program
MECO	Maui Electric Company, Ltd.
MEO	Maui Economic Opportunity
MOU	Memorandum of Understanding
NPV	Net Present Value
NREL	National Renewable Energy Laboratory
OCS	Office of Community Services
PACE	Property Assessed Clean Energy
PAMCA	Plumbing, Air Conditioning and Mechanical Contractors Association
PBF	Public Benefits Fee
PBFA	Public Benefits Fee Administrator
PE	Photovoltaic
POP	Point of Purchase
PTAC	Package Terminal Air Conditioner
PUC	Public Utilities Commission
PV	Photovoltaic (PV)
RCUH	Research Corporation of the University of Hawaii

ACRONYM	ACRONYM EXTENSION
REEM	Residential Energy Efficiency Measures
RESAM	Residential Energy Services & Maintenance
REWH	Residential Efficient Water Heating
RFP	Request For Proposal
RLI	Residential Low Income
RNC	Residential New Construction
RREP	Residential Renewable Energy Promotion
SAIC	Science Applications International Corporation
SEEARP	State Energy Efficient Appliance Rebate Program
SEER	Seasonal Energy Efficiency Ratio
SEP	State Energy Program
TAG	Technical Advisory Group
TRB	Total Resource Benefit
TRC	Total Resource Cost Ratio .
TRM	Technical Reference Manual
UH	University of Hawaii at Manoa
VFD	Variable Speed Drive
WAP	Weatherization Assistance Program

Attachment B

PY2010 Program Participation List

Hawaii Energy PY2010 Program Participation List

Program / Efficency Measure	Units*	Project Records with Measure*	Customer Level Demand Savings	Customer Level Energy Savings	Program Level Demand Savings	Program Level Energy Savings	Useful Life	Program Level TRB	TRC	TRB/ TRC	Average Customer Level kW/Unit*	Average Customer Level kWh/Unit*
BEEM	**471,279**	**4,305**	**6,750**	**48,172,621**	**5,466**	**39,007,627**	**12**	**$ 56,690,635**	**$ 33,226,778**	**1.7**	**0.014**	**102**
CFL - Business	60,079	144	767	6,158,502	621	4,983,310	3	$ 2,233,208	$ 406,981	5.5	0.013	103
Delamping - T8/T12	20,557	48	336	2,209,506	272	1,790,631	14	$ 2,898,877	$ 170,795	17.0	0.016	107
Delamping with Reflectors - T8/T12	14,999	87	188	2,099,423	152	1,701,894	14	$ 2,374,451	$ 162,285	14.6	0.013	140
ENERGY STAR - Ceiling Fan	163	128	2	27,221	2	21,968	5	$ 12,428	$ 25,031	0.5	0.012	167
ENERGY STAR - Clothes Washer	462	462	9	95,172	10	77,069	11	$ 165,902	$ 343,587	0.5	0.020	206
ENERGY STAR - Dishwasher	611	611	6	40,937	4	33,174	11	$ 193,287	$ 232,180	0.8	0.010	67
ENERGY STAR - Refrigerator	642	642	11	67,410	9	54,525	14	$ 90,173	$ 620,809	0.1	0.017	105
ENERGY STAR - Refrigerator - ARRP/SEP	142	142	16	116,724	12	94,582	14	$ 146,960	$ 135,492	1.1	0.110	822
ENERGY STAR - Refrigerator with Recycling	58	58	2	47,676	2	38,629	14	$ 47,202	$ 57,590	0.8	0.033	822
ENERGY STAR - Window AC	640	639	122	238,720	98	193,652	9	$ 309,536	$ 178,566	1.7	0.190	373
ENERGY STAR - Window AC - Master Metered	47	47	9	17,531	7	14,227	9	$ 19,842	$ 17,163	1.2	0.190	373
Heat Pumps - Residential	1	1	0	1,503	0	1,220	9	$ 1,513	$ 1,500	1.0	0.280	1,503
HID - Metal Halide	222	7	8	543,634	6	440,145	14	$ 496,768	$ 33,300	14.9	0.036	2,449
HID - Pulse Start Metal Halide	513	20	20	190,178	16	153,851	14	$ 222,421	$ 426,650	0.5	0.038	371
High Efficiency Water Heater	2	2	0	320	0	257	10	$ 1,175	$ 825	1.4	0.030	160
HVAC - Chiller	34	24	420	2,530,878	340	2,047,717	20	$ 4,313,720	$ 2,061,205	2.1	12.360	74,438
HVAC - Ductless Split - Residential	1	1	0	373	0	303	12	$ 782	$ 1,169	0.7	0.190	373
HVAC - Package & Split Units	2,110	287	976	4,244,134	791	3,438,256	15	$ 6,840,185	$ 19,745,600	0.3	0.463	2,011
HVAC - Window AC	185	42	38	189,609	30	153,214	12	$ 244,021	$ 31,635	7.7	0.203	1,025
Induction Lighting	280	15	6	61,115	5	49,598	2	$ 12,318	$ 82,400	0.1	0.021	218
LED Exit Sign	1,960	79	78	601,720	63	487,886	16	$ 823,685	$ 64,362	12.8	0.040	307
Lighting Sensors	4,627	86	24	115,466	20	93,293	8	$ 110,119	$ 276,430	0.4	0.005	25
NEMA Premium Efficiency Motors	255	98	33	189,934	26	153,345	15	$ 272,788	$ 307,873	0.9	0.129	745
Solar Water Heating - Contractor - PBFA $1,000	2	2	1	4,132	1	3,353	15	$ 6,579	$ 10,600	0.6	0.460	2,066
Solar Water Heating - Contractor - PBFA $750	63	63	29	130,158	23	105,465	15	$ 206,909	$ 318,381	0.6	0.460	2,066
Solar Water Heating - $1,000 - PBFA $250/ARRA$750	2	2	0	1,033	0	822	15	$ 1,613	$ 13,800	0.1	0.115	517
Split System AC	90	28	7	62,614	6	50,706	15	$ 78,746	$ 4,251,115	0.0	0.079	696
T5 / T5HO	5,863	22	855	7,671,248	692	6,212,285	14	$ 9,156,037	$ 1,125,696	8.1	0.146	1,308
T8	297,088	411	2,064	17,840,167	1,671	14,445,561	14	$ 21,512,899	$ 1,387,105	15.5	0.007	60
VFD - AHU	118	40	257	767,166	208	621,626	15	$ 1,480,421	$ 112,992	13.1	2.176	6,501
VFD - Chilled Water	68	31	349	1,285,445	282	1,039,875	10	$ 1,648,992	$ 173,817	9.5	5.130	18,904
VFD Domestic Water Pumps	7	7	27	256,631	22	208,267	15	$ 318,369	$ 271,679	1.2	3.916	36,662
Window Tinting	59,388	29	89	366,342	73	296,923	10	$ 448,713	$ 178,163	2.5	0.002	6
BNEW	**7,222**	**13**	**162**	**1,498,819**	**131**	**1,210,086**	**7**	**$ 848,939**	**$ 432,503**	**2.0**	**0.022**	**208**
Energy Study Assistance	8	8	-	-	-	-		$ -	$ 113,107	-	-	-
LED Introduction - Small Business	7,212	3	142	1,231,754	115	995,710	5	$ 625,552	$ 91,722	6.8	0.020	171
Small Business Direct Lighting Retrofits	2	2	20	267,065	16	214,375	10	$ 223,386	$ 227,674	1.0	9.850	133,533

Program / Efficency Measure	Units*	Project Records with Measure*	Customer Level Demand Savings	Customer Level Energy Savings	Program Level Demand Savings	Program Level Energy Savings	Useful Life	Program Level TRB	TRC	TRB/ TRC	Average Customer Level kW/Unit*	Average Customer Level kWh/Unit*
CBEEM	**239**	**128**	**3,114**	**22,058,112**	**2,519**	**17,847,919**	**10**	**$ 26,841,358**	**$ 13,598,890**	**2.0**	**13.030**	**92,293**
Building Envelope Improvements	10	10	700	5,452,469	568	4,424,902	20	$ 8,569,356	$ 3,507,574	2.4	70.020	545,247
Building Controls	2	2	261	2,051,023	211	1,664,489	14	$ 2,476,788	$ 1,024,000	2.4	130.250	1,025,512
Ceramic Metal Halide	1	1	29	257,247	23	208,766	2	$ 53,562	$ 92,884	0.6	28.500	257,247
CFL - Business	1	1	1	2,351	0	1,908	5	$ 1,469	$ 1,219	1.2	0.500	2,351
CO Demand Control Ventilation - Parking Garage	1	1	108	946,159	88	767,847	15	$ 1,194,848	$ 129,995	9.2	108.000	946,159
Dimming Ballast & Occupancy Sensors	1	1	2	24,569	1	19,939	14	$ 25,812	$ 14,356	1.8	1.500	24,569
HID - Metal Halide	2	2	48	280,539	39	226,450	14	$ 381,920	$ 66,629	5.7	24.000	140,270
High Bay - T8HO / T8 / T5	7	7	40	194,708	33	158,014	11	$ 228,305	$ 128,572	1.8	5.757	27,815
High Efficiency Water Heating - Heat Pumps	1	1	289	2,322,699	232	1,864,449	20	$ 3,576,745	$ 1,322,371	2.7	288.900	2,322,699
HPS to CFL PL Exterior	1	1	20	88,511	16	71,830	5	$ 56,934	$ 53,057	1.1	20.200	88,511
HPS to CFL PL Walkway Lighting	1	1	2	7,744	1	6,216	6	$ 5,900	$ 5,700	1.0	1.800	7,744
HVAC - AHU Controls	1	1	4	25,159	3	20,418	20	$ 42,359	$ 524,273	0.1	4.000	25,159
HVAC - Chiller	3	3	234	1,718,574	190	1,394,693	18	$ 2,705,837	$ 1,772,266	1.5	77.933	572,858
HVAC - Chiller - Retrofit VFD	1	1	13	67,716	11	54,954	15	$ 102,784	$ 143,000	0.7	13.420	67,716
HVAC - Cooling Tower VFD	12	12	96	1,156,121	78	934,847	15	$ 1,346,322	$ 1,438,302	0.9	8.000	96,343
HVAC Controls	1	1	17	145,066	14	117,727	15	$ 184,535	$ 45,927	4.0	17.000	145,066
Indirect T5HO	1	1	44	151,820	36	123,208	14	$ 260,766	$ 95,000	2.7	44.300	151,820
Induction Lighting	3	3	39	310,303	31	251,824	14	$ 414,691	$ 146,673	2.8	12.933	103,434
LED	54	54	792	4,854,755	641	3,924,237	5	$ 2,822,973	$ 1,899,095	1.5	14.672	89,903
LED Exterior	1	1	5	21,742	4	17,645	5	$ 14,030	$ 14,906	0.9	5.000	21,742
Lighting - Bi-Level Lighting / Control	2	2	7	65,829	6	53,423	13	$ 76,098	$ 37,115	2.1	3.600	32,915
Lighting - High Bay MH to T8	114	3	76	594,700	62	482,623	8	$ 463,650	$ 252,328	1.8	0.665	5,217
Lighting - T8 to LW T8	1	1	4	36,888	3	29,936	14	$ 44,385	$ 11,370	3.9	4.200	36,888
Motors - ECM	3	3	4	42,471	3	33,794	15	$ 50,362	$ 14,123	3.6	1.367	14,157
Pulse Start MH	1	1	26	149,621	20	119,053	14	$ 200,790	$ 35,524	5.7	25.600	149,621
Pump VFD non HVAC	1	1	38	280,156	31	224,883	15	$ 369,217	$ 155,153	2.4	38.400	280,156
retro w/4'T8	1	1	52	208,717	43	169,382	5	$ 139,901	$ 72,303	1.9	52.400	208,717
Solar Water Heating - Commercial	9	9	90	145,058	73	117,533	15	$ 403,546	$ 334,911	1.2	10.034	16,118
VFD - Water Pumping - Irrigation	2	2	73	455,397	58	362,926	15	$ 627,471	$ 260,264	2.4	36.550	227,699

Hawaii Energy PY2010 Program Participation List

Program / Efficency Measure	Units*	Project Records with Measure*	Customer Level Demand Savings	Customer Level Energy Savings	Program Level Demand Savings	Program Level Energy Savings	Useful Life	Program Level TRB	TRC	TRB/ TRC	Average Customer Level kW/Unit*	Average Customer Level kWh/Unit*
REEM	**1,698,591**	**53,160**	**10,532**	**66,377,015**	**8,525**	**53,643,302**	**10**	**$ 47,108,094**	**$ 49,667,627**	**0.9**	**0.006**	**39**
AC Annual Tune Up - Residential	17	17	2	13,753	2	11,140	1	$ 1,603	$ 2,886	0.6	0.130	809
CFL - Residential	1,661,081	16,843	8,291	54,151,240	6,660	43,753,804	5	$ 29,883,063	$ 9,954,399	3.0	0.005	33
ENERGY STAR - Ceiling Fan	3,398	2,379	44	567,466	50	458,699	5	$ 262,877	$ 514,483	0.5	0.013	167
ENERGY STAR - Clothes Washer	9,255	9,253	185	1,906,530	203	1,541,628	11	$ 2,803,906	$ 6,264,342	0.4	0.020	206
ENERGY STAR - Dishwasher	3,676	3,675	37	246,292	27	199,038	11	$ 1,061,686	$ 2,129,246	0.5	0.010	67
ENERGY STAR - Refrigerator	10,654	10,646	181	1,117,830	146	903,510	14	$ 1,494,228	$ 12,136,622	0.1	0.017	105
ENERGY STAR - Refrigerator - ARRP/SEP	3,078	3,078	339	2,530,116	270	2,047,368	14	$ 3,181,147	$ 3,445,537	0.9	0.110	822
ENERGY STAR - Refrigerator with Recycling	1,394	1,394	46	1,145,046	38	927,115	14	$ 1,132,486	$ 1,566,280	0.7	0.033	821
ENERGY STAR - Window AC	2,973	2,934	565	1,108,929	454	898,966	9	$ 1,552,745	$ 868,985	1.8	0.190	373
Heat Pumps - Residential	168	168	47	252,504	38	204,334	9	$ 253,441	$ 268,654	0.9	0.280	1,503
High Efficiency Water Heater	533	532	16	85,280	12	68,898	10	$ 267,934	$ 260,927	1.0	0.030	160
HVAC - Ductless Split - Residential	581	573	110	216,713	89	175,800	12	$ 454,076	$ 1,209,050	0.4	0.190	373
HVAC - Package & Split Units	1	1	0	1,372	0	1,113	15	$ 1,652	$ 5,000	0.3	0.130	1,372
LED Introduction - Residential	100	1	2	18,900	2	15,338	5	$ 9,772	$ 1,698	5.8	0.023	189
Solar Attic Fan	14	11	0	7,560	0	6,135	5	$ 3,151	$ 9,181	0.3	0.020	540
Solar Water Heating - Contractor - PBFA $1,000	13	13	6	26,858	5	21,764	15	$ 42,697	$ 93,606	0.5	0.460	2,066
Solar Water Heating - Contractor - PBFA $750	1,376	1,376	633	2,842,816	510	2,297,448	15	$ 4,507,301	$ 9,103,571	0.5	0.460	2,066
Solar Water Heating - $1,000 - PBFA $250/ARRA$750	182	182	21	94,003	17	75,744	15	$ 148,585	$ 1,239,073	0.1	0.115	517
Solar Water Heating - $1,750 - PBFA $250/ARRA $1,500	80	80	5	23,611	4	19,069	15	$ 37,411	$ 560,013	0.1	0.066	295
Whole House Energy Metering	4	4	0	13,176	0	10,693	5	$ 5,407	$ 23,588	0.2	0.104	3,294
Whole House Fan	13	13	0	7,020	0	5,697	5	$ 2,926	$ 10,485	0.3	0.020	540
RLI	**79,293**	**389**	**461**	**2,884,005**	**370**	**2,314,972**	**15**	**$ 1,932,608**	**$ 2,690,732**	**0.7**	**0.006**	**36**
CFL - Residential	77,472	3	387	2,525,587	311	2,026,053	5	$ 1,384,559	$ 464,832	3.0	0.005	33
Energy Hero Gift Packs - Low Flow Showerheads	500	3	25	99,550	20	80,298	20	$ 199,989	$ 2,037	98.2	0.050	199
RLI Energy Hero Gift Packs - Smart Strips	942	3	7	63,114	6	50,897	5	$ 44,241	$ 16,014	2.8	0.008	67
Solar Water Heating - RLI Solar Inspections ARRA WAP	379	380	42	195,754	33	157,724	15	$ 303,819	$ 2,207,849	0.1	0.110	517
RNEW	**3**	**3**	**-**	**1,170,743**	**-**	**950,106**	**20**	**$ 1,289,176**	**$ 123,600**	**10.4**	**-**	**390,248**
New Home - Energy Modeling	3	3	-	1,170,743	-	950,106	20	$ 1,289,176	$ 123,600	10.4	-	390,248
Grand Total	**2,256,627**	**57,998**	**21,019**	**142,161,315**	**17,011**	**114,974,011**	**10**	**$ 134,710,809**	**$ 99,740,130**	**1.4**	**0.009**	**63**

* Note: Summaries for units and projects will have some projects aggregated into single program records (Multiple site retrofits under single project records).
or contain multiple units combined into a single measure unit for customized projects.
These anomolies are few in number and do not have a material difference on the overall averages.

Attachment C

PY2010 Monthly and Quarterly Reports

Hawaii Energy *Conservation and Efficiency Program*

Monthly Performance Report – July 2010 (07/01/10 – 07/31/10)

Executive Summary

The first month of PY2010 was a time of growth as well as completing our year end reports. Highlights included:

- Four new hires began work in July - an ARRA Project Manager who will occasionally provide engineering support to the main contract, a Program Analyst who assists with reporting, a Junior Program Engineer who will support various activities for the summer, and a part-time Program Outreach Representative to help promote the commercial programs.

- The Hawaii Energy Management presented the Annual Plan to the PUC and other interested parties on 09 July 2010. The attendees were given the opportunity to ask questions and give comments to the Hawaii Energy Management as they presented the plans and changes for PY2010.

- The team continued to finalize the Annual Plan to address comments by the Contract Manager and PUC, as well as began drafting the Annual Report. This included freezing the data in our EPMIS system on 23 July 2010 for the measurement and evaluation contractor to begin viewing our results of PY2009.

- The Junior Program Engineer began designing and implementing the Small Business Direct Install Lighting Program.

Hawaii Energy *Conservation and Efficiency Program*

Monthly Performance Report – July 2010 (07/01/10 – 07/31/10)

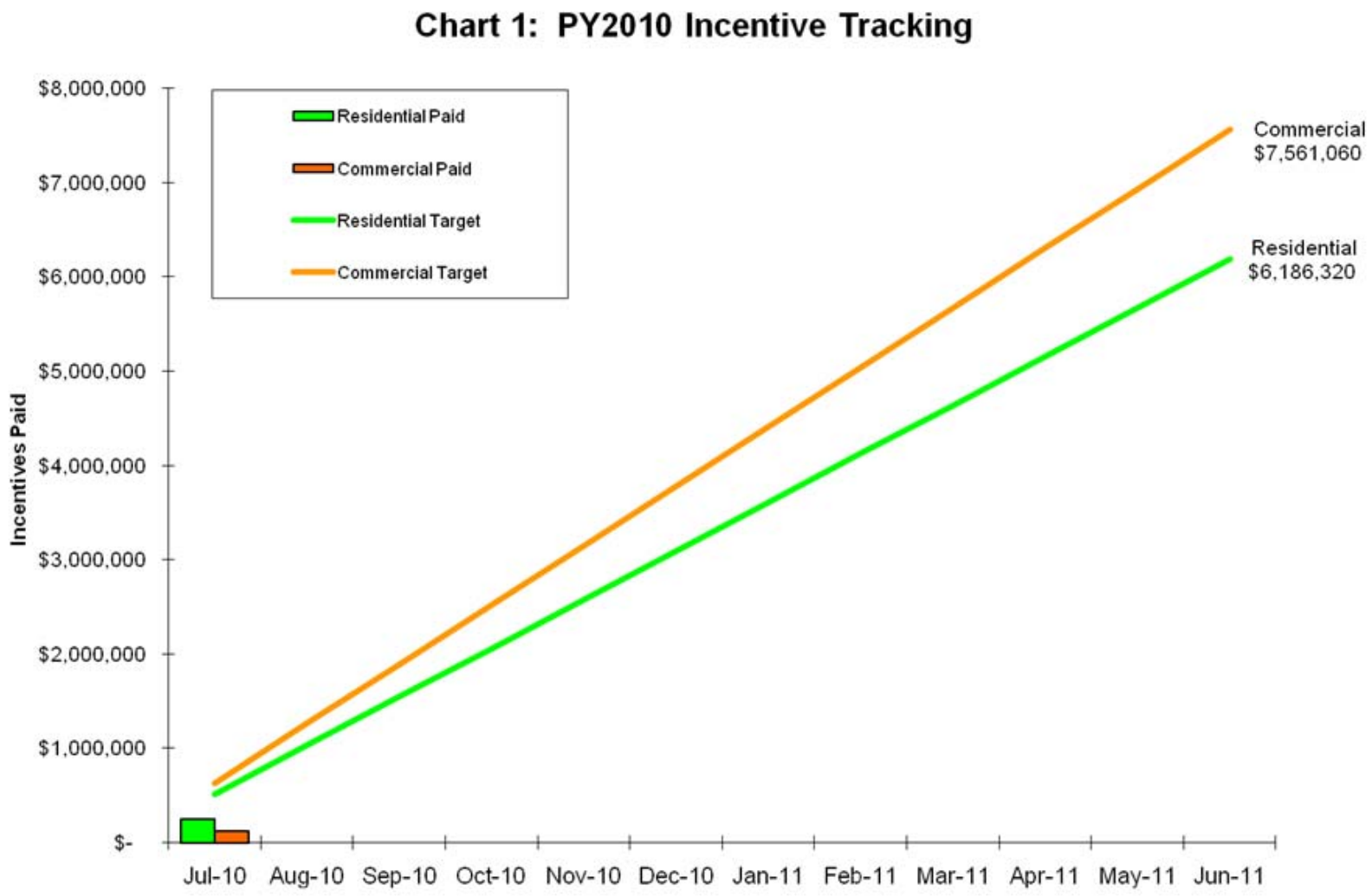
The following table is an overall summary of our performance in the month:

Key Performance Metrics	Month's Results	YTD Results	PY2010 Targets	YTD % of Target PY2010
Annual Energy Savings Impacts (Net Generation Level)				
Residential (MWh	3,177	3,177	71,245	4.5%
Business (MWh)	629	629	61,370	1.0%
Peak Demand (kW)	767	767	23,126	3.3%
Total Resource Benefit (TRB)	$3,696,047	$3,696,047	$148,596,954	2.5%
Island Equity (% of Energy Savings - Target within 20%)				
Oahu	70.4%	70.4%	69%	< + 20%
Maui County	12.3%	12.3%	19%	> - 20%
Hawaii County	17.4%	17.4%	11%	> - 20%
Market Transformation (Applications Completed)				
State Building Demo Projects	0	0	10	0.0%
Launch RCx Program	Not Met	Not Met	01/01/2011	Not Met
Community Partnership	0	0	4	0.0%
Financials				
Total Non-Incentives Billed[1]	$ 162,674.01	$ 162,674.01	$ 4,106,754.00[1]	4%
Total Incentives Billed	$ 457,184.50[2]	$ 457,184.50	$13,747,380.00	3%
Total Program Costs Billed	$ 619,858.51	$ 619,858.51	$17,854,134.00	3%

[1]Total Budget reflects the deduction of $700,000 in performance incentive fees for the award pool.
[2] Total Incentives billed includes $83,293 in duplicate checks. Duplicate checks created but not sent. Energy savings calculations do not include the duplicate values.

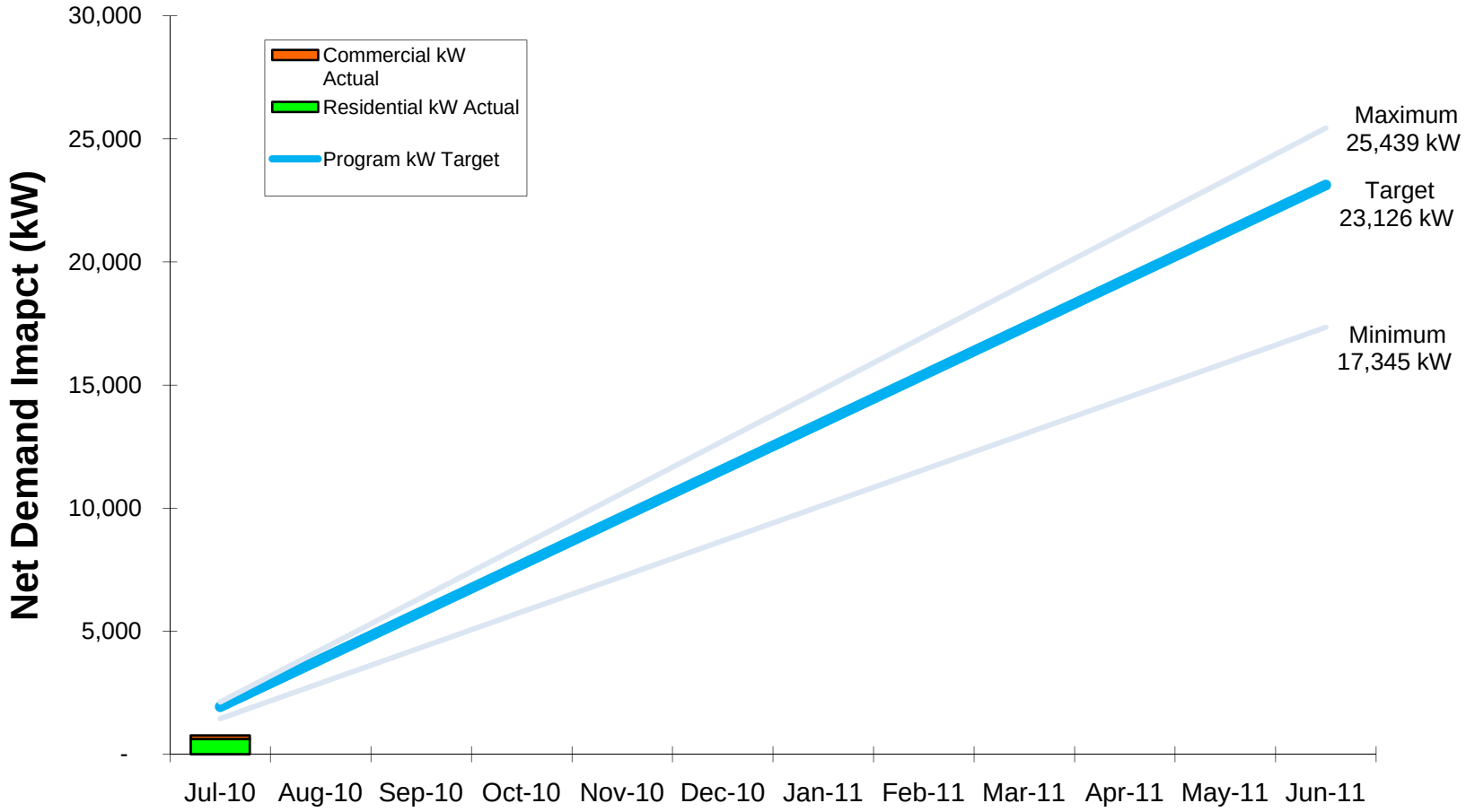
Performance Charts

1. *First Year Incentive Payment Tracking* - This Chart shows the paid versus target incentives for the PY2010.

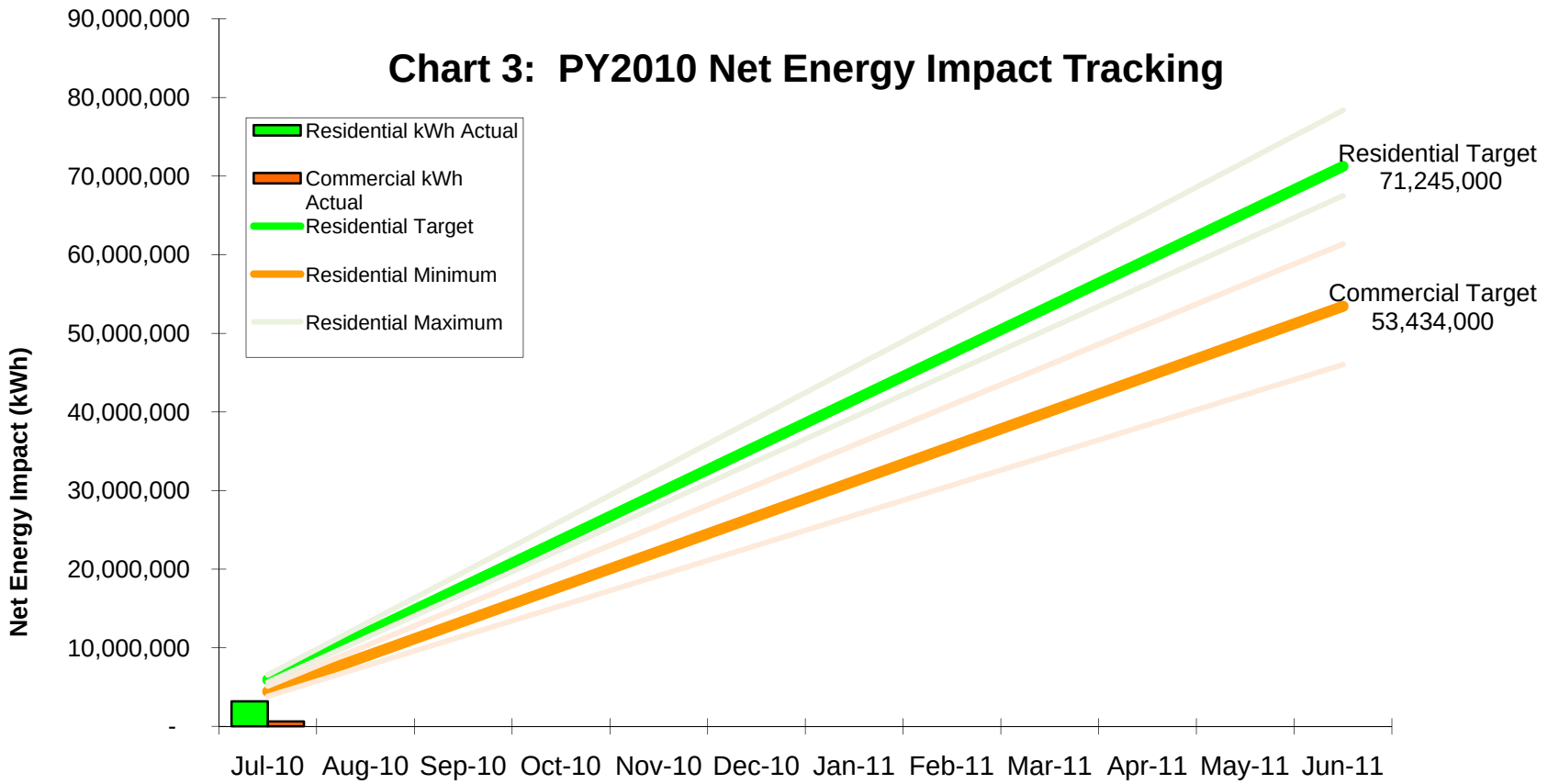


2. *First Year Demand Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010.

Chart 2: PY2010 Net Demand Impact Tracking

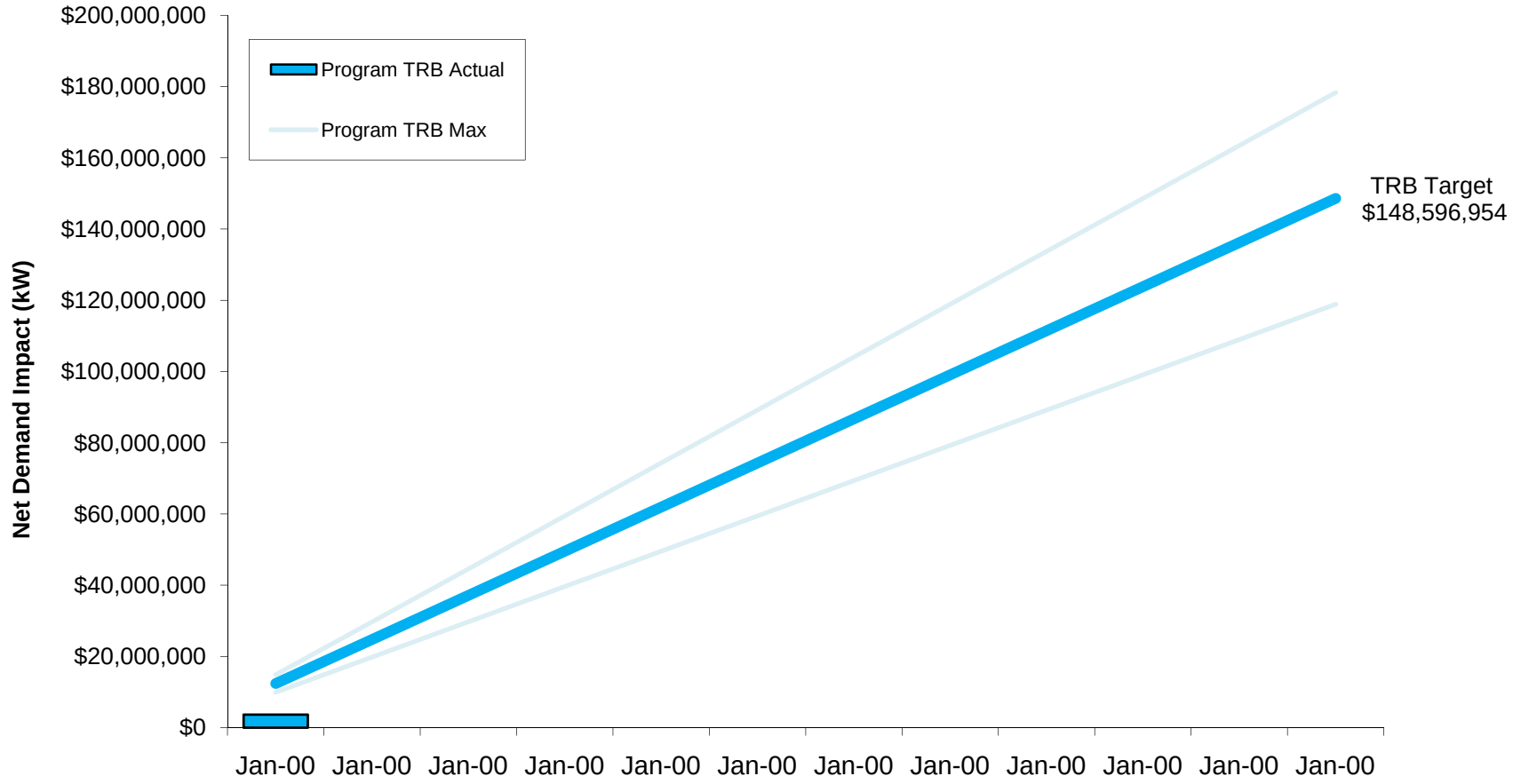


3. *First Year Energy Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010.



4. Total Resource Benefit Tracking - This Chart shows the combined total resource benefit impact versus target for PY2010

Chart 4: PY2010 Total Resource Benefit Impact Tracking



Outreach Highlights

The following Advertising & Marketing Outreach activities took place this month:

Media Outlet	Subject	Date
Social Media	"HawaiiEnergy: Hawaii's Energy Efficiency Utility wants to reduce your energy bill!!!" (Video by Henry Curtis on Vimeo)	7/6
Social Media	"Hawaii Energy probably has some of the best looking graphics of any utility company I've seen." (From Washington D.C. – Graphic designer Jackson Black's blog)	7/15
Web	Redesigned website launch	7/28
Web	Program Impact: Hawaii Delivers 4,300 Appliance Rebates in Three Days (www.energysavers.gov)	Unknown
Social Media	Energy Expo	Various
Social Media	Summer cooling tips	Various
Social Media	Energy news	Various
Social Media	Asia Pacific Clean Energy Summit and Expo	Various
Print	Ad – Hawaii Home + Remodeling	July

The following Education & Training Outreach activities took place this month:

Event	Attendees	Subject	Count	Date
Pacific Fellows briefing	Pacific fellows	Provided briefing on energy conservation and efficiency issues for Hawaii	40	7/16
Kukui Gardens Educational Event	Kukui Gardens Residents (low income housing project families)	Worked with ESH Housing to educate residents about switching to energy efficient light bulbs and energy savings in the home	184 families	7/27

Island Equity Outreach Highlights

Outreach	Island	Subject
T & T Electrical, Hilo	Hawaii	Trained on Direct install. Introduced our programs, reviewed projects
DWE Inc., Hilo	Hawaii	Trained on direct Install. Introduced our programs. Reviewed current projects and consolidated shop operations
Fukunaga Electrical, Hilo	Hawaii	Reviewed programs
KTA Super, Hilo	Hawaii	Provided update on status of rebates and energy study. Reviewed renovation plans for Waimea and Kona stores. Discussed air conditioning retrofits and refrigeration systems upgrades.
Hawaii Country Building, Hilo	Hawaii	Reviewed documentation for Aupuni Street building/complex. Performed walk through and inspection of building and equipment.
County of Hawaii Water Department, Hilo	Hawaii	Provided update on status of rebates. Discussed upcoming projects for Kekuanao and Leilani complexes. Requested information on deep well pumps and water shaft lighting.
Hapuna Beach Prince Hotel and Mauna Kea Resort Hotel, Kona	Hawaii	Reviewed programs and discussed potential lighting projects
Hilton Grand Vacations, Kona	Hawaii	Discussed new building construction and timeline for rebates
Waikoloa Marriott, Kona	Hawaii	Reviewed programs and discussed possible lighting retrofit of parking structure
Mauna Lani Resorts, Kona	Hawaii	Introduced program
Four Seasons Resorts Hotel, Kona	Hawaii	Introduced programs and discussed potential projects
Kona Village, Kona	Hawaii	Introduced programs
Valley Isle Motors, Maui	Maui	Lighting audit
Pacific Green Lighting Systems, Maui	Maui	Introduced program.

Government Highlights

The following activities with the Government took place this month.

Agency	Subject	Date
Public Utilities Commission	Docket 2009-0108 [IRP (Integrated Resource Planning)/CESP (Clean Energy Scenario Planning) – collaborative meeting of parties to discuss framework	7/21

Market Evaluation and Technology Development Highlights

The following actions were taken to obtain trade ally input on program market penetration and technology development this month.

Trade Allies	Subject	Action
Blue Planet	Planning meeting to coordinate joint efforts with Blue Planet to distribute CFL gift packs, low flow shower heads and smart strips distribution throughout the state and assistance with Small Business program audits.	Distribution of CFLs to blue Planet for distribution (Oahu: 39,984 and 15,480 for Maui)
KUPU	Small Business Direct Install Lighting Program – coordination meeting to implement program with Hawaii Youth Conservation Corps (HYCC)	Develop Memorandum of Understanding. HYCC will select students for training by HECEP.
Hawaii Renewable Energy Alliance (HREA)	HREA Planning Meeting via conference call on energy issues	
ECONorthwest	Meeting with program evaluators to provide contact information for military, hospitality and trade allies to conduct program evaluation.	Program evaluation interviews commenced
Hawai'i Island Food Self-Reliance Program	Discussed collaborating on common goal of energy conservation and efficiency/	Will assist with distribution of 25,000 CFLs, outreach to low income residents, smart strip and shower head distribution and small business audits,
Consortium for Energy Efficiency	Participated in conference calls concerning specific energy efficiency measures	

Budget Status Table

	July Allocations	Allocations to Date	PY10 Revision 2a	Percent Spent
Residential Programs				
Residential Program Ops and Management				
REEM	$ 1,058.82	$ 1,058.82	$ 1,665,602	0%
RLI	$ 3,398.45	$ 3,398.45	$ 57,300	6%
New	$ -	$ -	$ 324,700	0%
Total Residential Programs	$ 4,457.27	$ 4,457.27	$ 2,047,602	0%
Market Evaluation	$ 3,360.00	$ 3,360.00	$ 97,176	3%
Outreach	$ 9,919.63	$ 9,919.63	$ 142,866	7%
Total Residential Non-Incentive	$ 17,736.90	$ 17,736.90	$ 2,287,644	1%
Residential Incentives				
REEM	$ 253,569.10	$ 253,569.10	$ 5,008,370	5%
RLI	$ 459.40	$ 459.40	$ 290,750	0%
New	$ -	$ -	$ 887,200	0%
Total Residential Incentives	$ 254,028.50	$ 254,028.50	$ 6,186,320	4%
Total Residential Programs	**$ 271,765.40**	**$ 271,765.40**	**$ 8,473,964**	3%
Business (C&I) Programs				
Business Programs Ops and Management				
BEEM	$ 45,783.58	$ 45,783.58	$ 481,340	10%
CBEEM	$ 25,001.04	$ 25,001.04	$ 188,309	13%
New	$ 1,262.14	$ 1,262.14	$ 188,880	1%
Total Business Programs	$ 72,046.76	$ 72,046.76	$ 858,529	8%
Market Evaluation	$ 14,560.00	$ 14,560.00	$ 118,771	12%
Outreach	$ 15,466.17	$ 15,466.17	$ 174,612	9%
Total Business Non-Incentive	$ 102,072.93	$ 102,072.93	$ 1,151,912	9%
Business Incentives				
BEEM	$ 187,322.00	$ 187,322.00	$ 5,138,670	4%
CBEEM	$ 15,834.00	$ 15,834.00	$ 1,115,390	1%
New	$ -	$ -	$ 1,307,000	0%
Total Business Incentives	$ 203,156.00	$ 203,156.00	$ 7,561,060	3%
Total Business Programs	**$ 305,228.93**	**$ 305,228.93**	**$ 8,712,972**	4%
Total Services and Initiatives	**$ 576,994.33**	**$ 576,994.33**	**$ 17,186,936**	3%
Supporting Services				
Supporting Services	$ 91,252.27	$ 91,252.27	$ 1,150,896	8%
Total Supporting Services	**$ 91,252.27**	**$ 91,252.27**	**$ 1,150,896**	8%
Subtotal Non-Incentive (Prior to Tax)	$ 211,062.10	$ 211,062.10	$ 4,590,452.21	5%
Less Performance Incentives (Prior to Tax)	$ (55,708.36)	$ (55,708.36)	$ (668,500.00)	8%
Subtotal Non-Incentive Less PI	$ 155,353.74	$ 155,353.74	$ 3,921,952.00	4%
Tax on Non-Incentive w/o performance incentives			$ 216,302.00	
Funding Set Aside for Tax on Performance Incentive			$ (31,500.00)	
Tax on Non-Incentive Less PI that will appear on invoices	$ 7,320.27	$ 7,320.27	$ 184,802.00	4%
Performance Incentive Award (Prior to Tax)			$ 668,500.27	
Tax on Performance Incentive Award			$ 31,500.00	
Subtotal Performace Incentive Award			$ 700,000.27	
Subtotal Non-Incentive Billed	*$ 162,674.01*	*$ 162,674.01*	*$ 4,806,754.00*	*3%*
Subtotal Residential and Business Customer Incentives	*$ 457,184.50*	*$ 457,184.50*	*$ 13,747,380.00*	*3%*
Sub-Total Estimated Contractor Costs	*$ 619,858.51*	*$ 619,858.51*	*$ 18,554,134.00*	
Performance Awards in Excess of Target Levels			133,000	
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels			**$ 18,687,134**	

Executive Summary

During the month of August, we focused on completing the annual report as well as ramping up for the fall season which offers many opportunities to showcase our program at expositions and fairs. Highlight activities in August included:

- Launching the redesigned Hawaii Energy website (www.hawaiienergy.com) on August 12th which offers:
  - Individualized pages for residents and businesses to find information
  - Information on upcoming Hawaii Energy events
  - Relative news articles
- Hosting a booth at the Asia Pacific Clean Energy Summit the last weekend of August
- Beginning implementation of the Small Business Direct Install Lighting Program by our Junior Program Engineer
- Organizing, developing and executing the plan for the 2010 Clean Energy Expo scheduled for September.

Hawaii Energy *Conservation and Efficiency Program*

Monthly Performance Report – August 2010 (08/01/10 – 08/31/10)

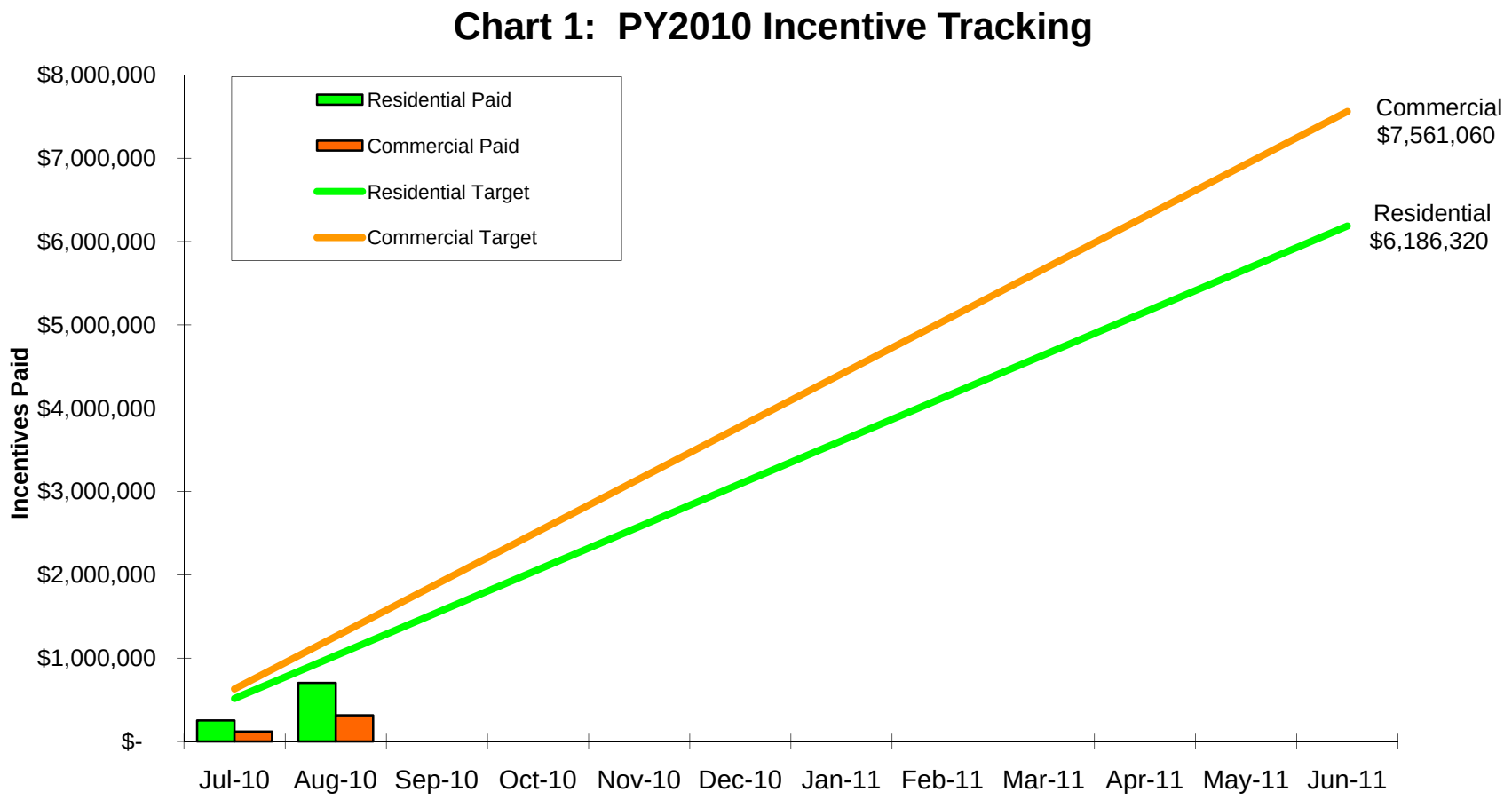
The following table is an overall summary of our performance in the month:

Key Performance Metrics	Month's Results	YTD Results	PY2010 Targets	YTD % of Target PY2010
Annual Energy Savings Impacts (Net Generation Level)				
Residential (MWh	3,882	7,059	71,245	9.9%
Business (MWh)	886	1,515	61,370	2.5%
Peak Demand (kW)	1,019	1,786	23,126	7.7%
Total Resource Benefit (TRB)	$ 4,739,116	$ 8,435,163	$ 148,596,954	5.7%
Island Equity (% of Energy Savings)				
Oahu	68.2%	69.2%	69.0%	+/- 20%
Maui County	15.8%	14.3%	19.0%	> - 20%
Hawaii County	15.9%	16.6%	11.0%	< + 20%
Market Transformation (Applications Completed)				
State Building Demo Projects	0	0	10	0.0%
Launch RCx Program	Not Met	Not Met	01/01/11	Not Met
Community Partnership	0	0	4	0.0%
Financials[1]				
Total Non- Incentives Billed[1]	$ 321,621.68	$ 484,295.68	$ 4,106,754.00	12%
Total Incentives Billed	$ 485,009.13	$ 942,193.63	$ 13,747,380.00	7%
Total Program Costs Billed	$ 806,630.80	$ 1,426,489.31	$ 17,854,134.00	8%

[1]Total Budget reflects the deduction of $700,000 in performance incentive fees for the award pool.

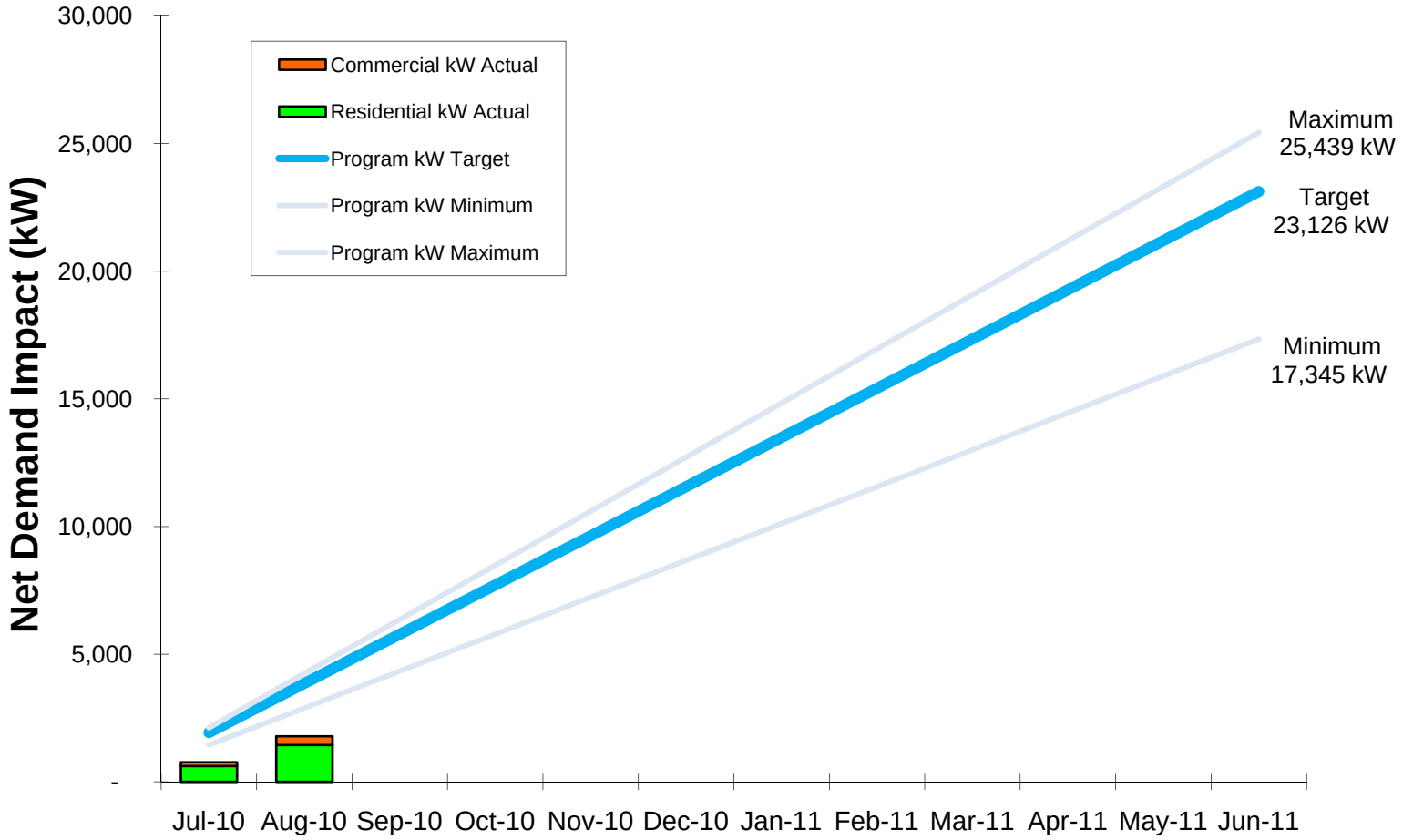
Performance Charts

1. *First Year Incentive Payment Tracking* - This Chart shows the paid versus target incentives for the PY2010



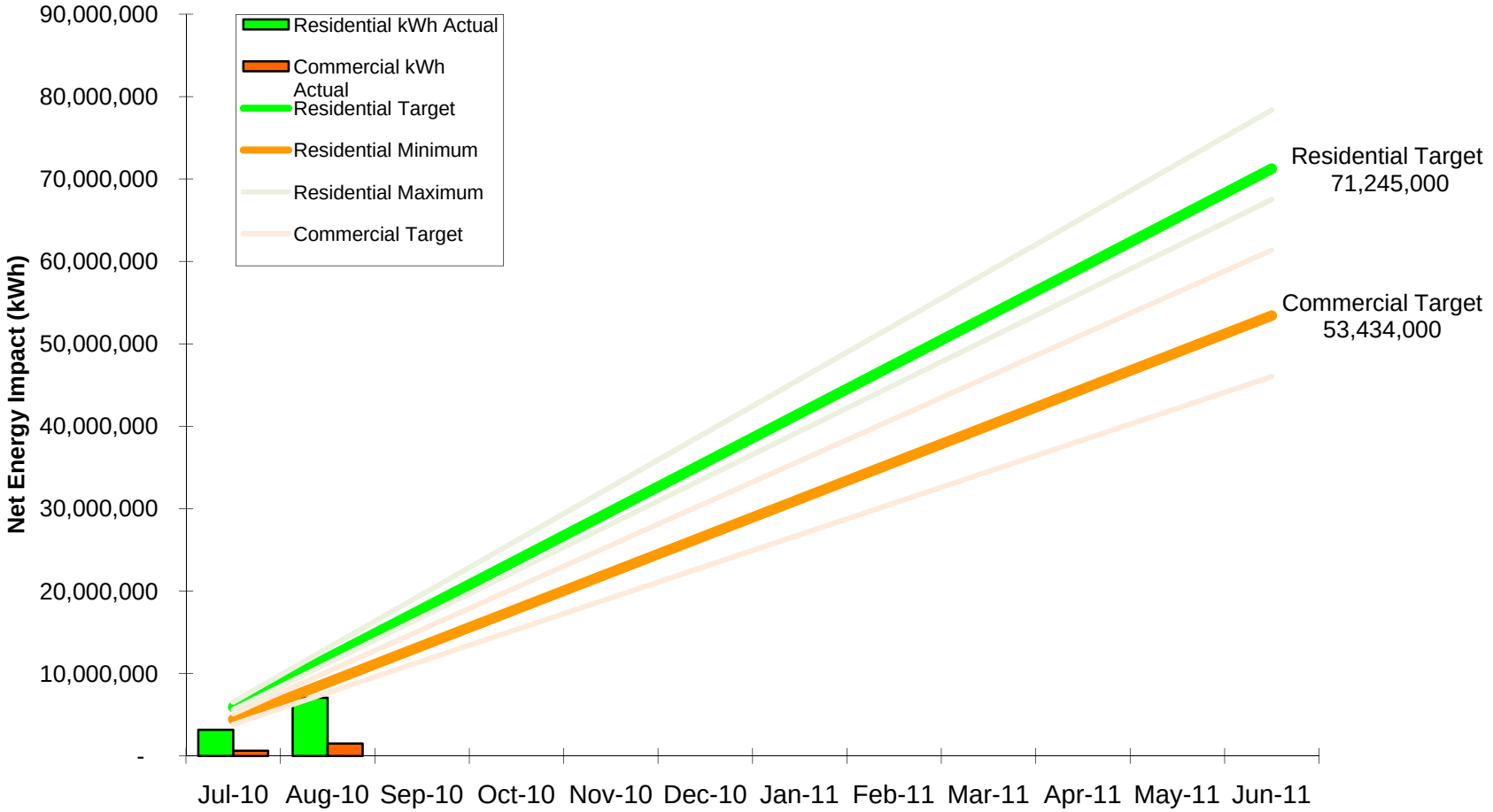
2. *First Year Demand Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010

Chart 2: PY2010 Net Demand Impact Tracking

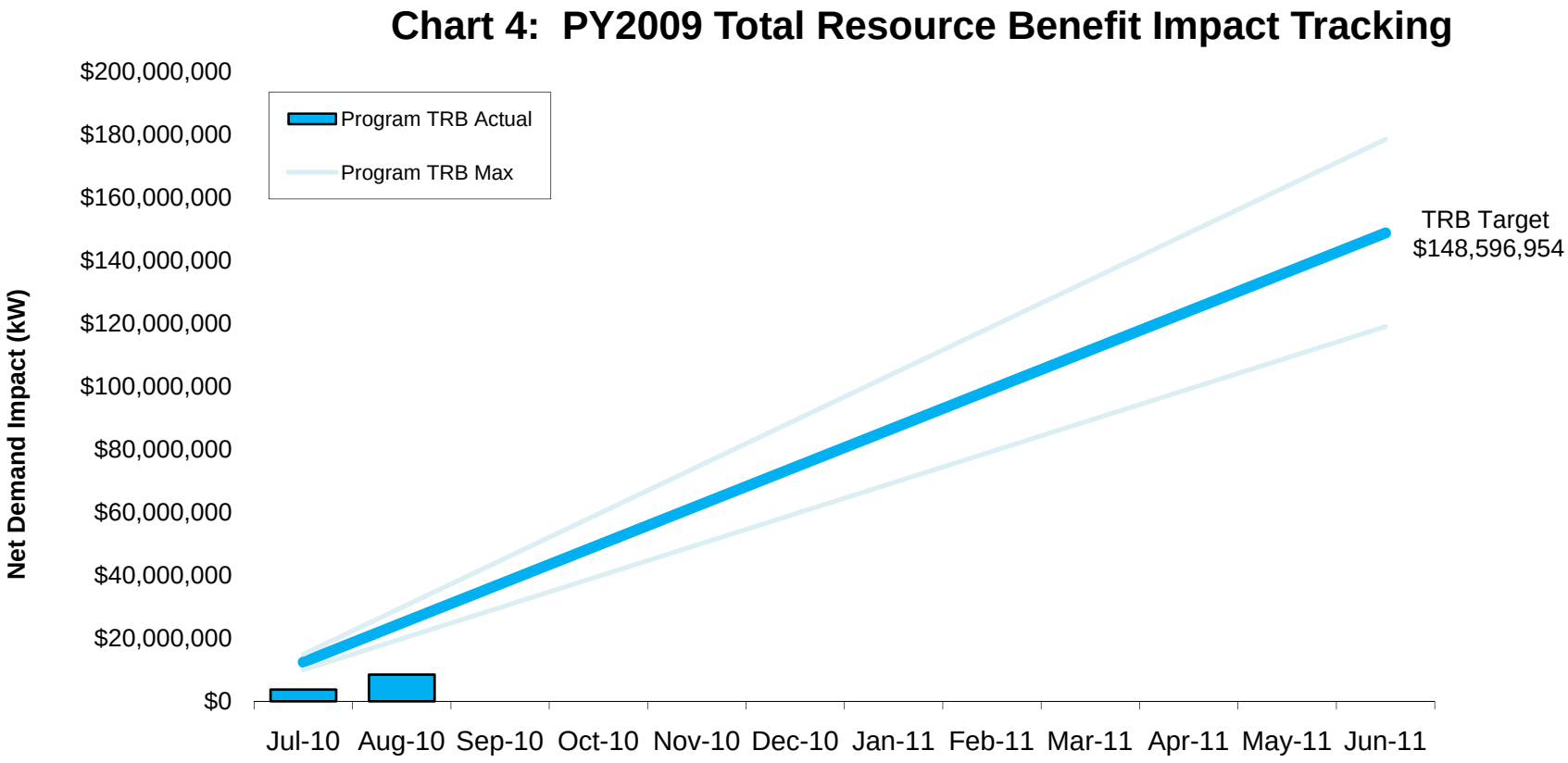


3. *First Year Energy Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010

Chart 3: PY2010 Net Energy Impact Tracking



4. *Total Resource Benefit Tracking* - This Chart shows the combined total resource benefit impact versus target for PY2009



Outreach Highlights

The following Advertising & Marketing Outreach activities took place this month.

Media Outlet	Subject	Date
Print	"Verification necessary before rebates issued" (Star-Advertiser)	8/6
Web	"Greening the yoga studio" (David Onoue, Sports Yoga Hawaii blog)	8/11
Web	Redesigned website launch	8/12
Social Media	Energy Expo	Various
Social Media	Summer cooling tips	Various
Social Media	Energy news	Various
Social Media	Asia Pacific Clean Energy Summit and Expo	Various

The following Education & Training Outreach activities took place this month.

Event	Attendees	Subject	Count	Date
Honolulu Weekly Green Market	Downtown community	Promote and educate residents about energy conservation and efficiency.	350	8/26
Asia Pacific Clean Energy Summit & Expo	Government agencies, contractors, international and local energy vendors	Participated in panels to discuss energy issues in Hawaii and introduced our programs.	600	8/31

Island Equity Outreach Highlights

The following Island Equity Outreach activities took place this month.

Outreach	Island	Subject
T & T Electrical	Big Island	Trained on Direct install. Introduced our programs, reviewed projects.
Graham Builders	Oahu	Introduced programs.
KJL Buildings	Oahu	Discussed renovation projects for several locations.
Tetra Tech, Marine Corp Base	Oahu	Project provided status update and met new Project Manager and introduced Specialist who will assume military projects.
Waikiki Parking Garage	Oahu	Introduced program and provided energy savings suggestions for renovation project.
Power Efficiency Corporation and Otis Elevator	Oahu	Discussed energy savings options for escalator projects.
Outrigger Keauhou Beach Resort	Big Island	Introduced programs and discussed upcoming projects. Performed post inspection of LED exit signs.
Sheraton Keauhou Bay Resort & Spa	Big Island	Introduced programs. Discussed potential projects that are on hold to see if Hawaii Energy can provide support to assist with approval process. Discussed potential VFD replacement for chilled water pump. Discussed possible LED replacements.
Casa De Emdeko	Big Island	Performed post inspection of chiller, VFDs and controls.
Hokama Appliance	Big Island	Thanked ally for supporting recent Trade Up for Cool Cash program and discussed other programs that could be pursued.
Outrigger Royal Sea Cliff Condominium	Big Island	Discussed how Hawaii Energy could possibly support projects. Discussed chiller replacement, VFD and controls rebate potential.
NAVFAC	Oahu	Provided project updates on current and future projects.

Government Highlights

The following activities with the Government took place this month:

Agency	Subject	Date
Public Utilities Commission	Docket 2009-0108 [IRP (Integrated Resource Planning)/CESP (Clean Energy Scenario Planning) – collaborative meeting of parties to discuss framework.	8/5, 8/10, 8/18
Department of Business, Economic Development & Tourism	Discussed energy metrics.	8/11
Department of Education	Introduced programs and discussed potential projects.	8/16

Market Evaluation and Technology Development Highlights

The following actions were taken to obtain trade ally input on program market penetration and technology development this month:

Trade Allies	Subject	Action
Hawaii Solar Energy Association (HSEA)	HREA Planning Meeting.	
Hawai'i Island Food Self-Reliance Program	Discussed collaboration on common goal of energy conservation and efficiency.	Will assist with distribution of 25,000 CFLs, outreach to low income residents, distribution of smart strips and low-flow shower heads, and audits to small businesses.

Budget Status Table

	August Allocations	Allocations to Date	PY10 Revision 2a	Percent Spent
Residential Programs				
Residential Program Ops and Management				
REEM	$ 105,926.61	$ 106,985.43	$ 1,665,602	6%
RLI	$ 7,525.57	$ 10,924.02	$ 57,300	19%
New	$ -	$ -	$ 324,700	0%
Total Residential Programs	$ 113,452.18	$ 117,909.45	$ 2,047,602	6%
Market Evaluation	$ -	$ 3,360.00	$ 97,176	3%
Outreach	$ 6,381.34	$ 16,300.97	$ 142,866	11%
Total Residential Non-Incentive	$ 119,833.52	$ 137,570.42	$ 2,287,644	6%
Residential Incentives		$ -		
REEM	$ 295,197.07	$ 548,766.17	$ 5,008,370	11%
RLI	$ 3,196.06	$ 3,655.46	$ 290,750	1%
New	$ -	$ -	$ 887,200	0%
Total Residential Incentives	$ 298,393.13	$ 552,421.63	$ 6,186,320	9%
Total Residential Programs	**$ 418,226.65**	**$ 689,992.05**	**$ 8,473,964**	**8%**
Business (C&I) Programs				
Business Programs Ops and Management				
BEEM	$ 50,004.03	$ 95,787.61	$ 481,340	20%
CBEEM	$ 35,979.91	$ 60,980.95	$ 188,309	32%
New	$ 10,815.00	$ 12,077.14	$ 188,880	6%
Total Business Programs	$ 96,798.94	$ 168,845.70	$ 858,529	20%
Market Evaluation	$ 14,700.00	$ 29,260.00	$ 118,771	25%
Outreach	$ 11,658.77	$ 27,124.94	$ 174,612	16%
Total Business Non-Incentive	$ 123,157.71	$ 225,230.64	$ 1,151,912	20%
Business Incentives				
BEEM	$ 186,616.00	$ 373,938.00	$ 5,138,670	7%
CBEEM	$ -	$ 15,834.00	$ 1,115,390	1%
New	$ -	$ -	$ 1,307,000	0%
Total Business Incentives	$ 186,616.00	$ 389,772.00	$ 7,561,060	5%
Total Business Programs	**$ 309,773.71**	**$ 615,002.64**	**$ 8,712,972**	**7%**
Total Services and Initiatives	**$ 728,000.36**	**$ 1,304,994.69**	**$ 17,186,936**	**8%**
Supporting Services				
Supporting Services	$ 119,865.96	$ 211,118.23	$ 1,150,896	18%
Total Supporting Services	**$ 119,865.96**	**$ 211,118.23**	**$ 1,150,896**	**18%**
		$ -		
Subtotal Non-Incentive (Prior to Tax)	$ 362,857.19	$ 573,919.29	$ 4,590,452	13%
Less Performance Incentives (Prior to Tax)	$ (55,708.36)	$ (111,416.72)	$ (668,500)	17%
Subtotal Non-Incentive Less PI	$ 307,148.83	$ 462,502.57	$ 3,921,952	12%
Tax on Non-Incentive w/o performance incentives			$ 216,302	
Funding Set Aside for Tax on Performance Incentive			$ (31,500)	
Tax on Non-Incentive Less PI that will appear on invoices	$ 14,472.85	$ 21,793.12	$ 184,802	12%
Performance Incentive Award (Prior to Tax)			$ 668,500	
Tax on Performance Incentive Award			$ 31,500	
Subtotal Performance Incentive Award			$ 700,000	
Subtotal Non-Incentive Billed	*$ 321,621.68*	*$ 484,295.69*	*$ 4,806,754*	*10%*
Subtotal Residential and Business Customer Incentives	*$ 485,009.13*	*$ 942,193.63*	*$ 13,747,380*	*7%*
Sub-Total Estimated Contractor Costs	*$ 806,630.81*	*$ 1,426,489.32*	*$ 18,554,134*	
Performance Awards in Excess of Target Levels			$ 133,000	
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels			**$ 18,687,134**	

Hawaii Energy *Conservation and Efficiency Program*

Monthly Performance Report – September 2010 (09/01/10 – 09/30/10)

Executive Summary

The major highlight of the month of September was co-hosting of the Energy Expo 2010 with the Hawaiian Electric Companies on the 28th at the Hilton Hawaiian Village Resort & Spa. Highlights of the Expo included:

- Luncheon Speeches by the 2010 Gubernatorial Candidates, Lieutenant Governor Duke Aiona and Mr. Neil Abercrombie
- 20 speakers presenting 12 workshops
- 532 attendees from across the islands
- 55 Companies hosting booths in the exhibition hall
- Internationally recognized lighting architect, Chip Israel, presenting the top ten ways to increase energy savings through lighting

Other highlights of the month included:

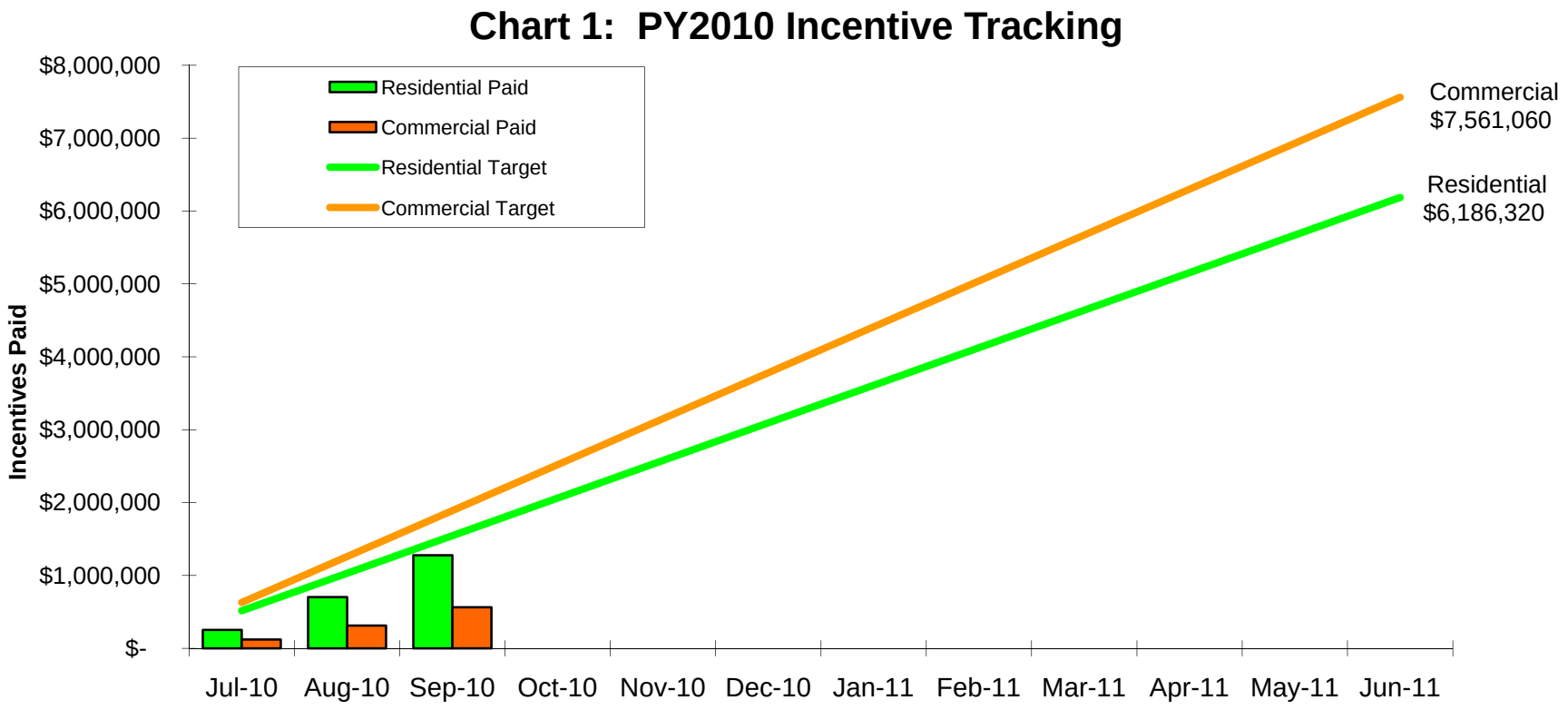
- Delivery of our Annual Report on September 10th for the Evaluation Committee and Contract Manager review and analysis.
- Quarterly Technical Advisory Group (TAG) meeting on September 14th
- Management team meeting with the auditor from Acuity on September 9th to go over what the audit would involve and the team has sent materials to assist with the audit
- Program hosted and led two workshops in the Energy Efficiency Portfolio Standards (EEPS) PUC Docket on 8 and 15 September
- Program Manager and Deputy Program Manager participation in the "Learn Product Design Innovation – the IDEO and Stanford way workshop on September 24th.

The following table is an overall summary of our performance in the month:

Key Performance Metrics	Month's Results	YTD Results	PY2010 Targets	YTD % of Target PY2010
Annual Energy Savings Impacts (Net Generation Level)				
Residential (MWh	6,664	13,723	71,245	19.3%
Business (MWh)	2,817	4,332	61,370	7.1%
Peak Demand (kW)	1,820	3,606	23,126	15.6%
Total Resource Benefit	$ 8,485,723	$1 6,920,886	$148,596,954	11.4%
Island Equity (% of Energy Savings)				
Oahu	83.9%	76.9%	69%	+/- 20%
Maui County	10.1%	11.0%	19%	< - 20%
Hawaii County	6.0%	12.1%	11%	+/- 20%
Market Transformation (Applications Completed)				
State Building Demo Projects	0	0	10	0.0%
Launch RCx Program	Not Met	Not Met	01/01/11	Not Met
Community Partnership	0	0	4	0.0%
Financials[1]				
Total Non- Incentives Billed[1]	$351,377.90	$835,673.58	$4,106,754	20.3%
Total Incentives Billed	$720,180.63	$1,662,374.26	$13,747,380	12.1%
Total Program Costs Billed	$1,071,558.53	$2,498,047.84	$17,854,134	14.0%
[1]Total Budget reflects the deduction of $700,000 in performance incentive fees for the award pool.				

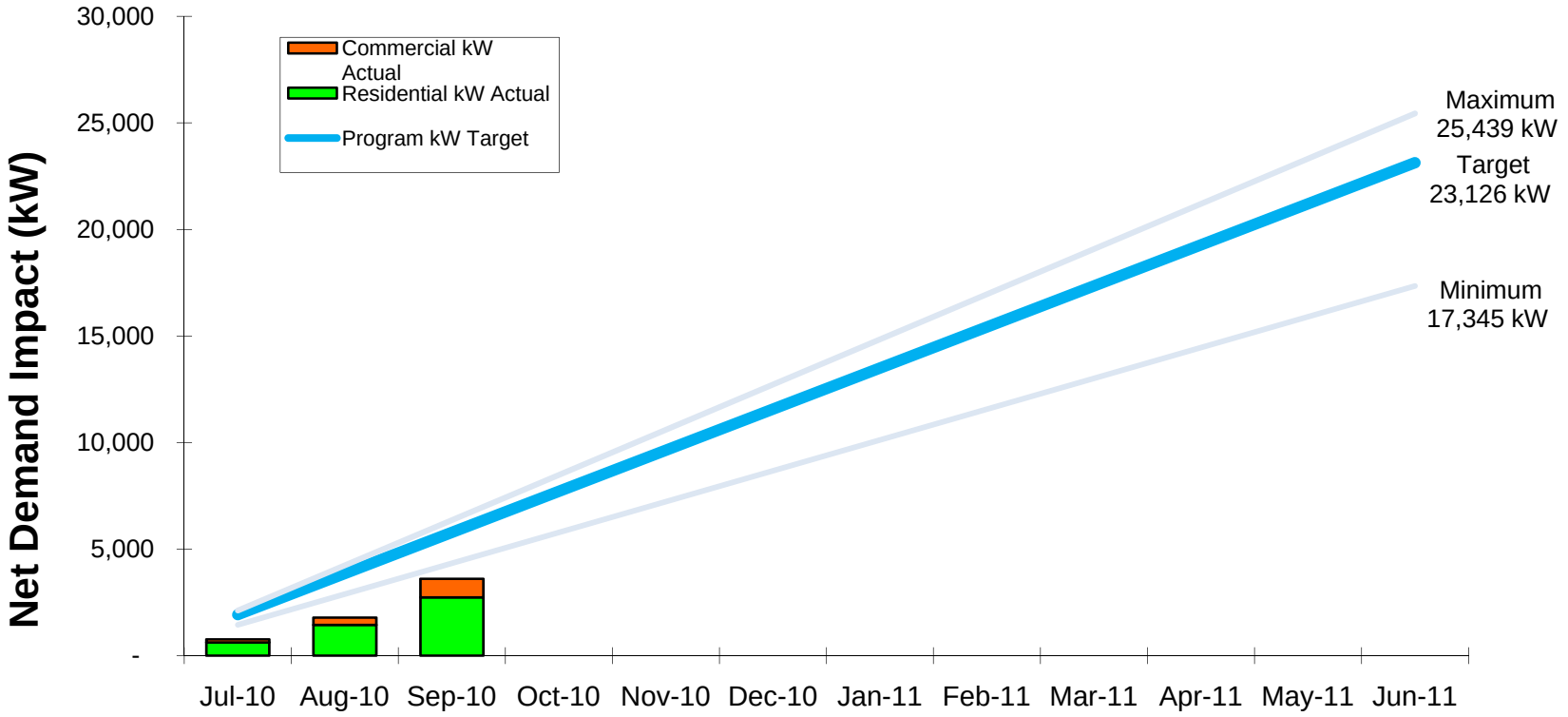
Performance Charts

1. *First Year Incentive Payment Tracking* - This Chart shows the paid versus target incentives for the PY2010



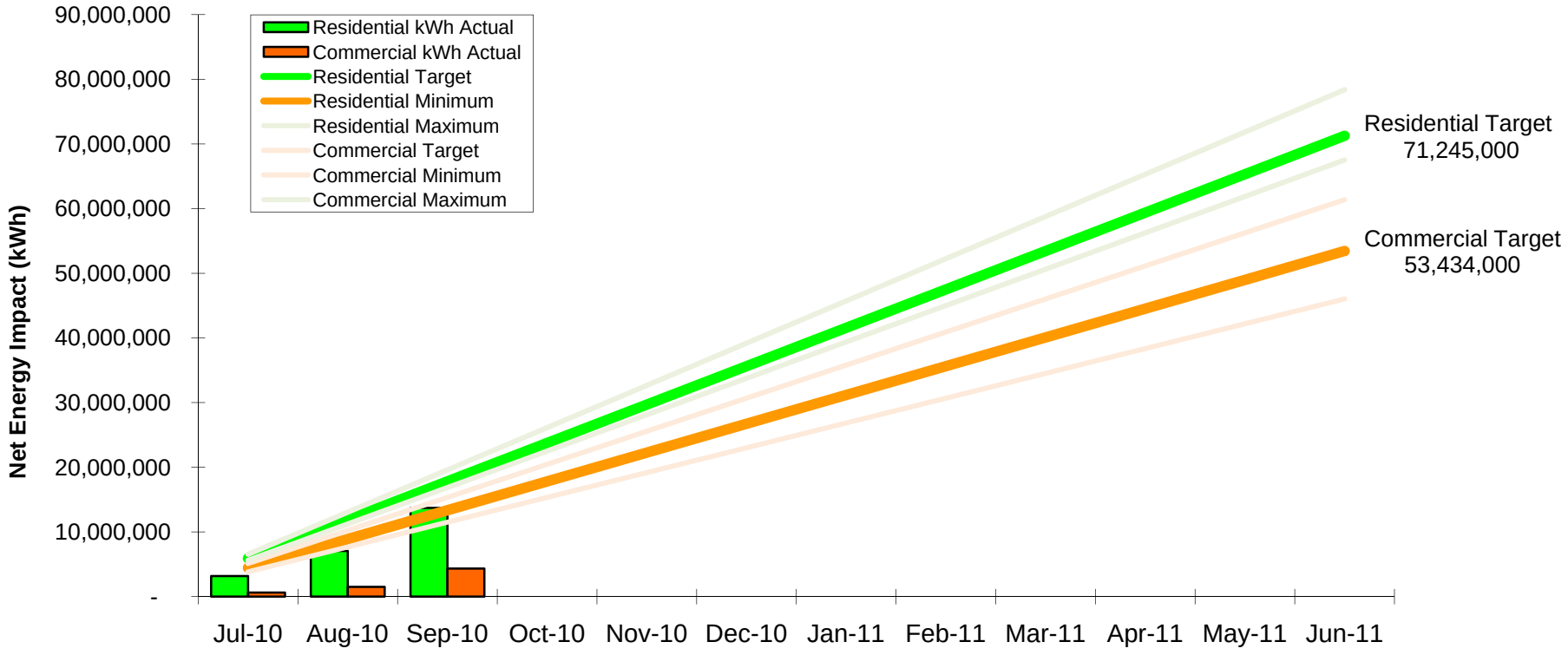
2. *First Year Demand Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010.

Chart 2: PY2010 Net Demand Impact Tracking



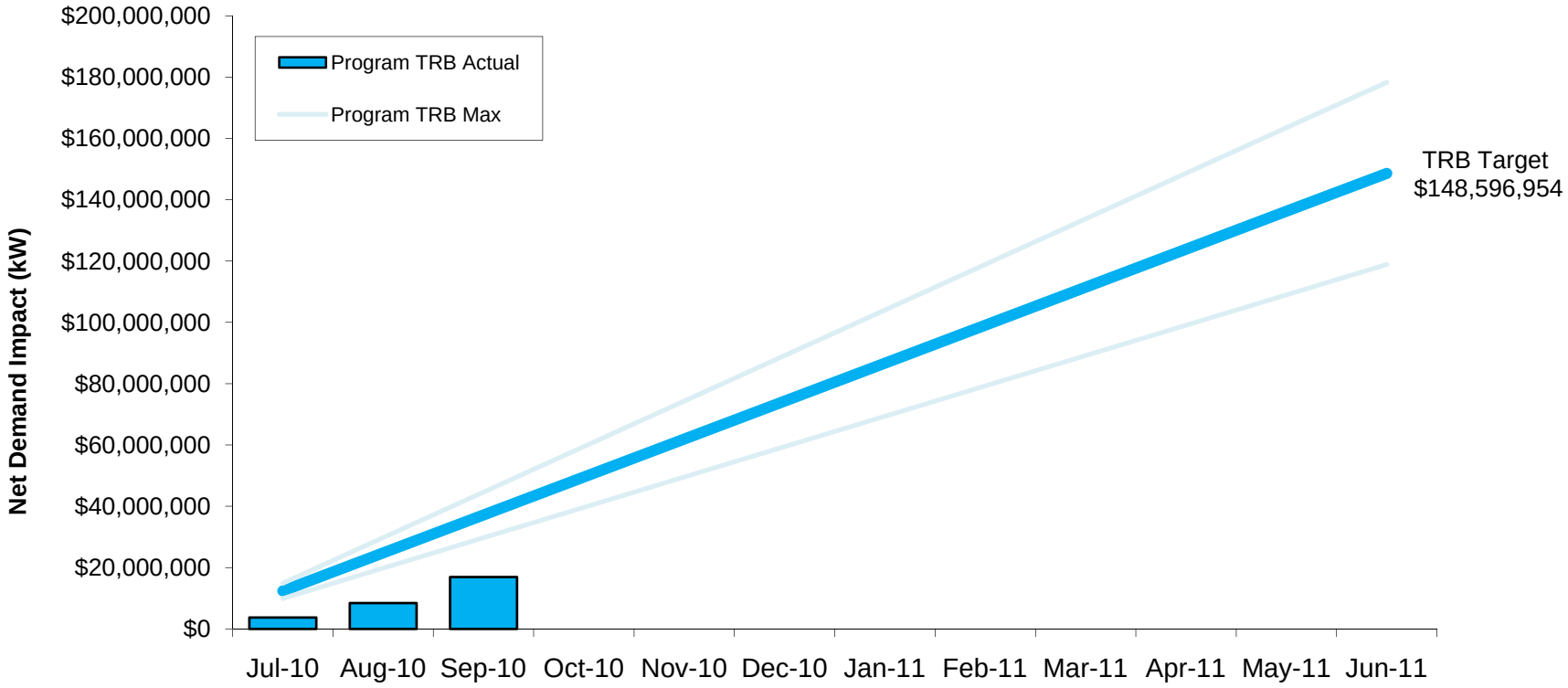
3. *First Year Energy Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010

Chart 3: PY2010 Net Energy Impact Tracking



4. *First Year Energy Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010.

Chart 4: PY2010 Total Resource Benefit Impact Tracking



Outreach Highlights

The following Advertising & Marketing Outreach activities took place this month.

Media Outlet	Subject	Date
Social Media	Asia Pacific Clean Energy Summit and Expo – photos	9/01/10
Web	Kanu Hawaii journal: Assessing energy initiatives	9/07/10
Social Media	Wesco Road to Sustainability Workshops – photos	9/16/10
Social Media	IDEO workshop – photos	9/24/10
TV	KHON: Gubernatorial candidates reveal energy plans at Energy Expo	9/28/10
TV	KITV: Abercrombie, Aiona Differ on Clean Energy Goals	9/28/10
Social Media and website	Lighting Design Breakfast workshop featuring Chip Israel	9/29/10
TV	Star-Advertiser: Abercrombie and Aiona tangle on energy policy	9/29/10
Web	Civil Beat: Aiona Shines at Energy Expo	9/29/10
Web	Green Magazine Hawaii: Energy Expo 2010	9/29/10
Web	Lookin' Green: Hawaii – Open For Clean Energy Business	9/29/10
Social/Website	Energy Expo 2010 and workshop presentations	Various

Outreach Highlights (continued)

The following Education & Training Outreach activities took place this month.

Event	Attendees	Subject	Count	Date
Solar Contractor Breakfast Meeting	Maui solar water heater contractors	Update contractors on program status	30	9/7
olar Contractor Breakfast Meeting	Oahu solar water heater contractors	Update contractors on program status	50	9/8
Solar Contractor Breakfast Meeting	Kona solar water heater contractors	Update contractors on program status	30	9/9
University of Hawaii – Building Technologies Seminar	Engineering students	Maximizing building performance	25	9/9
On the Road show – Phillips Lighting Event	Oahu lighting contractors	Promote and educate contractors about energy issues and our program	40	9/14
On the Roadshow – Phillips Lighting Event	Hawaii lighting contractors	Promote and educate contractors about energy issues and our program	40	9/15
On the Road show – Phillips Lighting Event	Maui lighting contractors	Promote and educate contractors about energy issues and our program	50	9/16
Asia Pacific Clean Energy Expo	Military, state and federal employees	Clean Energy Expo	500	9/23
Hospitality Equipment Trade Show	Hotel Management, Chefs, Restaurant owners	Met with potential vendors	100	9/23
Energy Expo 2010	Commercial & industrial, trade allies, utilities, exhibitors	Energy education and promotion	500	9/28
Lighting Design workshop	Architects, Interior Designers and Lighting professionals	Lighting design for resorts, restaurants, private estates and review of Hawaii Energy rebate program	50	9/29
Wesco workshops	Commercial & industrial, lighting trade allies, utility, Property Managers and lighting professionals	Presentation of programs	100	9/14

Island Equity Outreach Highlights

The following Island Equity Outreach activities took place this month.

Outreach	Island	Subject
Hawaiki Tower	Oahu	Introduced program and provided energy savings suggestions for renovation project
Allure Waikiki	Oahu	Introduced program and provided energy savings suggestions for renovation project
Johnson Controls	Oahu	Energy Savings Performance Contracting (ESPC) status meeting
Hawaii Army National Guard	Oahu	Introduced program and reviewed projects
Frito Lay	Oahu	Introduced program
Residential low income housing agencies	Oahu	Discussed program
Hickam Air Force base	Oahu	Post inspections
Disney Resorts	Oahu	Introduced program and discussed current projects
Home World, Pearlridge	Oahu	Discussed current project and potential projects
Makena Beach & Resort Hotel	Maui	Introduced program
Royal Kona Resorts	Hawaii	Introduced program and reviewed upcoming projects. Will do cost analysis upon completion of project
Kona Seaside Hotel	Hawaii	Introduced program
Hudnut Lighting, Woodberry Consulting and Sheraton Keauhou	Hawaii	Introduced program and discussed potential collaboration

Government Highlights

The following activities with the Government took place this month:

Agency	Subject	Date
Public Utilities Commission	Docket 2009-0108 [IRP (Integrated Resource Planning)/CESP (Clean Energy Scenario Planning) – collaborative meeting of parties to discuss framework	9/15, 9/22

Market Evaluation and Technology Development Highlights

The following actions were taken to obtain trade ally input on program market penetration and technology development this month:

Trade Allies	Subject
High Technology Development Corporation	Discussed possible collaboration on co-funding energy studies for industrial small to medium industrial sector

Budget Status Table

	September Allocations	Allocations to Date	PY10 Revision 2a	Percent Spent
Residential Programs				
Residential Program Ops and Management				
REEM	110,060.70	217,046.13	1,665,602	13%
RLI	10,327.80	21,251.82	57,300	37%
New	-	-	324,700	0%
Total Residential Programs	120,388.50	238,297.95	2,047,602	12%
Market Evaluation	-	3,360.00	97,176	3%
Outreach	13,215.52	29,516.49	142,866	21%
Total Residential Non-Incentive	133,604.02	271,174.44	2,287,644	12%
Residential Incentives				
REEM	436,537.10	985,303.27	5,008,370	20%
RLI	39,179.53	42,834.99	290,750	15%
New	-	-	887,200	0%
Total Residential Incentives	475,716.63	1,028,138.26	6,186,320	17%
Total Residential Programs	**609,320.65**	**1,299,312.70**	**8,473,964**	**15%**
Business (C&I) Programs				
Business Programs Ops and Management				
BEEM	45,239.22	141,026.83	481,340	29%
CBEEM	30,135.00	91,115.95	188,309	48%
New	-	12,077.14	188,880	6%
Total Business Programs	75,374.22	244,219.92	858,529	28%
Market Evaluation	10,500.00	39,760.00	118,771	33%
Outreach	24,791.34	51,916.28	174,612	30%
Total Business Non-Incentive	110,665.56	335,896.20	1,151,912	29%
Business Incentives				
BEEM	222,609.00	596,547.00	5,138,670	12%
CBEEM	21,855.00	37,689.00	1,115,390	3%
New	-	-	1,307,000	0%
Total Business Incentives	244,464.00	634,236.00	7,561,060	8%
Total Business Programs	**355,129.56**	**970,132.20**	**8,712,972**	**11%**
Total Services and Initiatives	**964,450.21**	**2,269,444.90**	**17,186,936**	**13%**
Supporting Services				
Supporting Services	147,004.81	358,123.04	1,150,896	31%
Total Supporting Services	**147,004.81**	**358,123.04**	**1,150,896**	**31%**
Subtotal Non-Incentive (Prior to Tax)	391,274.39	965,193.68	4,590,452	21%
[1] Less Performance Incentives (Prior to Tax)	(55,708.36)	(167,125.08)	(700,000)	
Subtotal Non-Incentive Less Performance Incentives (PI)	335,566.03	798,068.60	3,890,452	
[2] Total Tax on Non-Incentive Without PI	15,811.87	37,604.99	216,302	
Performance Incentive Award (Inclusive of Tax)			700,000	
Subtotal Non-Incentive Billed	*351,377.90*	*835,673.59*	*4,806,754*	
Subtotal Residential and Business Customer Incentives	*720,180.63*	*1,662,374.26*	*13,747,380*	
Sub-Total Estimated Contractor Costs	*1,071,558.53*	*2,498,047.85*	*18,554,134*	
Performance Awards in Excess of Target Levels			133,000	
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels			**18,687,134**	

[1] Budget includes ($31,500) in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

[2] Budget includes $31,500 in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

Hawaii Energy Efficiency Program

Quarterly Performance Report – 1st Quarter PY10 (07/01/10 – 09/31/10)

Executive Summary

Administration Highlights

- Management Team presented the PY2010 Annual Plan and made final revisions
- Developed Budget R2a to alleviate difficulties created by the initial budget format when reporting in the annual report. The proposed revised budget adds tax and subtracts incentives as individual line items rather than to each budget line item.
- Hired a Program Analyst, Project Manager, Junior Program Engineer (summer intern), Outreach Specialist (half time, temporary until April 2011) and Program Representative (Part-time who found a full time position and can no longer support Hawaii Energy).

Activity Highlights

- Co-hosted the 2010 Energy Expo at the Hilton Hawaiian Village Resort in late September
- Launched the Small Business Direct Install Lighting Program
- Participated in five (5) expos in October to leverage Energy Awareness Month

Marketing Highlights

- Launched upgraded, interactive website in August
- Sponsored Blue Planet Home Energy Makeover television show in September
- Launched new television commercial focusing on Hawaii's dependence on oil in September

Report Card

- The following is a report card reflecting our performance and strategic actions we are taking to improve our performance.

Hawaii Energy Efficiency Program

Quarterly Performance Report – 1st Quarter PY10 (07/01/10 – 09/31/10)

Performance Indicator	Q1 Results	YTD Results	PY10 Targets	Status	Strategic Actions Taken This Quarter	Strategic Changes for Next Quarter
Residential Savings (MWh)	13,723	13,723	71,245	G	• Took advantage of October as Energy Awareness month to host a booth at expos	• Plan for piggyback with stimulus funds to begin
Business Savings (MWh)	4,332	4,332	61,370	Y	• Co-hosted the Energy Expo with HECO in September	• Increase Specialists' on-site and outreach activities
Peak Demand (kW)	3,606	3,606	23,126	Y	• Increased outreach activities	• Increase outreach activities
Total Resource Benefits (Est. in Millions)	16,920,886	$16,920,886	$148,596,954	Y		• Focus on projects with larger resource benefit
Market Transformation -State Building Demo Project -Launch RcX Program -Community Partnership	 0 Not Met 0	 0 Not Met 0	 10 01/01/11 4	G		• Finalize RcX program
Island Equity *-Oahu County (Est.)* *-Maui County (Est.)* *-Hawaii Country (Est.)*	 76.9% 11.0% 12.1%	 76.9% 11.0% 12.1%	 69% 19% 11%	Y	• Hired part-time outreach specialist for Hawaii	• Exploring having another lighting bonus program
Budget *-Non- Incentive Billed* *-Incentive Billed* *-Total Billed*	 $835,674 $1,662,374 $2,489,048	 $835,674 $1,662,374 $2,489,048	 $4,106,754 $13,747,380 $17,854,134	G	• Conservatively increasing spend based on expectation of approval to carryover from PY2009	• Create greater push on business incentives

Executive Summary

October is Energy Awareness month and offered an opportunity to support many expositions to residents in the State. Hawaii Energy hosted a booth at six (6) expositions over the month for various residential audiences in different areas of Oahu.

Hawaii jumped from the 19th to 12th ranking in the ACEEE rankings of state energy efficiency programs. These rankings were evaluating Hawaii's efforts in 2009 which included the first six months with the efficiency programs under R.W. Beck (An SAIC Company) as the third party administrator. A summary of the results is on the following page.

The following is a summary of the PBFA portion of the ACEEE report:

	Hawaii 2007	Hawaii 2008	Hawaii 2009	Maximum Points	Gap	Rank 2009	Hawaii 2010 Metric	ACEEE Metric	Potential 2010 Actions	Potential 2011 Score
1. Utility and Public Benefits Efficiency Programs and Policies Score	**8.5**	**11.5**	**12**	**20**	**-8**	**9**				**13**
Spending on Efficiency Programs (Electric)		2	3	5	-2	12	1.65%	2.5% or greater gets a maximum score of 5. 1.50% to 1.74% will get a score of 3.	Increase PBFA to 2.5%	5
Annual Savings from Efficiency Programs (Electric)		5	5	5	0	2	1.97% Savings of Electric Sales	1.2% or greater gets a maximum score of 5.	PBFA to Maintain savings above 1.2%	5
Spending on Efficiency Programs (Natural Gas)		0	0	3	-3	38	No Spending	Spending of $7 to $13.99 per customer will get a score of 1. Spending of $21 to $27.99 per customer will get a score of 2.Spending of $35 or more per customer will get a score of 3.	Create PBFA Program to address SNG Efficiency Programs. 28,000 customer = $980,000	3
Targets (Energy Efficiency Resource Standards)		3	3	4	-1	N/A	1% (HCEI goal of 4300 GWH is 43% of 2009 sales	Saving target from 1.5% or greater will get a score of 4.		
Utility Incentives/Removal of Disincentives		1.5	1	3	-2	N/A	Decoupling Electric = Y Gas = N Perf. Incentives Electric = N Gas = N	Score 2 = Decoupling and performance incentives for electric or gas utilities or Decoupling or performance incentives for both electric & gas utilities. Score of 3 = Decoupling and performance incentives for electric & gas utilities		

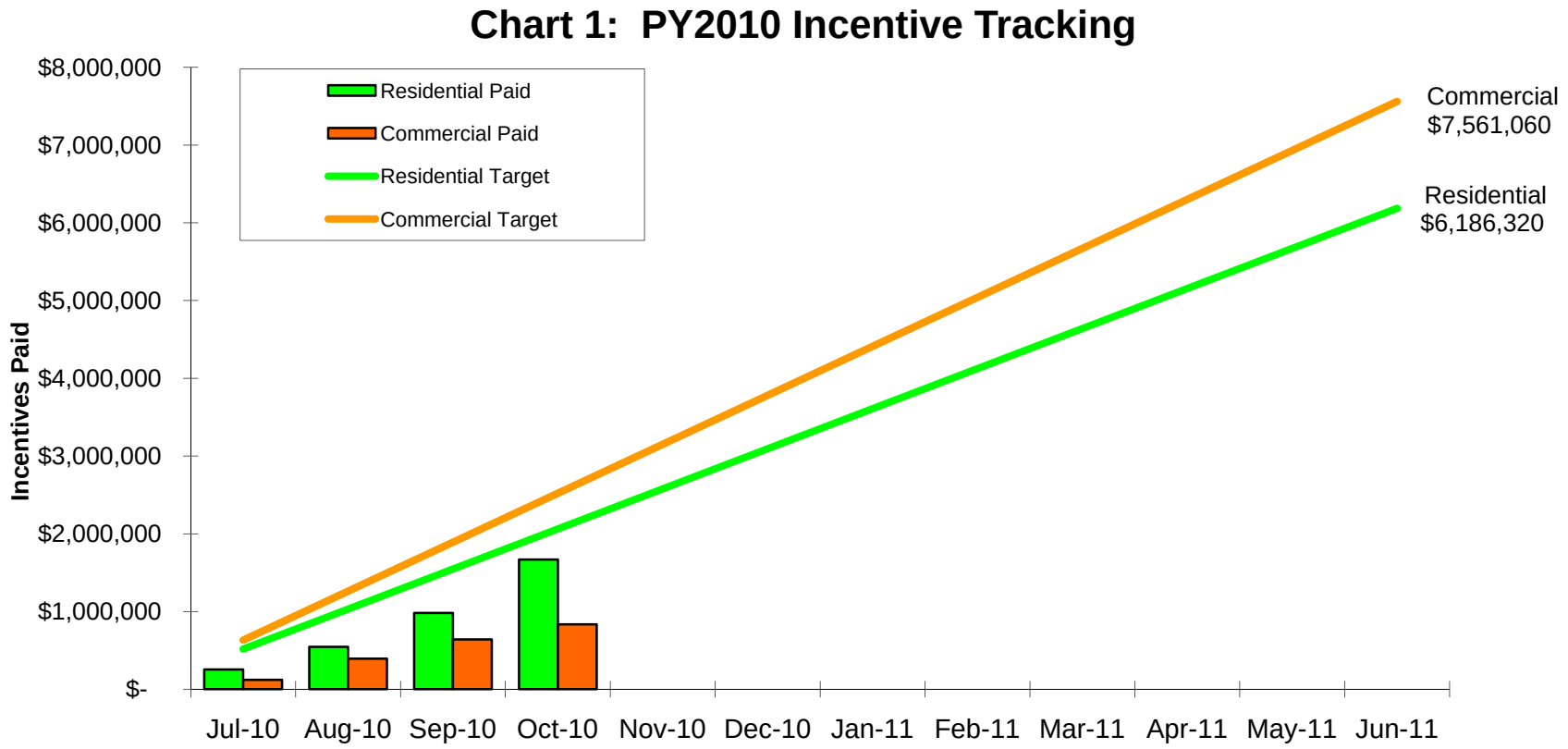
The following table is an overall summary of our performance in the month:

Key Performance Metrics	Month's Results	YTD Results	PY2010 Targets	YTD % of Target PY2010
Annual Energy Savings Impacts (Net Generation Level)				
Residential (MWh[3]	4,596	17,979	71,245	25.2%
Business (MWh)[3]	1,776	6,123	61,370	10.0%
Peak Demand (kW)[3]	2,242	5,854	23,126	25.3%
Total Resource Benefit[2,3]	$ 6,371,712	$ 23,040,712	$ 148,596,954	15.5%
Island Equity (% of Energy Savings)				
Oahu[3]	83.9%	78.8%	69%	+/-20% Met
Maui County[3]	6.3%	10.6%	19%	<-20%
Hawaii County[3]	9.9%	10.6%	11%	+/-20% Met
Market Transformation (Applications Completed)				
State Building Demo Projects	0	0	10	0.0%
Launch RCx Program	Not Met	Not Met	01/01/11	Not Met
Community Partnership	0	0	4	0.0%
Financials[1]				
Total Non-Incentives Billed[1]	$ 382,797.89	$ 1,218,471.48	$ 4,106,754.00	29.6%
Total Incentives Billed	$ 879,455.81	$ 2,541,830.07	$13,747,380.00	18.4%
Total Program Costs Billed	$ 1,262,253.70	$ 3,760,301.55	$17,854,134.00	21.0%

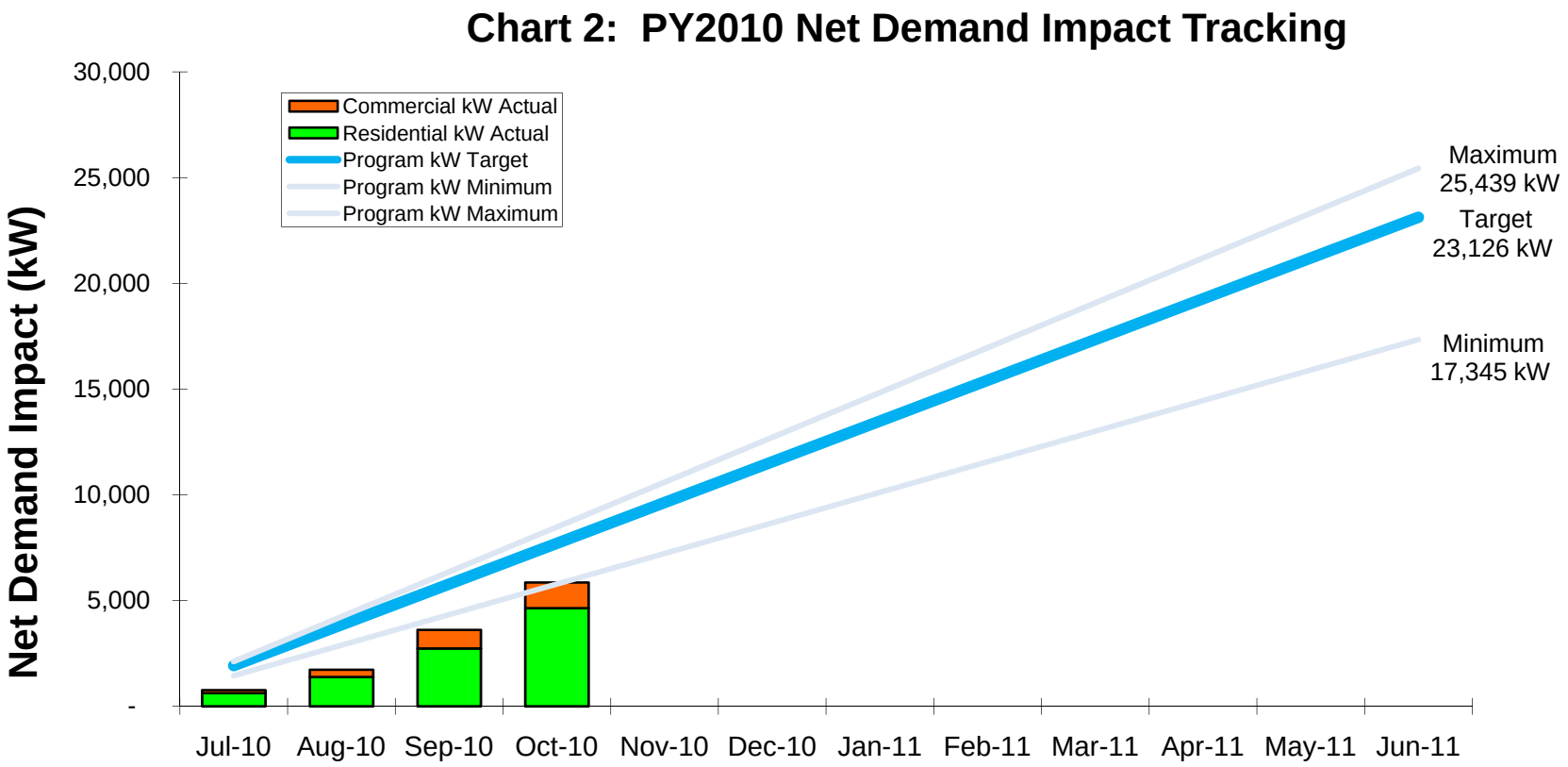
[1]Total Budget reflects the deduction of $700,000 in performance incentive fees for the award pool.
[2] July TRB decreased by $548 when calculation was updated for PY10.
[3]September data included approximately 600 refrigerators for SEEARP (ARRA) that should have been filtered and affected all impact savings numbers.

Performance Charts

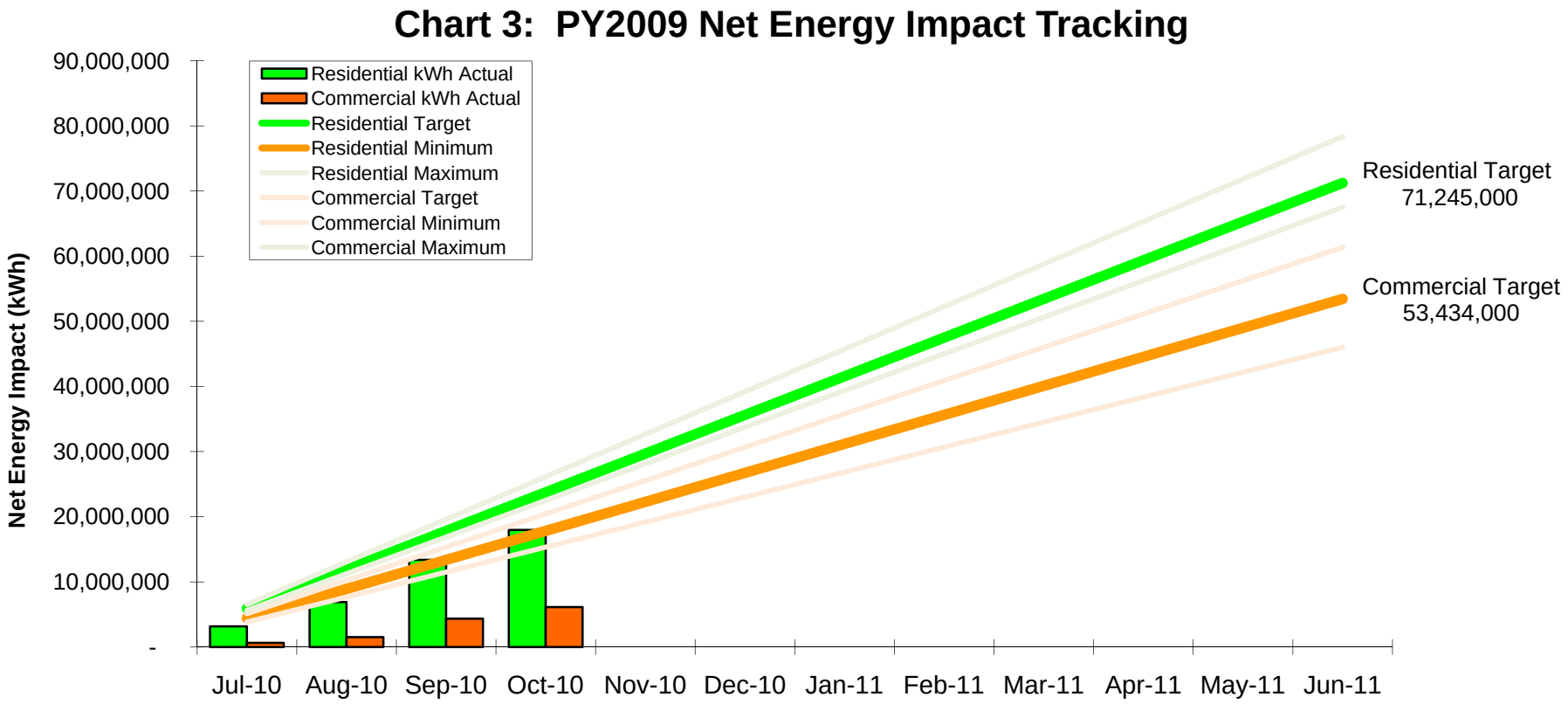
1. *First Year Incentive Payment Tracking* - This Chart shows the paid versus target incentives for the PY2010.



2. *First Year Demand Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010.

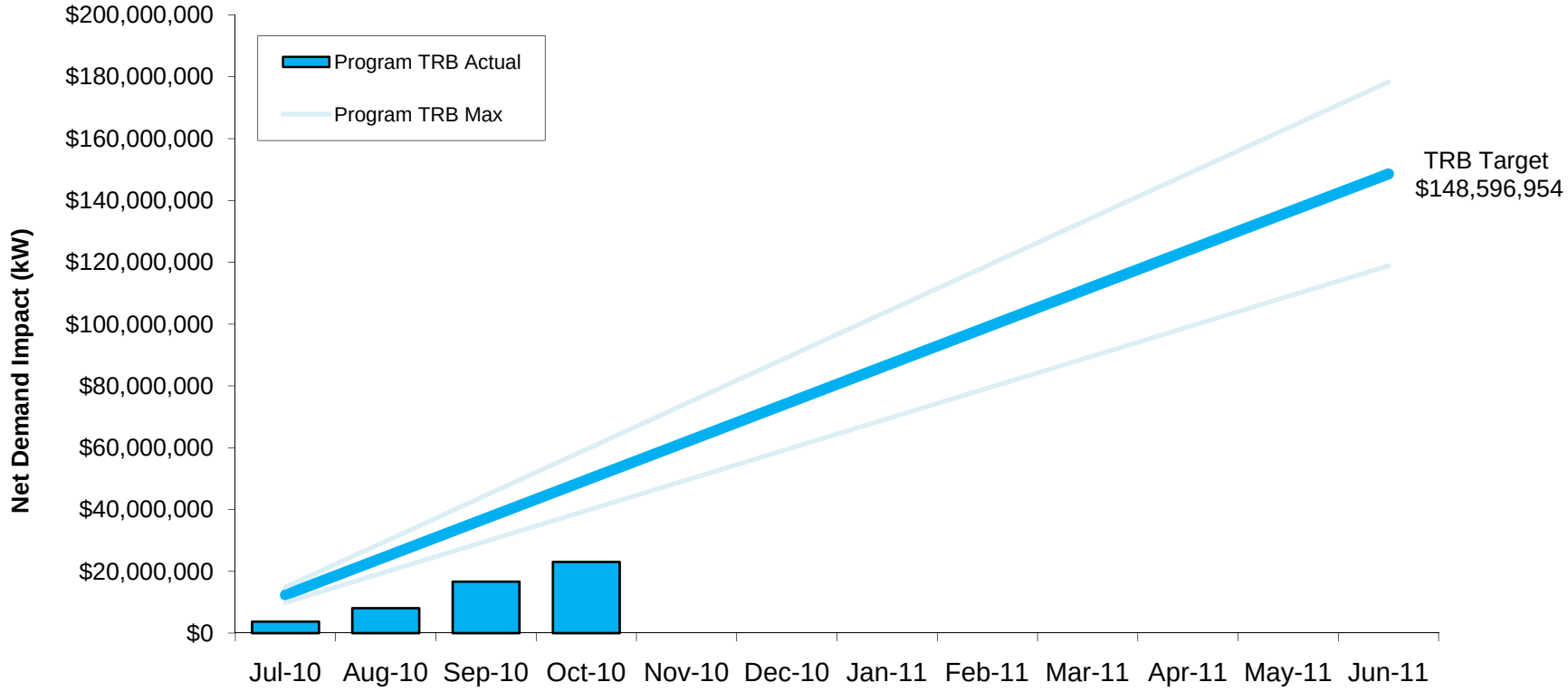


3. *First Year Energy Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010



4. *First Year Energy Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010.

Chart 4: PY2010 Total Resource Benefit Impact Tracking



Outreach Highlights

The following Advertising & Marketing Outreach activities took place this month.

Media Outlet	Subject	Date
Social Media	Windward Ho'olaule'a	10/2
Print	Star Advertiser: Projects to generate clean energy power up	10/3
Social Media	Live Energy Lite	10/9
Social Media/TV	KGMB: Hawaii Home Energy Makeover (sponsorship and "Shed Some Light" TV spot	10/12 & 10/21
Social Media/Press Release	Hawaii jumps to No. 12 in ACEEE State Energy Efficiency Scorecard	10/13
Social Media	Hickam Energy Fair	10/15
Social Media	Energy Awareness Fair (Marine Corps Base Hawaii)	10/15
Social Media	CFL Giveaway (The Kohala Center)	10/16
Social Media/Email	HTDC Workshop for Manufacturers	10/19 & 10/21
Social Media	Pearl Harbor Energy Fair	10/22
Social Media/Press Release/Press Conference	Hot Water, Cool Rates	10/27
Social Media	Halloween Costume Contest	10/31

The following Education & Training Outreach activities took place this month.

Event	Attendees	Subject	Count	Date
Career Day at Alvah Scott Elementary School	Upper grade students and teachers	Promoted the program and educated students about energy conservation and efficiency	60	10/1
Windward Community College Hoolaulea	Residential customers	Promoted the program and educated residents about energy conservation and efficiency	300	10/2
Live Energy Lite	Residential customers	Promoted the program and educated residents about energy conservation and efficiency	700	10/9
Kaneohe Marine Corp Base Energy Awareness Fair	Residential customers	Promoted the program and educated residents about energy conservation and efficiency	300	10/13
Hickam Energy Awareness Fair	Residential customers	Promoted the program and educated residents about energy conservation and efficiency	50	10/15
Pearl Harbor Energy Awareness Fair	Residential customers	Promoted the program and educated residents about energy conservation and efficiency	200	10/22
High Technology Development Corporation (HTDC) workshop, Oahu	Manufacturers and contractors	Promoted the program and educated residents about energy conservation and efficiency	30	10/19
High Technology Development Corporation (HTDC) workshop, Hilo	Manufacturers and contractors	Promoted the program and educated residents about energy conservation and efficiency	20	10/20
Joint Spouses Conferences	Military Spouses from across Oahu	Promoted the program and educated residents about energy conservation and efficiency	300	
High Technology Development Corporation (HTDC) workshop, Maui	Manufacturers and contractors	Promoted the program and educated residents about energy conservation and efficiency	20	10/26
Building Operators Certification class	Building Engineers	Building operators certification class	13	10/23

Island Equity Outreach Highlights

The following Island Equity Outreach activities took place this month.

Outreach	Island	Subject
Frito Lay, Hawaii	Oahu	Reviewed customized rebate options
Forest City Watt Watcher Program	Oahu	Discussed potential program and funding of program
Trump Tower	Oahu	Reviewed use of customization worksheet
Solar Attic Fan contractors	Oahu	Discussed products and potential customer base for data logging to create rebate program
Ball Metal Can Plant Hawaii	Oahu	Performed post inspection of lighting retrofit
Island Dairy	Hawaii	Performed pre inspect and discussed LED criteria
Mauna Loa Macadamia	Hawaii	Conducted lighting pre-audit, discussed proposed energy initiatives
Hilo Hawaiian Hotel	Hawaii	Performed property walk through and audit
Hilo Bay Hotel and Resort	Hawaii	Introduced programs
Naniloa Volcanoes Resorts	Hawaii	Introduced programs
Country Club Hotel & Resort	Hawaii	Introduced programs
Hilo Reeds Bay Hotel	Hawaii	Introduced programs
Hilo Seaside Hotel	Hawaii	Introduced programs
Various small businesses	Hawaii	Introduced, promoted and discussed programs to identify potential new participants
Naval Computer & Telecommuniations Area Master Station (NCTAMS)	Oahu	Performed post inspection
Noresco (Hemmeter Building & State Capitol)	Oahu	Performed post inspection

Market Evaluation and Technology Development Highlights

The following actions were taken to obtain trade ally input on program market penetration and technology development this month:

Trade Allies	Subject	Action
Kohala Center	CFL giveaway in Kona and Hilo	Worked with Kohala Center to distribute 2,016 CFLs to residents
Blue Planet Foundation	2010 Honua Awards	Networked with non-profit allies and commercial customers
Life's Good workshop	Variable refrigerant Flow air conditioning units	Attended workshop

Budget Status Table

	October Allocations	Allocations to Date	PY10 Revision 2a	Percent Spent
Residential Programs				
Residential Program Ops and Management				
REEM	160,731.19	377,777.32	1,665,602	23%
RLI	8,812.67	30,064.49	57,300	52%
New	-	-	324,700	0%
Total Residential Programs	169,543.86	407,841.81	2,047,602	20%
Market Evaluation	-	3,360.00	97,176	3%
Outreach	25,012.11	54,528.60	142,866	38%
Total Residential Non-Incentive	194,555.97	465,730.41	2,287,644	20%
Residential Incentives				
REEM	693,922.62	1,679,225.89	5,008,370	34%
RLI	655.19	43,490.18	290,750	15%
New	-	-	887,200	0%
Total Residential Incentives	694,577.81	1,722,716.07	6,186,320	28%
Total Residential Programs	**889,133.78**	**2,188,446.48**	**8,473,964**	**26%**
Business (C&I) Programs				
Business Programs Ops and Management				
BEEM	60,877.06	201,903.89	481,340	42%
CBEEM	37,252.30	128,368.25	188,309	68%
New	-	12,077.14	188,880	6%
Total Business Programs	98,129.36	342,349.28	858,529	40%
Market Evaluation	2,707.22	42,467.22	118,771	36%
Outreach	26,818.47	78,734.75	174,612	45%
Total Business Non-Incentive	127,655.05	463,551.25	1,151,912	40%
Business Incentives				
BEEM	85,525.00	682,072.00	5,138,670	13%
CBEEM	99,353.00	137,042.00	1,115,390	12%
New	-	-	1,307,000	0%
Total Business Incentives	184,878.00	819,114.00	7,561,060	11%
Total Business Programs	**312,533.05**	**1,282,665.25**	**8,712,972**	**15%**
Total Services and Initiatives	**1,201,666.83**	**3,471,111.73**	**17,186,936**	**20%**
Supporting Services				
Supporting Services	99,069.47	457,192.51	1,150,896	40%
Total Supporting Services	**99,069.47**	**457,192.51**	**1,150,896**	**40%**
Subtotal Non-Incentive (Prior to Tax)	421,280.49	1,386,474.17	4,590,452	30%
[1] Less Performance Incentives (Prior to Tax)	(55,708.36)	(222,833.44)	(700,000)	
Subtotal Non-Incentive Less Performance Incentives (PI)	365,572.13	1,163,640.73	3,890,452	
[2] Total Tax on Non-Incentive Without PI	17,225.76	54,830.75	216,302	
Performance Incentive Award (Inclusive of Tax)			700,000	
Subtotal Non-Incentive Billed	*382,797.89*	*1,218,471.48*	*4,806,754*	
Subtotal Residential and Business Customer Incentives	*879,455.81*	*2,541,830.07*	*13,747,380*	
Sub-Total Estimated Contractor Costs	*1,262,253.70*	*3,760,301.55*	*18,554,134*	
Performance Awards in Excess of Target Levels			133,000	
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels			**18,687,134**	

[1] Budget includes ($31,500) in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

[2] Budget includes $31,500 in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

Hawaii Energy Monthly Program Reporting Adjustments

Updated: 1/6/2010

								Note	1	2	3	4	5	6	7	8	9	
Month	**Metric**	**Initial Monthly Report**	**Monthly Reported Difference**	**Updated Monthly Report**		**Initial YTD Report**	**YTD Reported Difference**	**Updated YTD Report**	**Notated Differences**	**Correction of Reported Month Projects were Completed**	**REEM Application Credit**	**August Removal of Miss-reported SEEARP Measures**	**September Removal of Miss-reported SEEARP Measures**	**Completion of CFL Energy Change** 65.4 to 26.5 kWh	**Removal of Off-Grid Application**	**T&D losses for Hawaii County Correction** 11.96 to 9.00%	**T&D losses for Maui County Correction** 9.56 to 9.96%	**Refrigerator update**	**Misc. Changes**
July	R-MWH	3,177	(1,620)	1,557		3,177	(1,620)	1,557	(1,618)		(0.25401)			(1,586)		(6)	0.6	(27)	(2)
	B-MWH	629	229	858		629	229	858	230	235						(4)	0.6	(2)	(1)
	kW	767	57	824		767	57	824	57	60	(0.00009)					(4)	0.4		0
	TRB	$ 3,696,047		$ 3,087,613		$ 3,696,047	(608,434)	$ 3,087,613	-										
	Incentive $	$ 457,184.50	$ -	$ 457,184.50		$ 457,184.50	$ -	$ 457,184.50	-										-
Aug	R-MWH	3,882	(2,007)	1,875		7,059	(3,627)	3,432	(2,004)			(159)		(1,789)		(10)	1.0	(48)	(2)
	B-MWH	886	(245)	641		1,515	(16)	1,499	(238)	(235)						(2)	0.8	(2)	(7)
	kW	1,019	(121)	898		1,786	(64)	1,722	(120)	(60)		(56)				(4)	0.6		(1)
	TRB	$ 4,739,116		$ 3,427,075		$ 8,435,163	(1,920,475)	$ 6,514,688	-										-
	Incentive $	$ 485,009.13	$ -	$ 485,009.13		$ 942,193.63	$ -	$ 942,193.63	-										-
Sep	R-MWH	6,664	(3,560)	3,104		13,723	(7,188)	6,535	(3,523)				(144)	(3,337)		(12)	1.1	(32)	(38)
	B-MWH	2,817	(8)	2,809		4,332	(24)	4,308	(2)							(0)	2.5	(4)	(6)
	kW	1,820	59	1,879		3,606	(5)	3,601	(56)				(53)			(4)	0.8		115
	TRB	$ 8,485,723	(1,340,033)	$ 7,145,690		$ 16,920,886	(3,260,508)	$ 13,660,378	-										
	Incentive $	$ 720,180.63	$ -	$ 720,180.63		$ 1,662,374.26	$ -	$ 1,662,374.26	-										-
Oct	R-MWH	4,596	(406)	4,190		18,319	(7,594)	10,725	(410)					(0)	(0.254)	(12)	1.1	(399)	4
	B-MWH	1,776	(22)	1,754		6,108	(46)	6,062	(22)						(0.009)	(5)	0.4	(17)	(0)
	kW	2,242	(1)	2,241		5,848	(6)	5,842	(6)							(6)	0.5		5
	TRB	$ 6,371,712	1,232,769	$ 7,604,481		$ 23,292,598	(2,027,739)	$ 21,264,859	-										
	Incentive $	$ 879,455.81	$ -	$ 879,455.81		$ 2,541,830.07	$ -	$ 2,541,830.07	-										-
				October Revised Report		$ 0.10 /kWh		$ 0.15 /kWh											

	Total YTD Difference	% Change YTD Reported	Notated Changes	Misc. Changes	Misc. Changes % YTD
R-MWH	(7,594)	-41%	(7,556)	(38)	-0.4%
B-MWH	(46)	-1%	(32)	(14)	-0.2%
kW	(6)	0%	(125)	119	2.0%
TRB	(2,027,739)	-9%			
Incentive $	-		-	-	

Note	Description	Identified Issue
1.	Correction of Reported Month Projects were Completed	In August three large commercial applications moved from July and were reported in August (60 MW & 235 MWh
2.	REEM Application Credit	One refrigerator application credit back for reversa
3.	August Removal of Misreported SEEARP Measures	Removal of savings initially credited for 642 refrigerators under the SEEARP Program
4.	September Removal of Misreported SEEARP Measures	Removal of savings initially credited for 565 refrigerators under the SEEARP Program
5.	Completion of CFL Energy Change	July, Aug, Sept (partial month) CFLs kWh values were updated from 65.4 kWh to 26.5 kWh (375,660 lamps)
6.	Removal of Off-Grid Application	Savings removed for energy counted for an off-grid refrigerator energy savings measure
7.	T&D losses for Hawaii County Correction	Transmission and Distribution (T&D) losses for Hawaii County were updated from 11.96 to 9.00%
8.	T&D losses for Maui County Correction	Transmission and Distribution (T&D) losses for Maui County were updated from 9.56 to 9.96%
9.	Refrigerator update	Refrigerators were updated from 313 to 105 kWh (3,774 units) and SEP/PBFA 313 to 164.4 kWh (3,221 units

Executive Summary

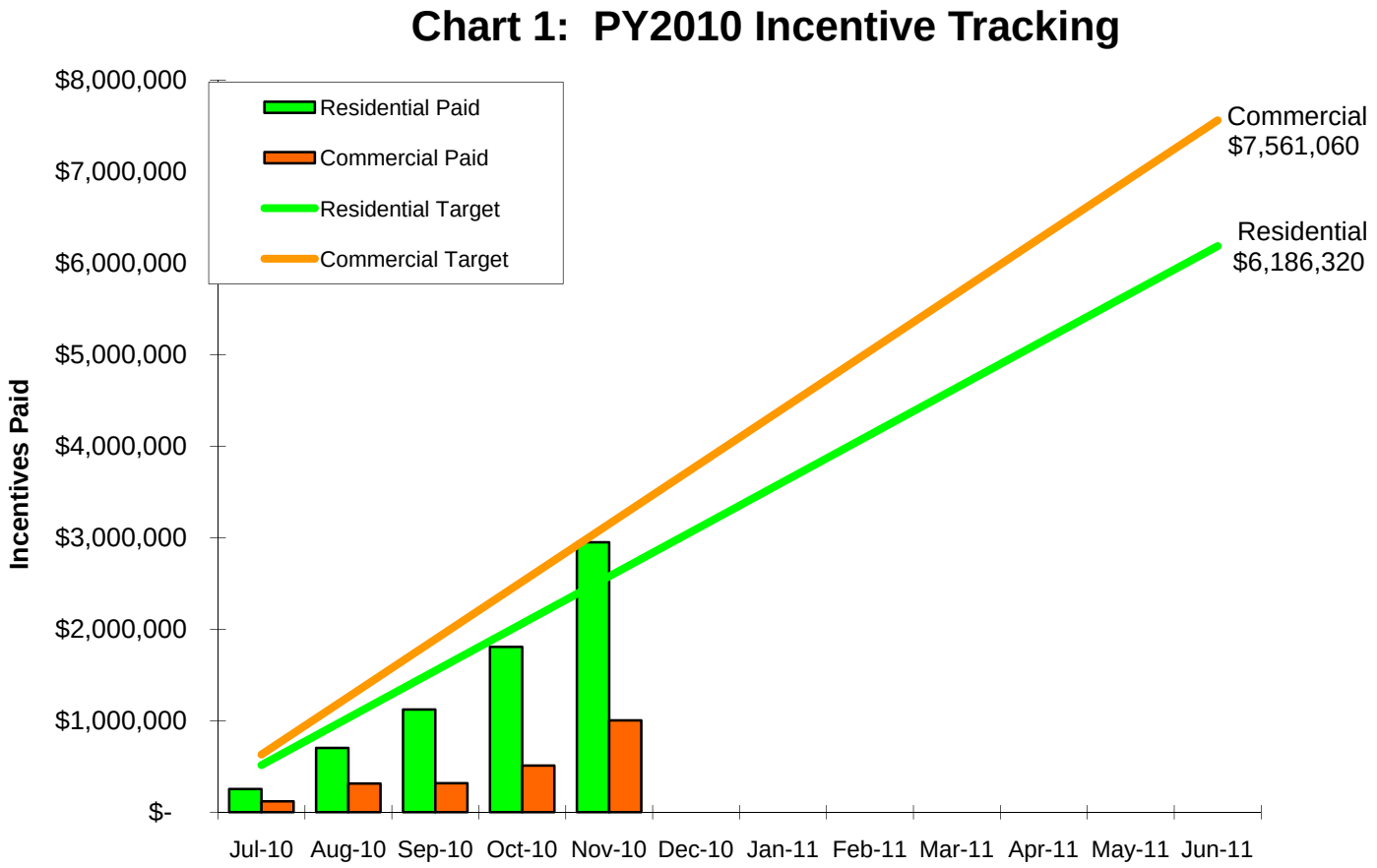
During the month of November, Hawaii Energy almost doubled the quantity of rebates delivered to customers compared to October. Savings showed even greater increases due to a large volume of Compact Fluorescent Light rebates. The following table is an overall summary of our performance in the month:

Key Performance Metrics	Month's Results	YTD Results	PY2010 Targets	YTD % of Target PY2010
Annual Energy Savings Impacts (Net Generation Level)				
Residential (MWh	11,482	22,208	71,245	31.2%
Business (MWh)	3,179	9,241	61,370	15.1%
Peak Demand (kW)	4,881	10,723	23,126	46.4%
Total Resource Benefit	$17,089,717	$ 37,647,294	$ 148,596,954	25.3%
Island Equity (% of Energy Savings)				
Oahu	78.8%	78.3%	69%	+/-20% Met
Maui County	10.9%	11.6%	19%	<-20%
Hawaii County	10.3%	10.1%	11%	+/-20% Met
Market Transformation (Applications Completed)				
State Building Demo Projects	0	0	10	0.0%
Launch RCx Program	Not Met	Not Met	01/01/11	Not Met
Community Partnership	0	0	4	0.0%
Financials[1]				
Total Non-Incentives Billed[1]	$ 417,152.47	$1,635,623.95	$ 4,806,754	34.0%
Total Incentives Billed	$1,635,451.08	$4,177,281.15	$13,747,380	30.3%
Total Program Costs Billed	$2,052,603.55	$5,812,905.10	$18,554,134	31.3%

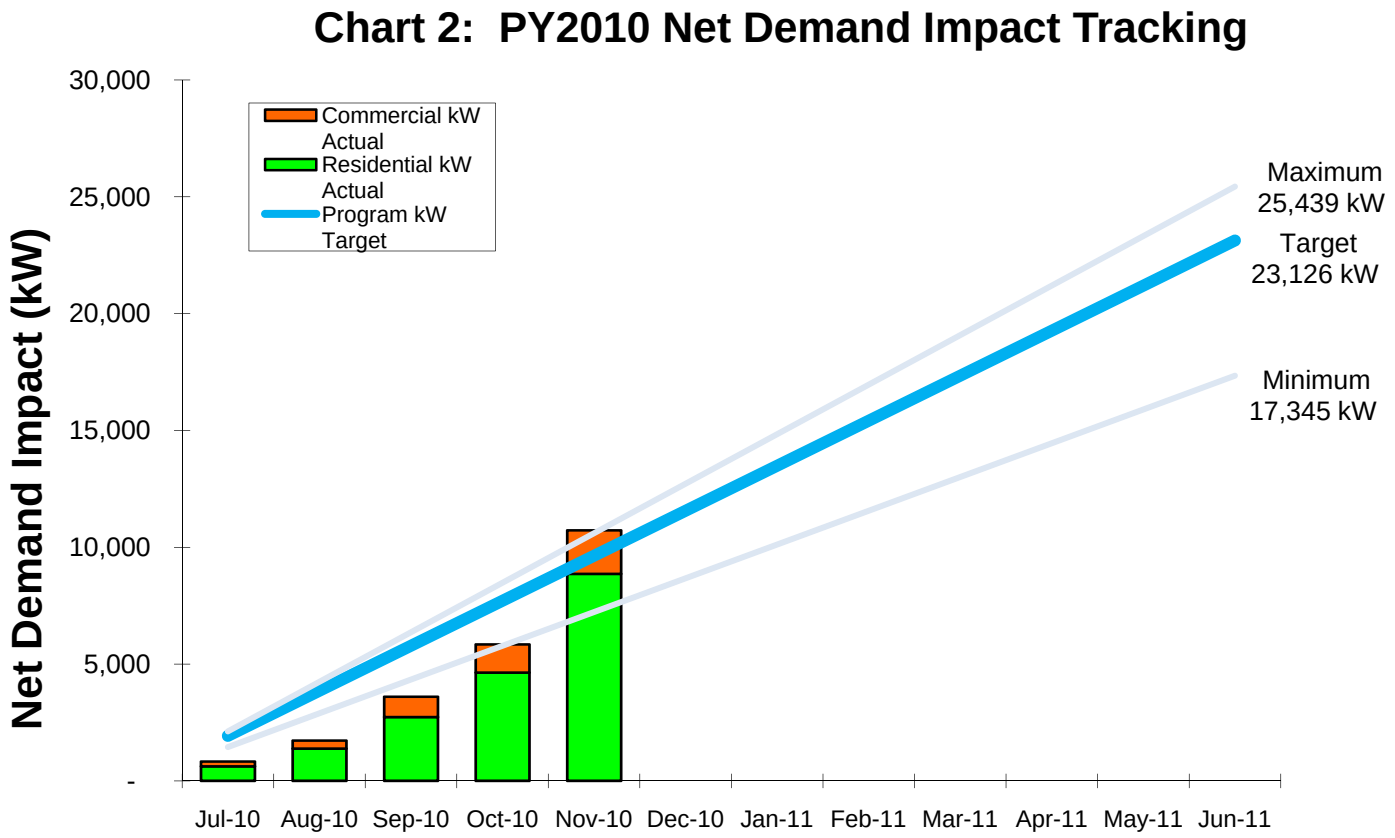
[1]Total Budget reflects the deduction of $700,000 in performance incentive fees for the award pool.

Performance Charts

1. *PY2010 Incentive Payment Tracking* - This Chart shows the paid versus target incentives for the PY2010.

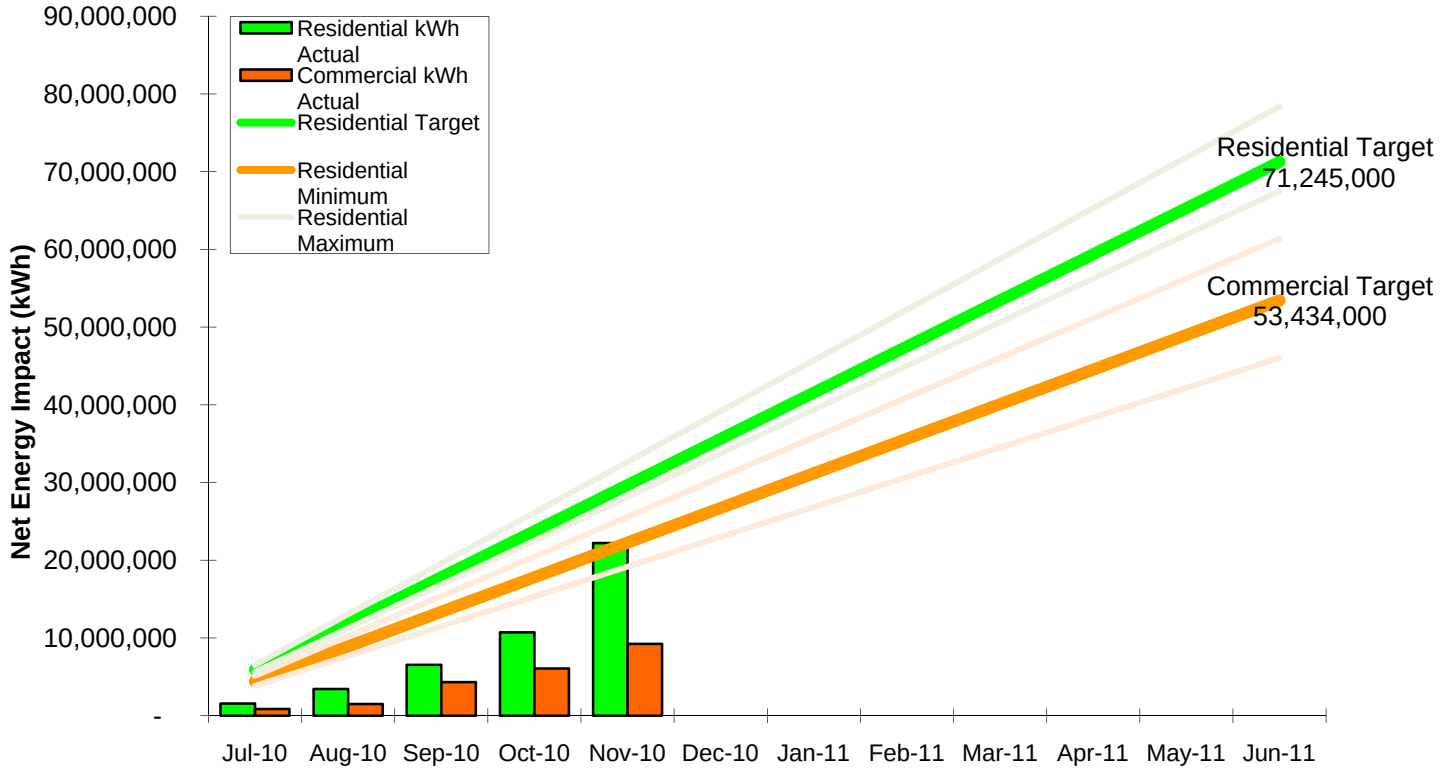


2. *PY2010 Demand Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010.



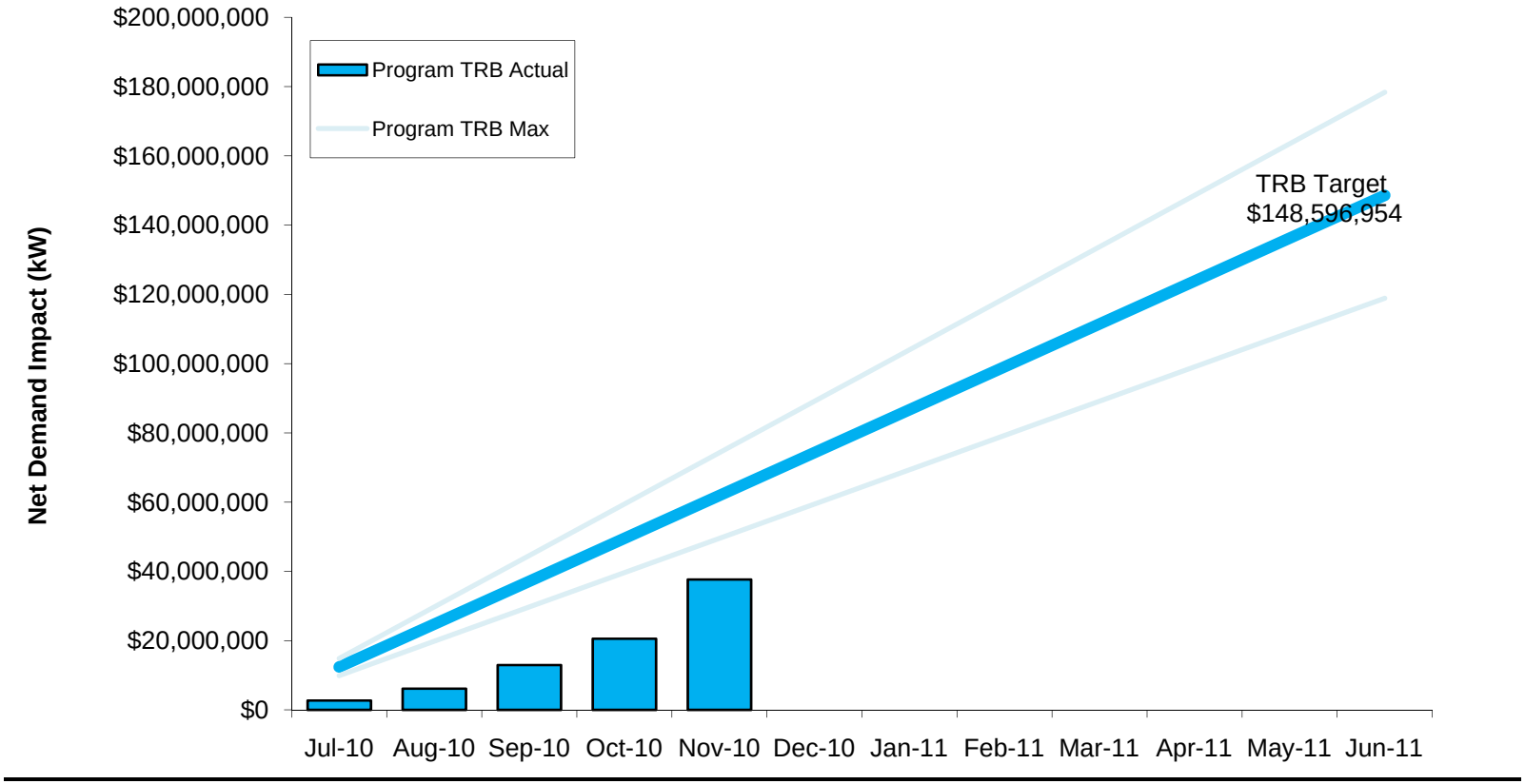
3. *PY2010 Energy Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010

Chart 3: PY2010 Net Energy Impact Tracking



4. *PY2010 Energy Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010.

Chart 4: PY2010 Total Resource Benefit Impact Tracking



Outreach Highlights

The following Advertising & Marketing Outreach activities took place this month.

Media Outlet	Subject	Date
Social media	Hot Water, Cool Rates program website	Various
HE website, Social media	Pioneer Electric Annual Blowout Trade Show	11/4/2010
HE website, Social media	Winner of Halloween costume contest announcement	11/4 – 11/5/2010
HE website, Social media	11th Annual Pacific Building Trade Expo	Various
Social media	Photos: Kalaeloa Solar One & Hot Water, Cool Rates	11/8/2010
HE website, Social media	Rebuild Hawaii Consortium quarterly meeting	11/10/2010
Radio (KWAI 1080 AM)	The Solar Guy: Hot Water, Cool Rates	11/13/2010
HE website, Social media	Chaminade Greenswords CFL exchange	Various
HE website, Social media	UH-Hilo CFL exchange	11/18/2010
Radio (KWAI 1080 AM)	The Solar Guy: Energy Efficiency Portfolio Standard (EEPS)	11/20/2010
HE website, Social media	SAIC CEO visit press release photos	11/24/2010
HE website, Social media	The light is going out on incandescent lamps (NEMA Lighting Options for your Home brochure)	11/22/2010
HE website, Social media	This holiday season, give the gift of savings with ENERGYSTAR®	11/23/2010
HE website, Social media	Hawaii Home Energy Makeover third airing announcement + webisodes posted on website	11/24/2010
HE website, Social media	Hawaii Energy partners with DHHL, CNHA to offer $250 rebates for ENERGYSTAR® washing machines	11/29/2010
Web	The Hawaii Independent – Council for Native Hawaiian Advancement joins effort to reduce grid dependency	11/30/2010
Website	Hawaiiusafcu.com – Solar Loan Program banner	Various
Website	www.hawaiinational.com - Solar Water Heater Loan Program	Various

The following Education & Training Outreach activities took place this month.

Event	Attendees	Subject	Count	Date
Pioneer Electric Open House	Industrial contractors	Introduced program and provided energy savings suggestions	200	11/4
AIA/CSI Expo	Architects/contractors	Introduced program	1,000	11/9
PAMCA meeting	Plumbing & mechanical contractors	Introduced program	20	11/24

The following Island Equity Outreach activities took place this month.

Outreach	Island	Subject
Four Seasons Wailea	Maui	Post inspection and reviewed future projects
Ceramic Tile	Maui	Introduced program and reviewed current projects
Waikoloa Beach Resort	Hawaii	Post inspection and discussed upcoming projects
Hilton Bay Club	Hawaii	Post inspection and discussed upcoming projects
Kings Land Resort	Hawaii	Post inspection and discussed upcoming projects
Mauna Lani Resort	Hawaii	Introduced LED light program and discussed possible projects
King Kamehameha Hotel	Hawaii	Discussed possible projects
Various small businesses	Hawaii	Introduced program to 26 business owners
School and church	Hawaii	Lighting audit
Waikiki Shopping Plaza	Oahu	Provided information about potential rebate opportunities
900 Nimitz Highway	Oahu	Provided information about potential rebate opportunities
Energy Industries	Oahu	Discussed potential projects
Office of Community Services	Oahu	Discussed RLI program and potential rebates
Denny's, Pearlridge	Oahu	Introduced program
Marriott Beachcomber Hotel	Oahu	Introduced program
Hokua AOAO	Oahu	Discussed energy efficiency suggestions
Pakalana	Oahu	Introduced program
Sky Lights Hawaii	Oahu	Discussed program and products for potential participation in rebate program
Kahala Hotel & Resort	Oahu	Assisted in planning new energy study
Alana Double Tree	Oahu	Discussed potential fan coil project and possible rebates
Waikiki Sand Villa	Oahu	Provided overview of rebate opportunities

Budget Status Table

	November Allocations	Allocations to Date	PY10 Revision 2a	Percent Spent
Residential Programs				
Residential Program Ops and Management				
REEM	141,091.88	518,869.20	1,665,602	31%
RLI	5,984.98	36,049.47	57,300	63%
New	3,236.48	3,236.48	324,700	1%
Total Residential Programs	150,313.34	558,155.15	2,047,602	27%
Market Evaluation	2,985.00	6,345.00	97,176	7%
Outreach	47,524.30	102,052.90	142,866	71%
Total Residential Non-Incentive	200,822.64	666,553.05	2,287,644	29%
Residential Incentives		-		
REEM	960,207.44	2,639,433.33	5,008,370	53%
RLI	181,494.64	224,984.82	290,750	77%
New	-	-	887,200	0%
Total Residential Incentives	1,141,702.08	2,864,418.15	6,186,320	46%
Total Residential Programs	**1,342,524.72**	**3,530,971.20**	**8,473,964**	**42%**
Business (C&I) Programs				
Business Programs Ops and Management				
BEEM	71,780.68	273,684.57	481,340	57%
CBEEM	29,475.64	157,843.89	188,309	84%
New	1,734.54	13,811.68	188,880	7%
Total Business Programs	102,990.86	445,340.14	858,529	52%
Market Evaluation	3,256.76	45,723.98	118,771	38%
Outreach	61,573.93	140,308.68	174,612	80%
Total Business Non-Incentive	167,821.55	631,372.80	1,151,912	55%
Business Incentives				
BEEM	388,706.00	1,070,778.00	5,138,670	21%
CBEEM	105,043.00	242,085.00	1,115,390	22%
New	-	-	1,307,000	0%
Total Business Incentives	493,749.00	1,312,863.00	7,561,060	17%
Total Business Programs	**661,570.55**	**1,944,235.80**	**8,712,972**	**22%**
Total Services and Initiatives	**2,004,095.27**	**5,475,207.00**	**17,186,936**	**32%**
Supporting Services				
Supporting Services	85,444.94	542,637.45	1,150,896	47%
Total Supporting Services	**85,444.94**	**542,637.45**	**1,150,896**	**47%**
Subtotal Non-Incentive (Prior to Tax)	454,089.13	1,840,563.30	4,590,452	40%
[1] Less Performance Incentives (Prior to Tax)	(55,708.36)	(278,541.80)	(700,000)	
Subtotal Non-Incentive Less Performance Incentives (PI)	398,380.77	1,562,021.50	3,890,452	
[2] Total Tax on Non-Incentive Without PI	18,771.70	73,602.45	216,302	
Performance Incentive Award (Inclusive of Tax)			700,000	
Subtotal Non-Incentive Billed	*417,152.47*	*1,635,623.95*	*4,806,754*	
Subtotal Residential and Business Customer Incentives	*1,635,451.08*	*4,177,281.15*	*13,747,380*	
		-		
Sub-Total Estimated Contractor Costs	*2,052,603.55*	*5,812,905.10*	*18,554,134*	
Performance Awards in Excess of Target Levels			133,000	
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels			**18,687,134**	

[1] Budget includes ($31,500) in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

[2] Budget includes $31,500 in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

Executive Summary

Due to the holidays, this was a slow month at the end of a somewhat lackluster calendar year. During December, Hawaii Energy management met with representatives of the Hawaii Solar Energy Association to discuss potential enhancements to the solar hot water program to help improve unusually slow solar installations for the last six months. We are considering the possibility of significant increases in incentive levels during the coming months to help the flagship solar hot water program and contractor base stay healthy, if the current negative trend continues.

Additionally, we completed plans for our new Central Plant Optimization Program incentive offering which will be introduced after the New Year, also to shore up slow commercial efficiency upgrades caused in part by the stagnant economy. We also initiated a new commercial sub-metering incentive focused on master-metered condominiums and other commercial facilities that might benefit from real-time metering.

Hawaii Energy also coordinated a Consortium for Energy Efficiency (CEE) - sponsored webinar titled “partnering with water utilities.” Participants included Board of Water Supply and water utilities from Honolulu, Maui and Hawaii counties. This free webinar helped to build ally collaboration in an area where we had not previously made much penetration beyond distributing restricted flow showerheads and water conservation educational materials as part of our solar hot water program.

We also developed the software, rules and standards for our new Hawaii Energy website “Forum” section and engaged two part-time energy commentators to serve as Forum monitors. We expect to make a soft start of the Forum early in the New Year. We hope this new outreach and education effort will bring more people to a personal awareness of the serious energy issues facing the state.

Finally, we have begun to see a disturbing trend of reduced expenditures for energy efficiency measures across many parts of our Program, but most significantly in our commercial and small business sectors. This will be the subject of additional scrutiny in the coming months to see what special measures we can introduce to reverse this trend.

Key Performance Metrics

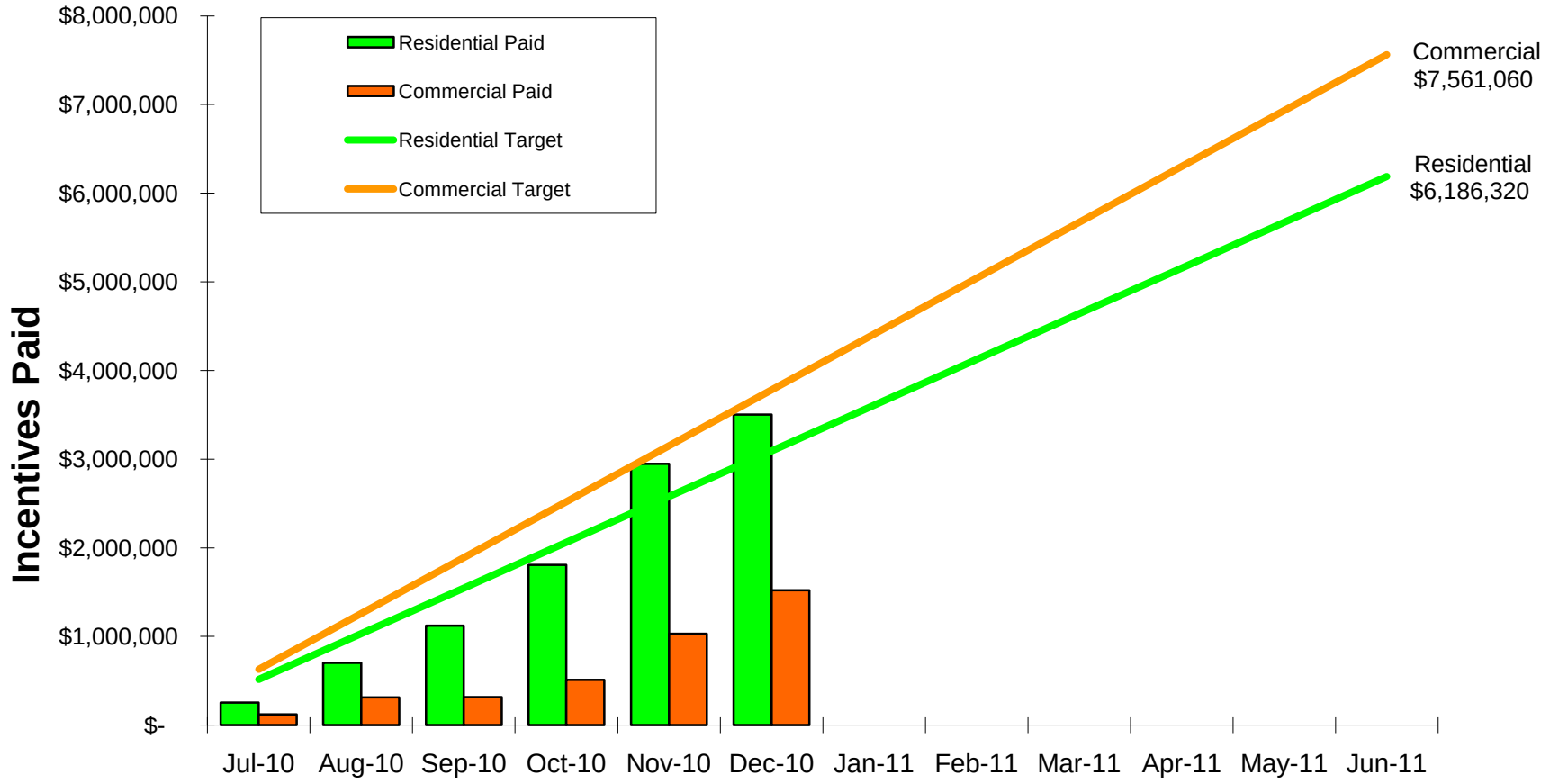
Key Performance Metrics	Month's Results	YTD Results	PY2010 Targets	YTD % of Target PY2010
Annual Energy Savings Impacts (Net Generation Level)				
Residential (MWh)	4,371	24,629 [1]	71,245	34.6%
Business (MWh)	3,975	13,129 [1]	61,370	21.4%
Peak Demand (kW)	2,524	12,959 [1]	23,126	56.0%
Total Resource Benefit	$11,970,833	$49,618,863	$ 148,596,954	33.4%
Island Equity (% of Energy Savings)				
Oahu	84%	80%	69%	+/-20% Met
Maui County	9%	11%	19%	</-20%
Hawaii County	7%	9%	11%	+/-20% Met
Market Transformation (Applications Completed)				
State Building Demo Projects	0	0	10	0.0%
LaunchRCx Program[2]	Met	Met	01/01/11	Met
Community Partnership	0	1[3]	4	25%
Financials[1]				
Total Non-Incentives Billed[4]	$364,864	$2,000,488	$ 4,106,754	41.6%
Total Incentives Billed	$1,048,586	$5,474,276	$13,747,380	39.8%
Total Program Costs Billed	$1,413,450	$7,474,763	$17,854,134	41.9%

[1] BEEM was reduced by 12.296 kW and 87.27 MWh in November for SEP Refrigerators. REEM was reduced by 274.561 kW and 1,948.90 MWh in November for SEP Refrigerators, TRB and incentives were not changed.
[2] See attached for RCx Program Description (Central Plant Optimization Competition).
[3] Council for Native Hawaiian Advancement (CNHA) Memorandum of Agreement (MOA) as of 10/27/2010
[4] Total Budget reflects the deduction of $700,000 in performance incentive fees for the award pool.

Performance Charts

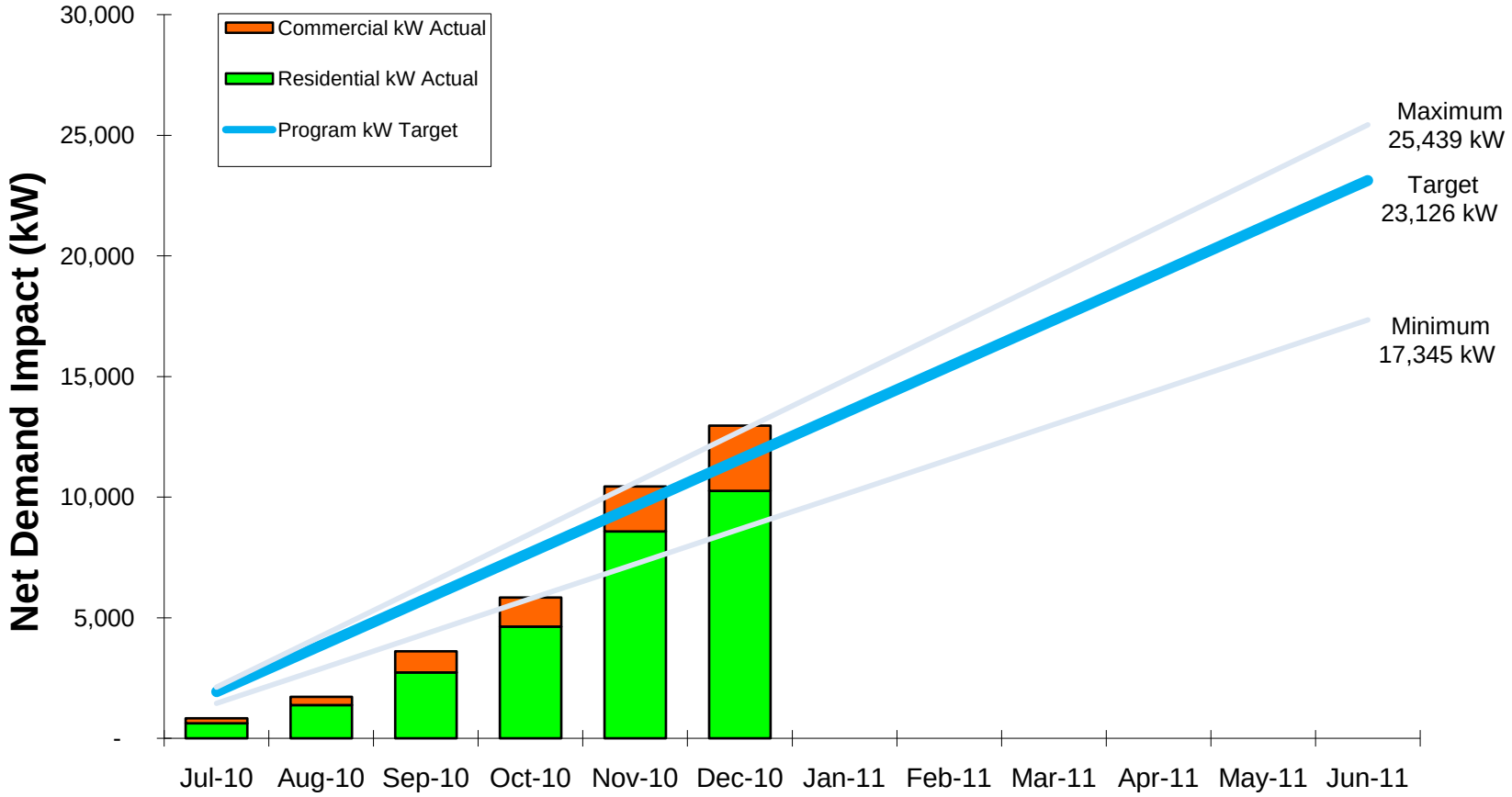
1. *PY2010 Incentive Payment Tracking* - This Chart shows the paid versus target incentives for the PY2010.

Chart 1: PY2010 Incentive Tracking



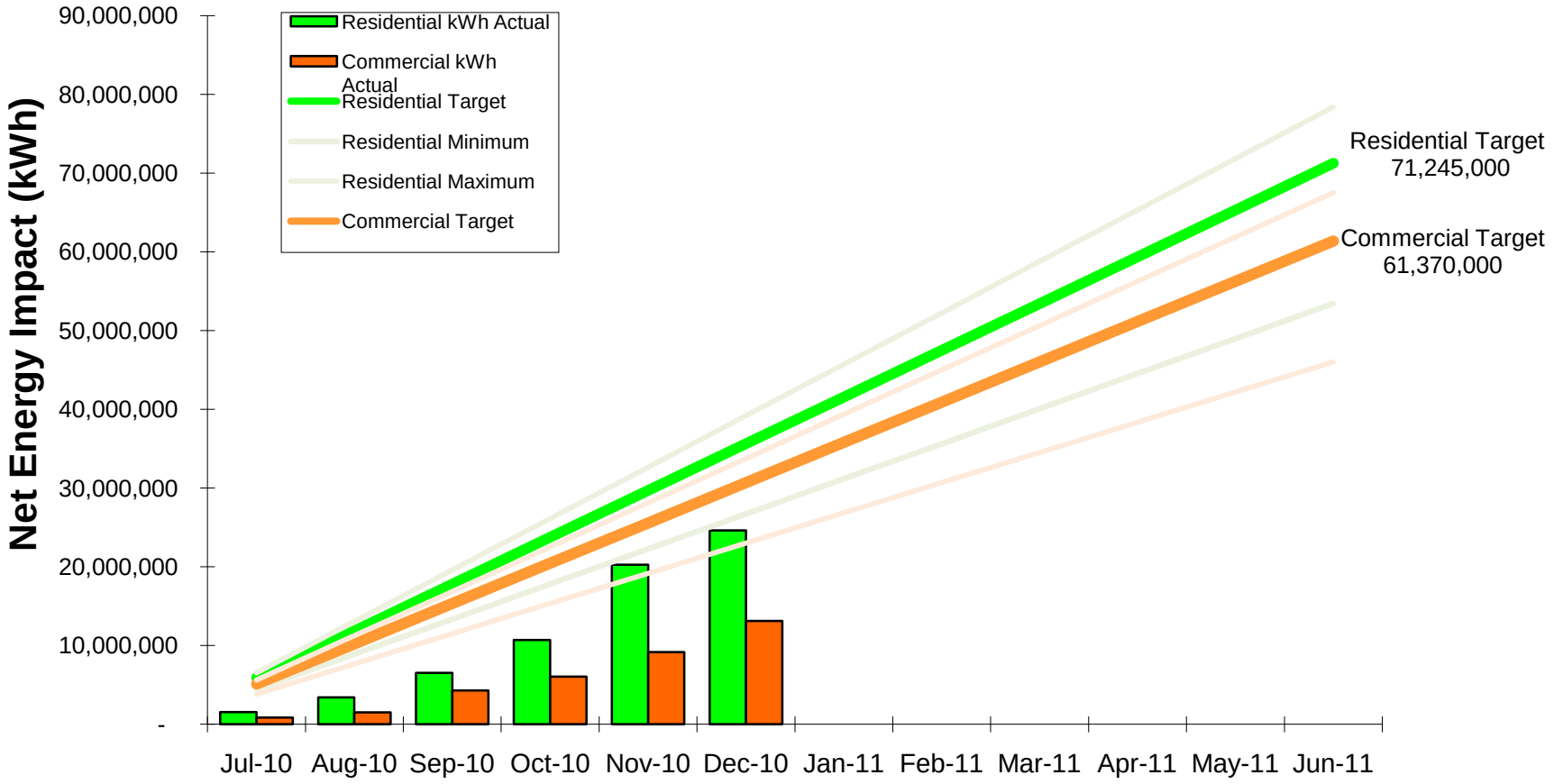
2. *PY2010 Net Demand Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010.

Chart 2: PY2010 Net Demand Impact Tracking



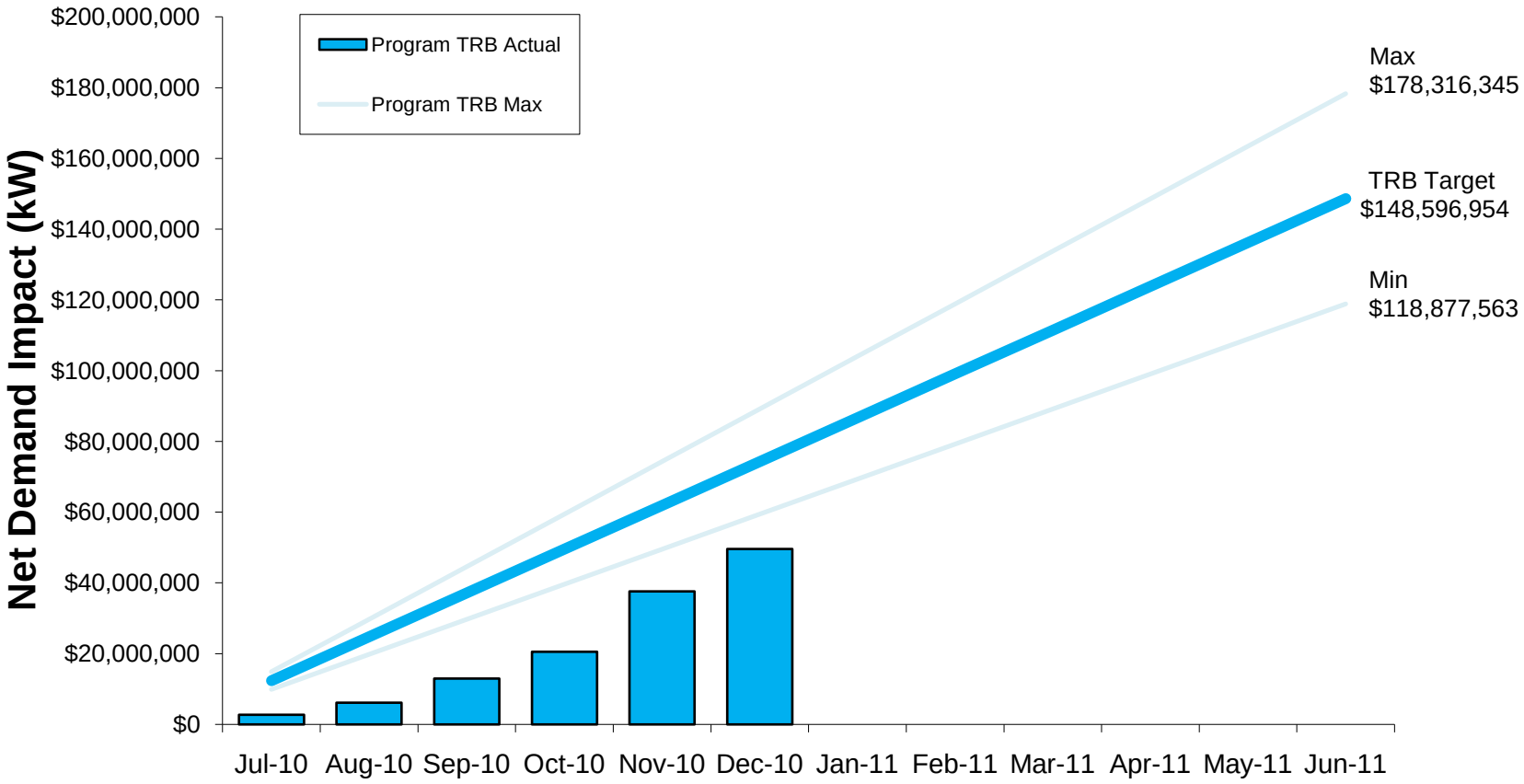
3. *PY2010 Net Energy Impact Tracking* - This Chart shows the net energy impact versus target for PY2010.

Chart 3: PY2010 Net Energy Impact Tracking



4. *PY2010 Total Resource Benefit Impact Tracking* - This Chart shows the total resource benefit impact versus target for PY2010.

Chart 4: PY2010 Total Resource Benefit Impact Tracking



Outreach Highlights

The following Advertising & Marketing Outreach activities took place this month.

Media Outlet	Subject	Date
Social media	Hot Water, Cool Rates program website	Various
Honolulu Magazine	Oil ad	December issue
Hawaii Business Magazine	Oil ad	December issue
Hawaii Home + Remodeling	Switch & Save CFL ad	December issue
HE website, Social media	Developed software, rules and standards for "Forum" section	December
HE website, Social media	Pahoa High & Intermediate School CFL exchange	12/4/10
HE website, Social media	Hawaii Air National Guard Family Day	12/5/10
Hawaii News Now	Hawaii Energy Program	12/6/10
HE website, Social media	Hawaii Home Energy Makeover	12/11/10
HE website, Social media	Walmart, Kailua-Kona CFL giveaway	12/12/10
HE website, Social media	Gifts that Keep on Giving: Hawaii Energy's Top 5 Energy Saving Gift list	12/15/10
The Kukui High Courier	Hot Water, Cool Rates page	12/16/10
HE website, Social media	Hilo Bay CFL Giveaway	12/18/10
KHON2	Be Green 2: combining recycling & fundraising	12/21/10
Star-Advertiser	Hawaii USA FCU ad – Hawaii USA Solar Loan Program	12/24/10
HE website, Social media	The Event in the Park	12/30/10
Star-Advertiser	Power bills going up a few cents	12/30/10

The following Education & Training Outreach activities took place this month.

Event	Attendees	Subject	Count	Date
High Tech Lights lighting presentation	Facility Managers, Building Engineers, AOAO Managers	Lighting program	30	12/3
Hickam National Guard Family Day	National Guard families	Residential program	300	12/5
Consortium for Energy Efficiency (CEE)	Water District representatives from Oahu, Maui and Hawaii counties	Partnering with water utilities	4	12/7
Olino Energy (vendor)	Company representative	LED lighting program.	1	12/14
Hawaii Solar Energy Association (HSEA)	Company representatives	Solar Water Heating Program Incentives	3	12/14
Sonovia	Company representatives	LED lighting program	3	12/17

The following Island Equity Outreach activities took place this month.

Outreach	Island	Subject
Catholic Charities	Hawaii	CFL distribution and introduce program
Stand Up Paddles World Championship	Hawaii	CFL distribution and introduce program
Ala Moana Shopping Center	Oahu	Discussed potential projects
U-Haul	Oahu	Lighting audit & discussed Small Business Direct Install program
Schofield Barracks	Oahu	Discussed new projects
Office of Community Services	Oahu	Discussion of RLI program
Keck Observatory	Hawaii	Introduced program
West Hawaii Civic Center	Hawaii	Reviewed current project
Matsuyama Market	Hawaii	Introduced program
Jacks Dice Shop	Hawaii	Introduced LED lighting program
Konawaena Go Green Club	Hawaii	CFL distribution and introduce program
WalMart	Hawaii	CFL distribution and introduced program
Ritz Carlton Kapalua	Maui	Introduced program
Pentair Pool Pumps	Oahu	Introduced program
La Tour Café	Oahu	Introduced program
850 Nimitz	Oahu	Introduced program
Easter Seal	Oahu	Discussed potential projects
Easter Seal	Maui	Discussed potential projects
Easter Seal	Hawaii	Discussed potential projects
Pahoa High & Intermediate School	Hawaii	CFL distribution and introduce program
Da Tabura	Oahu	Introduce program
UH Extension & 4-H Club	Hawaii	CFL distribution and introduce program
Tanaka Saimin	Oahu	Introduce program

Budget Status Table

	December Allocations	Allocations to Date	PY10 Revision 2a	Percent Spent
Residential Programs				
Residential Program Ops and Management				
REEM	128,174.18	647,043.38	1,665,602	39%
RLI	6,197.12	42,246.59	57,300	74%
New	4,793.62	8,030.10	324,700.00	2%
Total Residential Programs	139,164.92	697,320.07	2,047,602	34%
Market Evaluation	4,925.45	11,270.45	97,176	12%
Outreach	29,179.17	131,232.07	142,866	92%
Total Residential Non-Incentive	173,269.54	839,822.59	2,287,644.00	37%
Residential Incentives				
[1/2] REEM	517,718.25	3,405,559.54	5,008,370	68%
RLI	39,974.13	264,958.95	290,750	91%
New	-	-	887,200	0%
Total Residential Incentives	557,692.38	3,670,518.49	6,186,320	59%
Total Residential Programs	730,961.92	4,510,341.08	8,473,964	53%
Business (C&I) Programs				
Business Programs Ops and Management				
BEEM	78,809.43	352,494.00	481,340	73%
CBEEM	21,831.01	179,674.90	188,309	95%
New	1,450.68	15,262.36	188,880	8%
Total Business Programs	102,091.12	547,431.26	858,529.00	64%
Market Evaluation	6,197.08	51,921.06	118,771.00	44%
Outreach	28,264.27	168,572.95	174,612	97%
Total Business Non-Incentive	136,552.47	767,925.27	1,151,912.00	67%
Business Incentives				
[1] BEEM	418,425.00	1,489,203.00	5,138,670	29%
CBEEM	72,469.00	314,554.00	1,115,390	28%
New	-	-	1,307,000	0%
Total Business Incentives	490,894.00	1,803,757.00	7,561,060	24%
Total Business Programs	627,446.47	2,571,682.27	8,712,972	30%
Total Services and Initiatives	1,358,408.39	7,082,023.35	17,186,936	41%
Supporting Services				
Supporting Services	94,331.39	636,968.84	1,150,896	55%
Total Supporting Services	94,331.39	636,968.84	1,150,896	55%
Subtotal Non-Incentive (Prior to Tax)	404,153.40	2,244,716.70	4,590,452	49%
[3] Less Performance Incentives (Prior to Tax)	(55,708.36)	(334,250.16)	(700,000)	
Subtotal Non-Incentive Less Performance Incentives (PI)	348,445.04	1,910,466.54	3,890,452	
[4] Total Tax on Non-Incentive Without PI	16,418.73	90,021.18	216,302	
Performance Incentive Award (Inclusive of Tax)			700,000	
Subtotal Non-Incentive Billed	364,863.77	2,000,487.72	4,806,754	
Subtotal Residential and Business Customer Incentives	1,048,586.38	5,474,275.49	13,747,380	
Sub-Total Estimated Contractor Costs	1,413,450.15	7,474,763.21	18,554,134	
Performance Awards in Excess of Target Levels			133,000	
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels			18,687,134	

[1] Reallocation of BEEM and REEM incentives due to misidentified meter classification that occurred from July through December are captured in this month's results. Details are provided with the invoice backup.

[2] REEM incentive cumulative includes the delayed CFL transactions that were accounted for in PY10 but were applicable for savings in PY09

[3] Budget includes ($31,500) in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

[4] Budget includes $31,500 in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

CENTRAL PLANT OPTIMIZATION COMPETITION
Program Description

Looking for Commitment

Hawaii Energy is looking for commercial building owners with a commitment to improving their building operations through a systematic approach of installing critical metering, performing retro-commissioning activities to identify and optimize system operations, and then measuring and sharing the results and lessons learned.

Install Permanent Critical System Efficiency Metering

"If you don't measure it, you can't manage it," the program will provide you 100% funding to install or upgrade permanent metering and monitoring systems to provide the information needed to determine the performance of each component of the central plant system. Evaluation of the data will determine the performance levels of each system component as well as characterizing the system loads in the building.

We will use the data to determine a baseline performance numbers and measure the actual energy reduction results of the actions taken and provide the performance incentives.

Perform System Commissioning and Documentation

While the metering is collecting baseline data, we will work with your team and pay for 50% of the fees for an energy professional to investigate the central plant systems, determine metering requirements, and use the data collected to better understand how they are operating. We can then have the team determine and document the desired sequence of operations and develop the list of actionable near term and long term actions to improve the efficiency and system performance. Finally, we will work together to develop a training and maintenance plan to insure the persistence of the savings.

Commit and Implement System Improvement Measures

Now it is time to implement the recommended low-cost, no-cost measures and create the plans and commitments for the long term ones with paybacks with less than two years.

Measure, Reward and Share Performance Results

The performance improvements and energy reductions resulting from the measures will be documented, rewarded with financial incentives, and then shared via a competition with your peers to raise the level of central plant performance in Hawaii.

Ongoing Operations, Maintenance and Improvements

Now that the system is optimized, the team performs the operator training, executes the recommended maintenance activities, performs continuous monitoring of the system performance and continues to tune and refine the system operations.

Central Plant	***Optimization***	***Competition***
Central plants are critical to the ability to use facilities for their intended purpose and are complex, living entities.	*Training of operators and monitoring of critical parameters will insure systems are operating properly and maximize their performance potential*	*Competition ignites effort.* *It is through competition that once impossible levels of performance are achieved.*

CENTRAL PLANT OPTIMIZATION COMPETITION
Program Description

Eligible Facilities

Commercial Facilities on the Islands of Hawaii, Maui, Molokai, Lanai and Oahu with Central Plant Systems that have a reasonable potential of energy savings to be achieved through commissioning efforts.

Incentives and Responsibilities

All incentives are allocated on a first-come first served basis and are limited to the availability of allocated funds for the program year.

Incentive	Amount	Responsibilities
Systems Commissioning Program	50% incentive up to $0.20 per sq. ft.	• Preliminary Systems Review • Metering & Commissioning Plan • Development of Sequence of Operations • Recommended Operational Improvements • Recommended System Upgrades • Maintenance and Operations Plan • Operational Training • Owner commitment to implement recommendations and participate in the Optimization Competition
Metering System	100% incentive for approved metering equipment and data collection systems	• Access to performance data for five years. • Owner commitment to perform operational and system upgrade recommendations with less than 2 year paybacks up to the cost of the metering incentive within two years or forfeit metering incentive
Energy Reduction	$0.10 per kWh saved for one year	• 50% upon implementation • 25% for performance at sixth month • 25% for performance at one year

Process

- Contact Hawaii Energy to schedule a site visit to introduce the program to your team and then review your historical energy usage, central plant equipment and operations and maintenance.
- Hawaii Energy determines your eligibility for the program.
- Complete a Central Plant Optimization Competition application.
- Owner selects a Commissioning Agent and obtains fee proposal.
- Hawaii Energy award of Commissioning Agent incentive.
- Completion of preliminary systems review, metering plan and budget.
- Hawaii Energy award of metering incentive.
- Owner completes metering installation.
- Commissioning Agent completes investigation and makes recommendations.
- Hawaii Energy and Owner determine implementation commitments.
- Commissioning Agent verifies implementation is completed.
- Commissioning Agent completes system operations manuals and training.
- Hawaii Energy provides energy awards based on performance
- Hawaii Energy sharing of results and award of Central Plant Competition Awards

Hawaii Energy Efficiency Program

Quarterly Performance Report – 2nd Quarter PY10 (10/01/10 – 12/31/10)

Executive Summary

Activity Highlights

- Hosted a booth at six expositions for various residential audiences on Oahu during Energy Awareness month in October
- Completed planning and launched the new Central Plant Optimization Program incentive which has a focus on sub-metering condominiums and other commercial facilities to identify and implement efficiency and conservation measures to achieve maximum savings; this retro-commissioning (RcX) program was designed and launched to achieve one-third of our market transformation goal
- Developed the software, rules and standards for the new Hawaii Energy website and engaged two part time energy commentators as forum administrators
- Coordinated a Consortium for Energy Efficiency (CEE) sponsored webinar titled "Partnering with Water Utilities"
- Met with representatives of the Hawaii Solar Energy Association to discuss potential enhancements to the solar hot water program

Marketing Highlights

- Networked with non-profit allies and commercial customers at the 2010 Honou Awards
- Invited to speak at the following media outlets:
  - "The Solar Guy" radio Show to discuss "Hot Water, Cool Rates"
  - KWAI 1080 AM radio Show to discuss the "Energy Efficiency Portfolio Standard (EEPS)"
  - "Hawaii News Now" television show to discuss Hawaii Energy and its offerings

Report Card

- The following page is a report card reflecting our performance and strategic actions we are taking to improve our performance

Hawaii Energy Efficiency Program

Quarterly Performance Report – 2nd Quarter PY10 (10/01/10 – 12/31/10)

Performance Indicator	Q2 Results	YTD Results	PY10 Targets	Status	Strategic Actions Taken This Quarter	Strategic Changes for Next Quarter
Residential Savings (MWh)	20,043	33,766	71,245	G	• Took advantage of October as Energy Awareness month	• Enhance the solar hot water program
Business Savings (MWh)	8,908	13,240	61,370	Y	• Initiated a new commercial sub-metering incentive	• Increase LED lights distribution and outreach activities
Peak Demand (kW)	9,646	13,252	23,126	Y	• Increased outreach activities	• Increase business outreach activities
Total Resource Benefits (Est. in Millions)	$36.665	$53.586	$148.597	Y		• Focus on projects with larger resource benefit
Market Transformation -State Building Demo Project -Launch RcX Program -Community Partnership	 0 Met 1	 0 Met 1	 10 01/01/11 4	G	• Launched RcX program	• Initiate State Demo projects and more community partnerships
Island Equity *-Oahu County (Est.)* *-Maui County (Est.)* *-Hawaii Country (Est.)*	 84% 90% 7%	 8% 9% 7%	 69% 19% 11%	Y	• Increased CFL distribution and introduced programs on Hawaii	• Expand activities on Molokai and Maui
Budget *-Non- Incentive Billed* *-Incentive Billed*[1] *-Total Billed*	 $1,164,814 $3,811,901 $4,976,715	 $2,000,488 $5,474,275 $7,465,763	 $4,106,754 $13,747,380 $17,854,134	G	• Increased spend based on pending PY09 carryover	• Create greater push on business incentives

[1]*Incentive Billed includes $248,408.97 in CFLs that were billed this year but the savings were claimed in Program Year 2009 (PY09). The rebate transactions occurred during PY09 and savings were approved for the initial program year.*

Executive Summary Highlights

At the midpoint of Program Year 2010, it is clear that the commercial market is continuing to suffer from a very slow economy. Tourist counts are down and businesses - especially small businesses - are pulling back on capital improvements of any kind. It also appears that the increase the Program usually sees in solar water heater installations occurring at the end of the tax year did not occur in December as anticipated. This suggests that the solar water heater program may not be tracking to meet our PY2010 expectations. Both residential and commercial programs will require additional attention going forward.

In order to ignite more activity in the commercial market, Hawaii Energy is ramping up its efforts to help businesses reduce their energy costs. In addition to kicking off the 25%Installed Cost Enhanced Customized Program for Government and non-profit organizations this month, the Program also launched a "Central Plant Optimization Competition" which assists building managers with identifying opportunities to improve energy efficiencies in the operation and maintenance of their facilities. The Optimization program employs a systematic approach of installing critical metering, performing retro-commissioning activities to identify and optimize system operations, and then measuring and sharing the results and lessons learned.

This month, the Program also executed a "soft start" to our website Forum, giving our Forum moderators and website administrators a chance to work out the anticipated kinks in the process before formally encouraging the world to visit our Forum. We will test various Forum subjects and strategies to encourage participation. Participation is low thus far – as expected. Also, this month the Program started work on new residential programs that will improve Program energy savings performance going forward. These new programs include trade-up and bounty incentives that reward residential customers who turn- in for recycling old (inefficient) refrigerators, freezers and window air conditioners that are in use, but no longer needed.

Furthering our special island equity and ally support efforts, Hawaii Energy has partnered with the Kohala Center and Blue Planet Foundation in seeking additional community organizations or school groups to help exchange incandescent light bulbs for energy-saving compact florescent light (CFL) bulbs in hard-to-reach (HTR) areas. Twelve groups have already participated in the exchange for the Conserve Fundraise Learn (C.F.L.) Program.

Finally, this month as a party to the Energy Efficiency Portfolio Standard (EEPS) Docket, the Program submitted its Preliminary Statement of Position (PSOP) to the other parties. Next month, the parties will submit simultaneous information requests (IRs) to the other parties regarding the PSOPs. The Program is taking a more involved role in EEPS and is observing a large diversity of initial positions on the challenging issues.

Key Performance Metrics

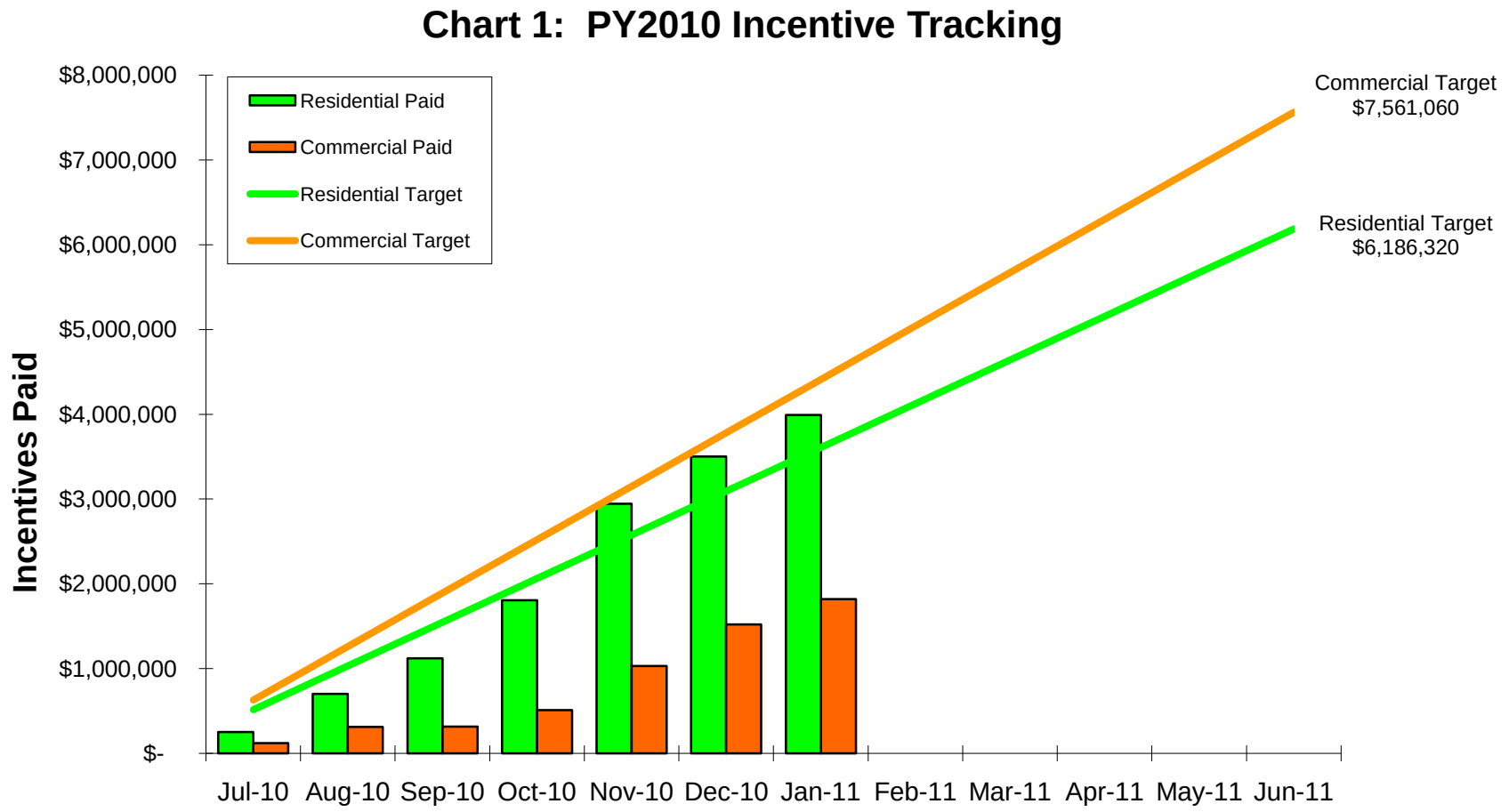
Key Performance Metrics	Month's Results	YTD Results	PY2010 Targets	YTD % of Target PY2010
Annual Energy Savings Impacts (Net Generation Level)				
Residential (MWh)[3]	2,994	27,623	71,245	38.8%
Business (MWh)	1,936	15,065	61,370	24.5%
Peak Demand (kW)	1,721	14,681	23,126	63.5%
Total Resource Benefit	$ 7,214,963	$ 56,833,826	$ 148,596,954	38.2%
Island Equity (% of Energy Savings)				
Oahu	71.7%	78.4%	69%	+/-20% Met
Maui County	15.3%	10.1%	19%	<-20%
Hawaii County	13.0%	11.4%	11%	+/-20% Met
Market Transformation (Applications Completed)				
State Building Demo Projects	0	0	10	0.0%
Launch RCx Program	Met	Met	1/1/2011	Met
Community Partnership[1]	0	1	4	25.0%
Financials[2]				
Total Non-Incentives Billed[2]	$ 503,948.90	$ 2,504,436.62	$ 4,106,754	60.9%
Total Incentives Billed[3]	$ 788,398.39	$ 6,262,673.88	$13,747,380	45.6%
Total Program Costs Billed	$ 1,292,347.29	$ 8,767,110.50	$17,854,134	49.1%

[1] Council for Native Hawaiian Advancement (CNHA) Memorandum of Agreement (MOA) as of 10/27/2010
[2] Total Budget reflects the deduction of $700,000 in performance incentive fees for the award pool.

[3] Due to an accounting shutdown, rebates were disbursed and savings were claimed for the 25% PBFA portion of 3 Solar Interest Buy Down incentives (total PBFA value of $750). They were not included on the invoice but will be included on the February invoice.

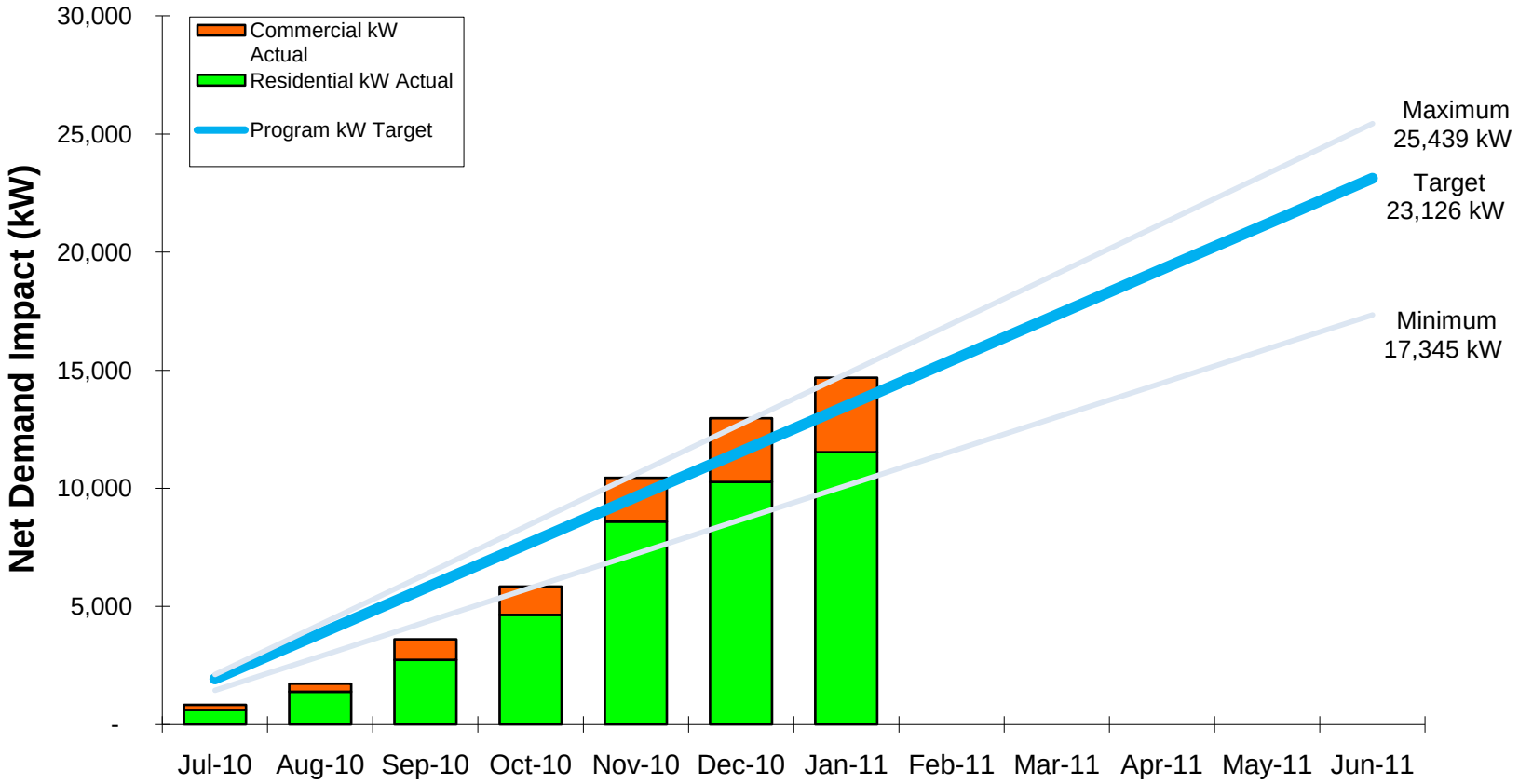
Performance Charts

1. *PY2010 Incentive Payment Tracking* - This Chart shows the paid versus target incentives for the PY2010.



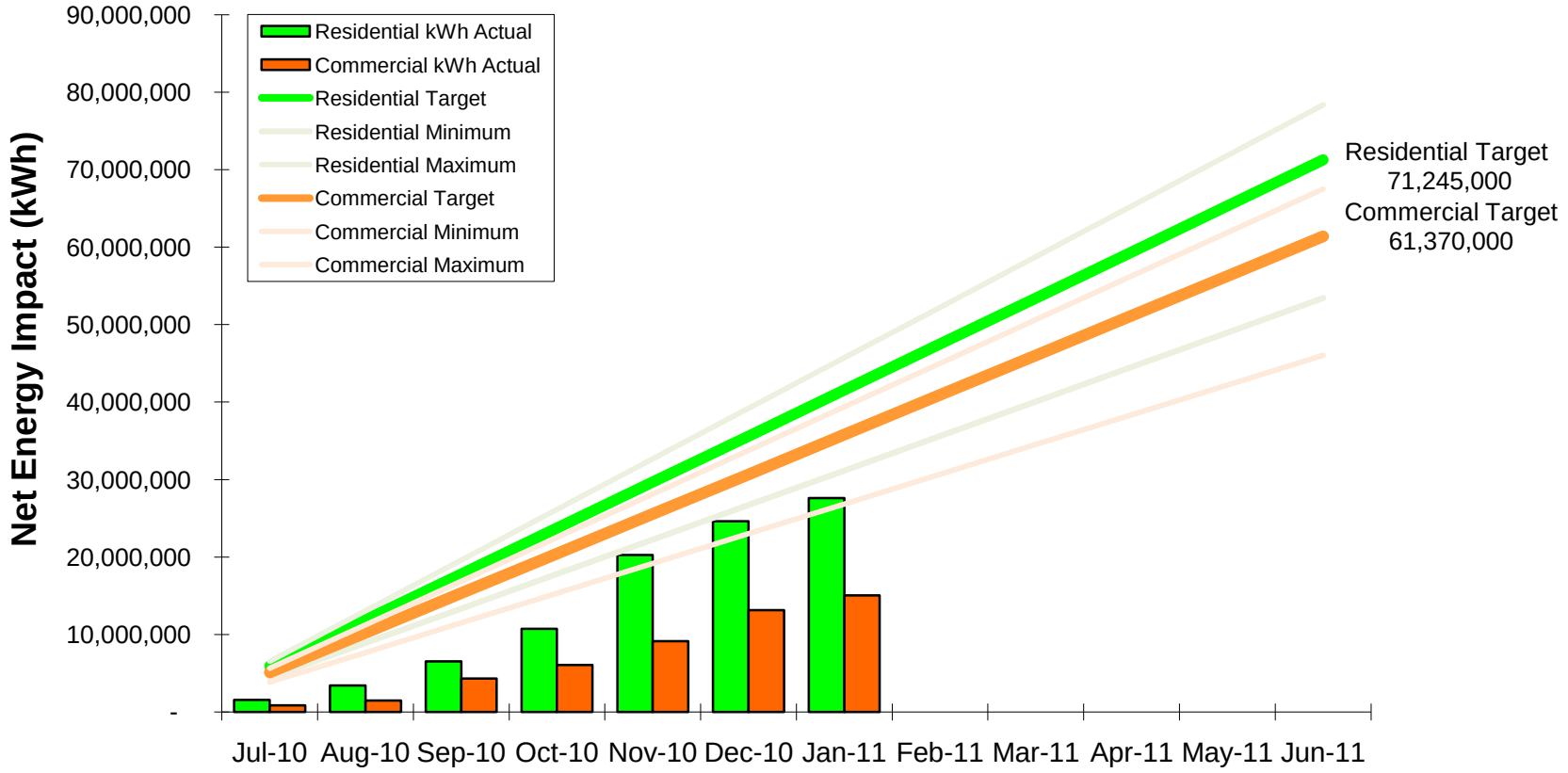
2. *PY2010 Net Demand Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010.

Chart 2: PY2010 Net Demand Impact Tracking



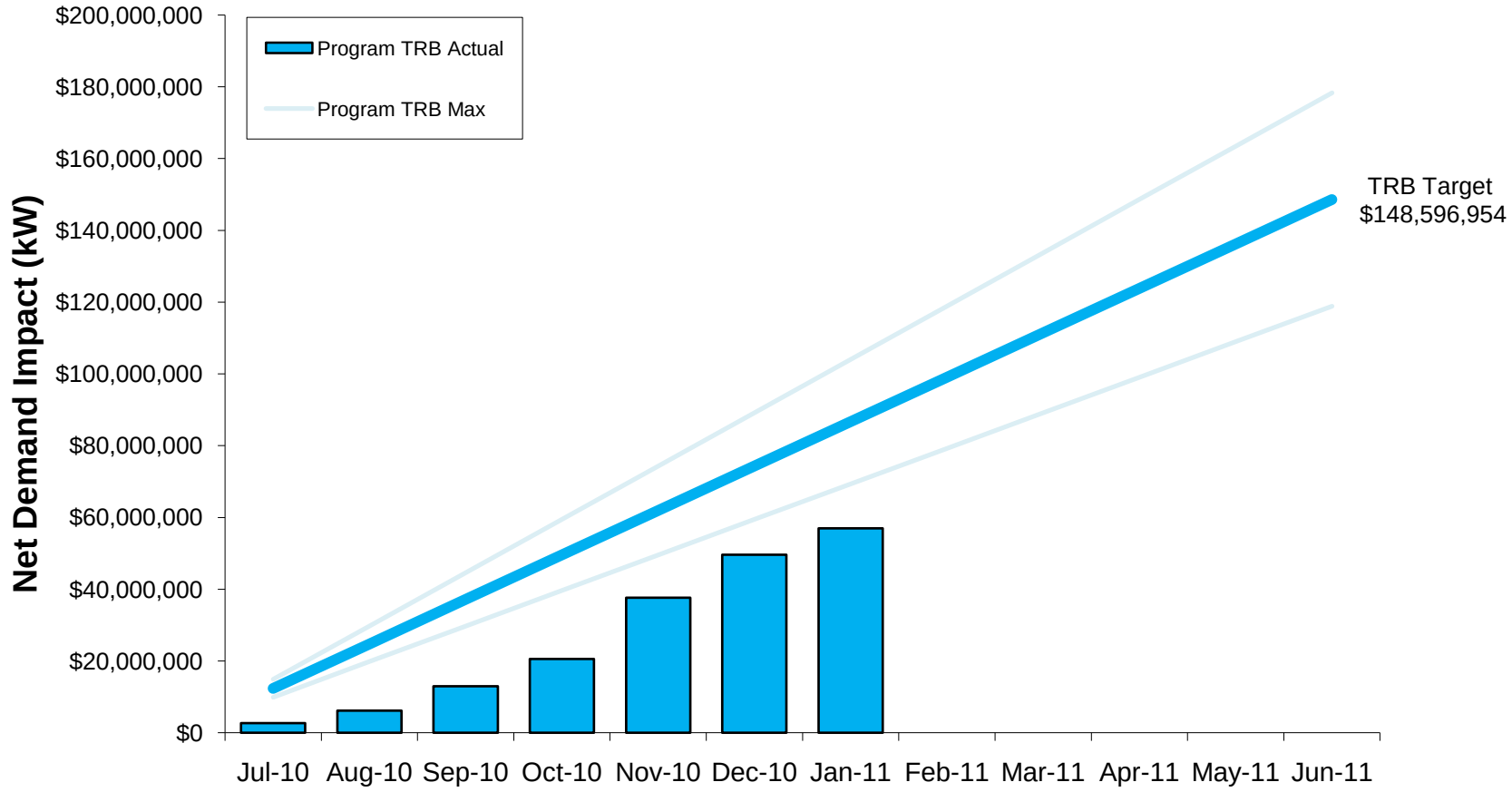
3. *PY2010 Net Energy Impact Tracking* - This Chart shows the net energy impact versus target for PY2010.

Chart 3: PY2010 Net Energy Impact Tracking



4. *PY2010 Total Resource Benefit Impact Tracking* - This Chart shows the total resource benefit impact versus target for PY2010.

Chart 4: PY2010 Total Resource Benefit Impact Tracking



Outreach Highlights

The following Publicity, Advertising, & Marketing Outreach activities took place this month.

Media Outlet	Subject	Date
Hawaii Business, Hawaii Home & Remodeling	Oil ad	1/2011
Web	Solar Financing Options – Blue Planet Foundation	1/2011 to present
Web	Conserve Fundraise Learn (C.F.L) Program – The Kohala Center	1/2011 to present
Star-Advertiser	HECO request to recoup $1.4M in transition fees rejected	1/1/11
Star-Advertiser	Green Financing Makes Solar A Hot Option for 2011 (FHB advertorial)	1/2/11
Social media, web	Rebuild Hawaii Consortium quarterly meeting	1/5/11
Star-Advertiser	Homebuilders skirt solar law	1/9/11
Hawaii 24/7	Family Support Hawaii free light bulb and book exchange	1/11/11
KPUA	Hawaiians get help to buy energy efficient washers	1/14/11
KHON2	Hawaiians get help to buy energy efficient washers	1/14/11
Hawaii Tribune-Herald	Introduce CFL exchange	1/20/11

The following Education & Training Outreach events took place this month.

Outreach Event	Audience	Subject	Count	Date
Family Support Services of West Hawaii	Staff	CFL distribution and program introduction	10	01/03/11
Family Support Services of West Hawaii, Community Play Group	50 families	CFL distribution and program introduction	100	01/05/11
Honaunau Elementary	Grades 4 - 5	CFL distribution and program introduction	45	01/10/11
High Tech Lighting	Facility managers	LED lighting and program introduction	30	01/11/11
Family Support Services of West Hawaii, Community Play Group	50 families	CFL distribution and program introduction	100	01/12/11
Energy Efficiency and Auditing Partnership Workshop	HCEOC, County of Hawaii, Friends of NELHA, The Kohala Center	Energy efficiency and auditing partnership workshop	7	01/13/11
Honokaa High School Future Farmers of America	Honokaa FFA students	CFL distribution and program introduction	25	01/21/11
Ke Ana Laahana PCS, Hui Mauli Pono	4H club, middle school students	CFL distribution and program introduction	30	01/21/11
Energy Policy Forum at State Capitol	Politicians and trade allies, renewable contractors	Program introduction	80	01/22/11
Pahala Southside Volleyball Club	Southside Volleyball Club parents and students	CFL bulb exchange and program introduction	7	01/28/11
Rotary Club Meeting at Pearl Country Club	Retirees, engineers, businessmen	Residential and commercial program introduction	20	01/28/11
Naalehu School	Grades 4, 5, 6	CFL distribution and program introduction	125	01/28/11

The following Island Equity Outreach activities took place this month.

Equity Outreach Activity	Island	Subject
WM Keck Observatory	Hawaii	Solar water heating
Outrigger Keahou Beach	Hawaii	Project discussion
Villages at Mauna Lani	Hawaii	Project discussion
Marriott Waikaloa Beach	Hawaii	Project discussion
Hilo Hawaiian	Hawaii	Program introduction
T & T Electrical	Hawaii	Program introduction
Naniloa Hotel	Hawaii	Program introduction and project discussion
Kamehameha Schools, Keeau	Hawaii	Project discussion
Allana Buick & Bers	Maui	Program introduction
Green Building LLC	Maui	Program introduction
Maui Wastewater	Maui	Program introduction
Maui Community College	Maui	Project discussion
DOT Honolulu Airport	Oahu	Program introduction and project discussion
Wahiawa General Hospital	Oahu	Project discussion
Moana Pacific	Oahu	Project discussion
Koolani AOAO	Oahu	Project discussion
21st Century Lighting	Oahu	Program introduction
UH Facilities Management	Oahu	Project discussion
Keola Lai	Oahu	Project discussion
Harbor Court	Oahu	Project discussion
Aston Waikiki	Oahu	Program introduction, potential energy projects
Toshiba Lighting	Oahu	Possible partnership
Quantum Energy	Oahu	Product demonstration
Energy Industries	Oahu	Potential rebates
PSIG & UH Manoa	Oahu	Potential rebates
Hale Kaheka	Oahu	Program introduction
1717 Ala Wai	Oahu	Project discussion
Actus Team	Oahu	Projects discussion

Island Equity Outreach activities continued:

Outreach	Island	Subject
Noresco Project	Oahu	Projects discussion
Board of Water Supply	Oahu	State Demonstration Project
NAVFAC	Oahu	Program introduction, outstanding projects, review upcoming projects
Airport DOT	Oahu	Program introduction and projects
Waikoloa Marriott	Oahu	Project proposal discussion
900 Nimitz	Oahu	New construction discussion
SOH Mahulia, Leahi Hospital	Oahu	Project discussion
Kahuku Medical Center	Oahu	Potential project
Lowes Iwilei	Oahu	Project discussion
Integrated Economic Solutions	Oahu	Project discussion
Les Taniyama - PSIG	Oahu	Various HVAC projects
Hawaii Medical Center, Liliha & Fort Weaver	Oahu	Project discussion
Pearl City Nursing Home	Oahu	Project discussion
Lumi - Con LED	Oahu	Potential projects
High Tech Lighting	Oahu	Program introduction
Diagnostic Laboratory Services	Oahu	Project discussion
Rehab Hospital of Pacific	Oahu	Project discussion
Media 5 Architects	Oahu	Project discussion
Queens Medical Center	Oahu	Project discussion
Hawaii Medical Systems - Liliha	Oahu	Program introduction
Aston Waikiki Beach Hotel	Oahu	Program introduction
General Electric	Oahu	Program introduction

Hawaii Energy *Conservation and Efficiency Program*

Monthly Performance Report – January 2011 (1/1/11 – 1/31/11)

Budget Table

	January Allocations	Allocations to Date	PY10 Revision 2a	Percent Spent
Residential Programs				
Residential Program Ops and Management				
REEM	234,407.25	881,450.63	1,665,602	53%
RLI	6,397.49	48,644.08	57,300	85%
New	2,349.38	10,379.48	324,700	3%
Total Residential Programs	243,154.12	940,474.19	2,047,602	46%
Market Evaluation	9,280.00	20,550.45	97,176	21%
[3] Outreach	11,633.93	142,866.00	142,866	100%
Total Residential Non-Incentive	264,068.05	1,103,890.64	2,287,644	48%
Residential Incentives				
[4] REEM	487,612.60	3,893,172.14	5,008,370	78%
RLI	1,470.79	266,429.74	290,750	92%
New	-	-	887,200	0%
Total Residential Incentives	489,083.39	4,159,601.88	6,186,320	67%
Total Residential Programs	**753,151.44**	**5,263,492.52**	**8,473,964**	**62%**
Business (C&I) Programs				
Business Programs Ops and Management				
BEEM	42,800.72	395,294.72	481,340	82%
[3] CBEEM	8,634.10	188,309.00	188,309	100%
New	4,096.90	19,359.26	188,880	10%
Total Business Programs	55,531.72	602,962.98	858,529	70%
Market Evaluation	9,976.83	61,897.89	118,771	52%
[3] Outreach	6,039.05	174,612.00	174,612	100%
Total Business Non-Incentive	71,547.60	839,472.87	1,151,912	73%
Business Incentives				
BEEM	265,469.00	1,754,672.00	5,138,670	34%
CBEEM	33,846.00	348,400.00	1,115,390	31%
New	-	-	1,307,000	0%
Total Business Incentives	299,315.00	2,103,072.00	7,561,060	28%
Total Business Programs	**370,862.60**	**2,942,544.87**	**8,712,972**	**34%**
Total Services and Initiatives	**1,124,014.04**	**8,206,037.39**	**17,186,936**	**48%**
Supporting Services				
Supporting Services	201,364.10	838,332.94	1,150,896	73%
Total Supporting Services	**201,364.10**	**838,332.94**	**1,150,896**	**73%**
Subtotal Non-Incentive (Prior to Tax)	536,979.75	2,781,696.45	4,590,452	61%
[1] Less Performance Incentives (Prior to Tax)	(55,708.36)	(389,958.52)	(700,000)	
Subtotal Non-Incentive Less Performance Incentives (PI)	481,271.39	2,391,737.93	3,890,452	
[2] Total Tax on Non-Incentive Without PI	22,677.51	112,698.69	216,302	
Performance Incentive Award (Inclusive of Tax)		-	700,000	
Subtotal Non-Incentive Billed	*503,948.90*	*2,504,436.62*	*4,806,754*	
Subtotal Residential and Business Customer Incentives	*788,398.39*	*6,262,673.88*	*13,747,380*	
Sub-Total Estimated Contractor Costs	*1,292,347.29*	*8,767,110.50*	*18,554,134*	
Performance Awards in Excess of Target Levels			133,000	
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels			**18,687,134**	

[1] Budget includes ($31,500) in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

[2] Budget includes $31,500 in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

[3] Continued current spend rate while awaiting carryover budget. In the interim, $46,223.40 for Residential Outreach, $34,049.63 for CBEEM, and $20,352.88 for Business Outreach will be temporarily allocated to Supporting Services until approval of the Carryover budget. This was done to maintain an accurate account of type of expense. These expenses will be reallocated out of supporting services to their respective categories upon carryover budget approval.

[4] Due to an accounting shutdown, rebates were disbursed and savings were claimed for the 25% PBFA portion of 3 Solar Interest Buy Down incentives (total PBFA value of $750). They were not included on the invoice but will be included on the February invoice.

Executive Summary

Activity Highlights

- Executed customer one on one meetings for the "Central Plant Optimization Competition" to assist building managers in improving the operation and maintenance of their facilities and create energy savings
- Conducted multiple solar program presentations to provide program updates to solar contractors on Oahu, Maui and the Big Island
- Hosted a series called "Energy Efficiency Program Informational Update Workshops" for a wide range of audiences on Oahu
- Hired Dani Salyer as Energy Data Specialist to assist in achieving the remaining Program Year 2010 energy saving goals

Marketing Highlights

- Advertised the "Central Plant Optimization Program" in the February through March issue of *Building Management Hawaii* magazine
- "Brighter Bulbs" article appeared in *Honolulu Star-Advertiser* newspaper
- Hosted a booth at St. Philomena Early Learning Center's "Going Green Faire"

Outreach Highlights

- Launched online forum located at http://forum.hawaiienergy.com to invite Hawaii residents to discuss energy issues
- Co-Sponsored a six show series called "Hawaii: The Statement of Clean Energy" broadcasted with *Hawaii News Now* on KGMB state-wide television station; co-sponsors included Department of Business, Economic Development & Tourism (DBEDT) and Hawaiian Electric Company (HECO)

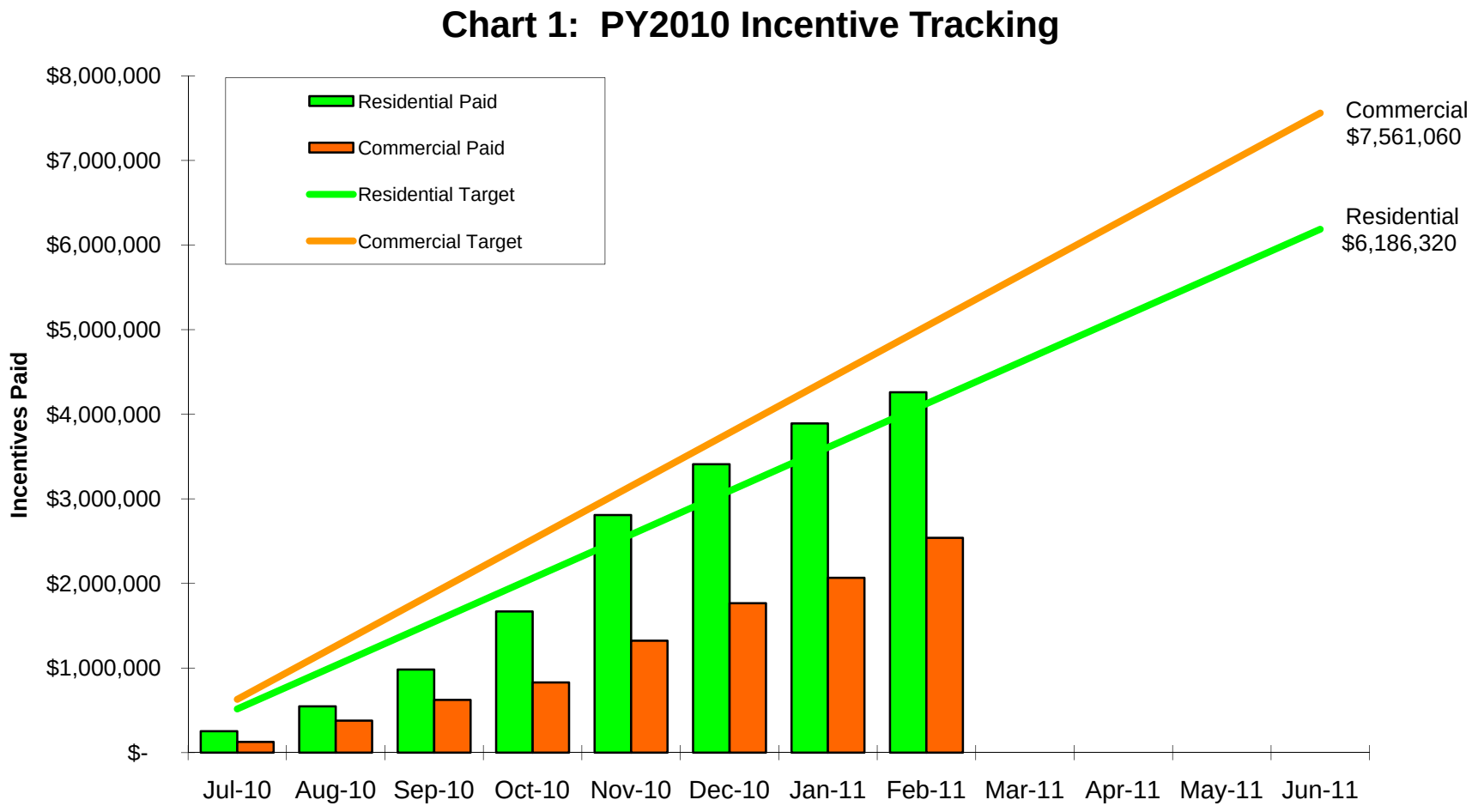
Key Performance Metrics

Key Performance Metrics	Month's Results	YTD Results	PY2010 Targets	YTD % of Target PY2010
Annual Energy Savings Impacts (Net Generation Level)				
Residential (MWh)	3,303	30,927	71,245	43.4%
Business (MWh)	2,683	17,748	61,370	28.9%
Peak Demand (kW)	2,135	16,816	23,126	72.7%
Total Resource Benefit	8,528,689	65,360,793	$ 148,596,954	44.0%
Island Equity (% of Energy Savings)				
Oahu	80%	79%	69%	+/-20% Met
Maui County	12%	12%	19%	> - 20%
Hawaii County	8%	10%	11%	+/-20% Met
Market Transformation (Applications Completed)				
State Building Demo Projects	0	0	10	0%
Launch RCx Program	Met	Met	01/01/11	Met
Community Partnerships	0	1	4	25.0%
Financials[1]				
Total Non-Incentives Billed [1]	$ 430,663.63	$ 2,935,100.25	$ 4,106,754	71.5%
Total Incentives Billed	$ 847,670.99	$ 7,110,344.87	$13,747,380	51.7%
Total Program Costs Billed	$ 1,278,334.62	$10,045,445.12	$17,854,134	56.3%

[1] Total Budget reflects the deduction of $700,000 in performance incentive fees for the award pool.

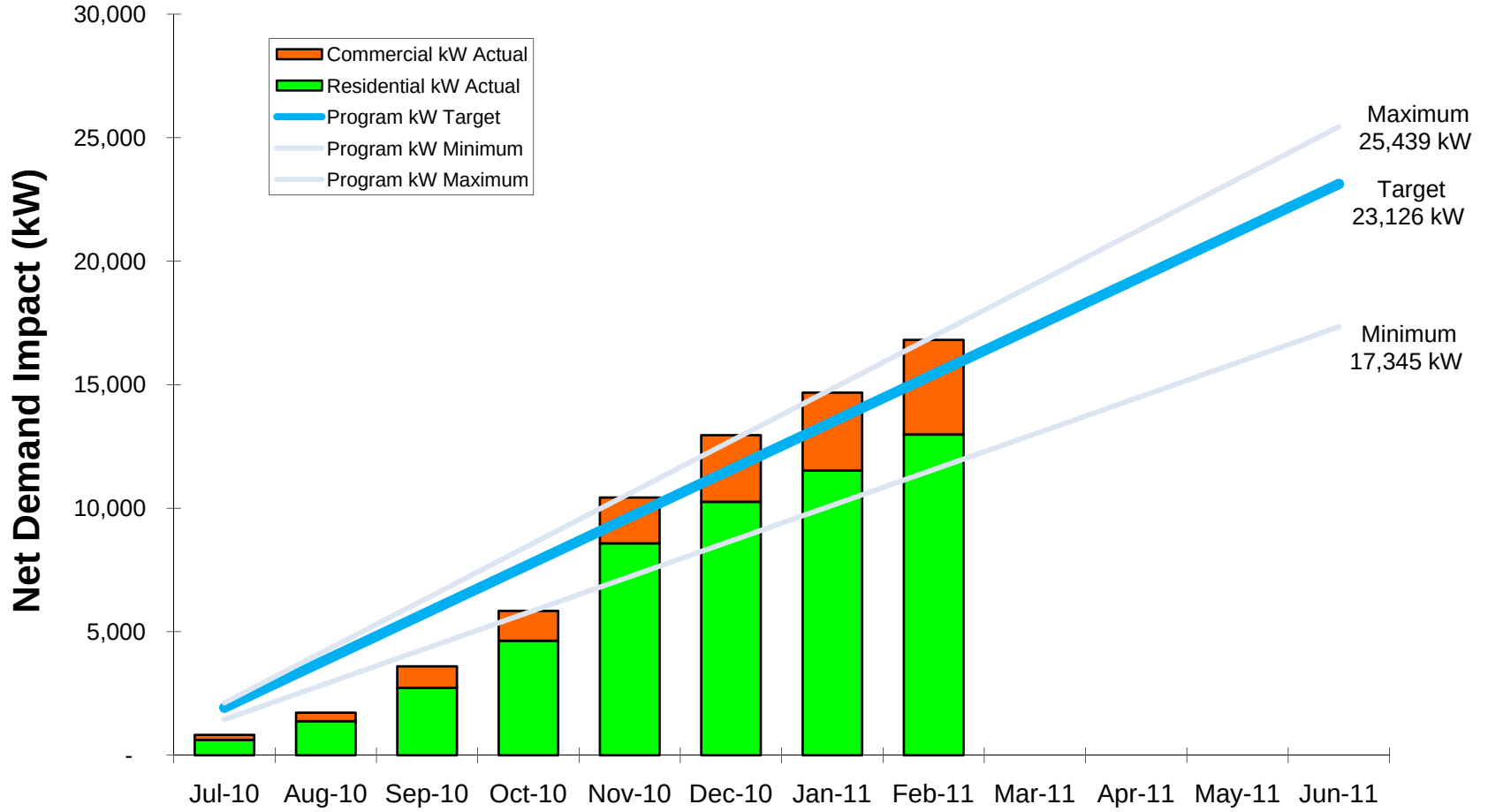
Performance Charts

1. *PY2010 Incentive Payment Tracking* - This Chart shows the paid versus target incentives for the PY2010.



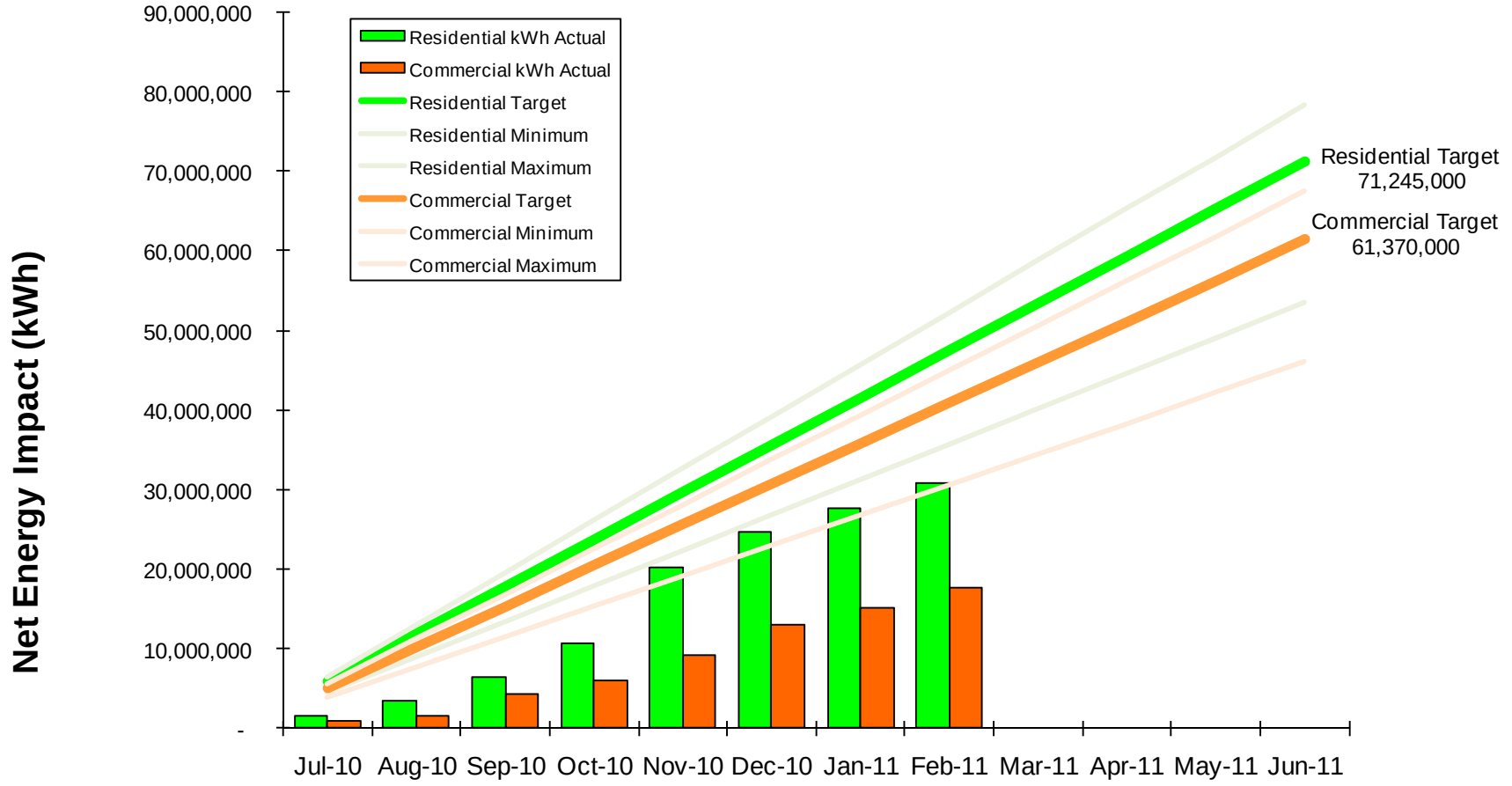
2. *PY2010 Net Demand Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010.

Chart 2: PY2010 Net Demand Impact Tracking



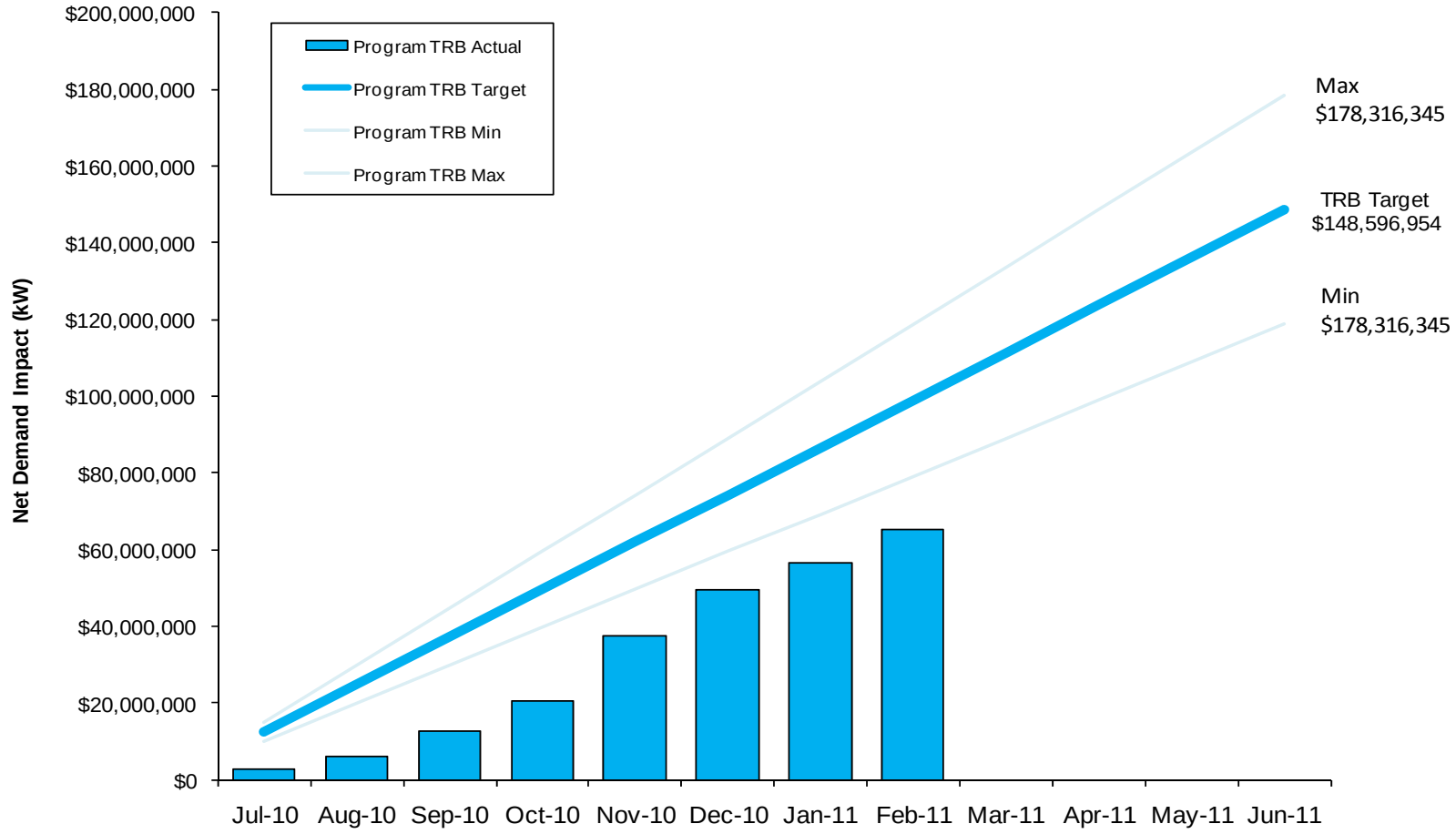
3. *PY2010 Net Energy Impact Tracking* - This Chart shows the net energy impact versus target for PY2010.

Chart 3: PY2010 Net Energy Impact Tracking



4. *PY2010 Total Resource Benefit Impact Tracking* - This Chart shows the total resource benefit impact versus target for PY2010.

Chart 4: PY2010 Total Resource Benefit Impact Tracking



Outreach Highlights

The following Publicity, Advertising, & Marketing Outreach activities took place this month.

Media Outlet	Subject	Date
Honolulu Magazine	Oil advertisement	February issue
Building Management Hawaii	Hawaii Energy Launches Central Plant Optimization Program	February/March issue
Web	Hawaii Energy launches Central Plant Optimization Competition	Ongoing
Honolulu Star-Advertiser	Brighter bulbs	6-Feb
Big Island Weekly	CFL bulb exchange: Hawaii 4-H	13-Feb
Kona-Kohala Chamber of Commerce (e-newsletter)	Kona-Kohala Chamber of Commerce	14-Feb
Hawaii 24/7	Hawaii First joins in light bulb exchange	15-Feb
Email (e-newsletter)	February Newsletter: Job opening – Business Manager, Hot Water, Cool Rates, Central Plant Optimization Competition, 2011 Hawaii Buildings, Facilities & Property Management Expo on March 9 & 10	15-Feb
West Hawaii Today	Hawaii Energy offers workshop on February 24	17-Feb
Molokai Dispatch	Save Your Energy	18-Feb
Big Island Video News	Hawaii Energy offers workshops on Big Island	24-Feb to 25-Feb
Web, Social Media	Earn 7 American Institute of Architects and Continuing Education Systems	24-Feb to 25-Feb
Web, Social Media	St. Philomena Early Learning Center “Going Green Faire”	26-Feb
Honolulu Civil Beat	Program interview	16-Feb

*Date indicates date of event or posting on website. Subject may have been promoted via social media on multiple dates.

The following Education & Training Outreach events took place this month.

Outreach Event	Audience	Subject	Count	Date
Hawaii First Community Resource Center	Bank employees	Energy efficiency and bulb exchange meeting and presentation	8	2-Feb
Waimea Arts Council	Waimea Arts Council	Energy efficiency and bulb exchange meeting and presentation	3	2-Feb
Oahu Solar Contractor meeting	Oahu solar contractors	Solar program update	40	8-Feb
University of Hawaii Student Affairs Office	Students/Administration	Energy efficiency and bulb exchange meeting and presentation	15	9-Feb
HI-INTENSITY Volleyball Club	Dale Hayashi, Teacher	Energy efficiency and bulb exchange meeting and presentation	2	9-Feb
4-H Paauilo	Students/ Teachers	Energy efficiency and bulb exchange meeting and presentation	20	9-Feb
Maui Solar Contractor meeting	Maui solar contractors	Solar program update	39	10-Feb
Home Depot, Holaulea	Patrons/Vendors	Hawaii Energy informational booth	200+	12-Feb
West Hawaii Explorations Academy	Students/ Teacher	Energy efficiency and bulb exchange meeting and presentation	15	15-Feb
Waikoloa Seniort Citizen Center	Senior citizens	Program introduction and energy efficiency presentation	30	21-Feb
Kohala Montessori Preschool	Montessori teachers	Energy efficiency and bulb exchange meeting and presentation	5	21-Feb
Solar Contractor Meeting	Solar contractors	Solar contractor update	10	24-Feb
Informational Update Meeting	Business owners, Contractors	Business program update	35	24-Feb
Kona Solar Contractor meeting	Kona solar contractors	Solar program update	11	24-Feb
Hilo Solar Contractor Meeting	Hilo solar contractors	Solar program update	26	25-Feb

Budget Table

	February Allocations	Allocations to Date	PY10 Revision 2a	Percent Spent
Residential Programs				
Residential Program Ops and Management				
REEM	174,135.59	1,055,586.22	1,665,602	63%
[3] RLI	8,655.92	57,300.00	57,300	100%
New	2,034.25	12,413.73	324,700	4%
Total Residential Programs	184,825.76	1,125,299.95	2,047,602	55%
Market Evaluation	4,584.22	25,134.67	97,176	26%
[3] Outreach	-	142,866.00	142,866	100%
Total Residential Non-Incentive	189,409.98	1,293,300.62	2,287,644	57%
Residential Incentives				
REEM	374,042.57	4,267,214.71	5,008,370	85%
RLI	1,173.42	267,603.16	290,750	92%
New	-	-	887,200	0%
Total Residential Incentives	375,215.99	4,534,817.87	6,186,320	73%
Total Residential Programs	564,625.97	5,828,118.49	8,473,964	69%
Business (C&I) Programs				
Business Programs Ops and Management				
BEEM	68,591.03	463,885.75	481,340	96%
[3] CBEEM	-	188,309.00	188,309	100%
New	13,206.45	32,565.71	188,880	17%
Total Business Programs	81,797.48	684,760.46	858,529	80%
Market Evaluation	7,880.00	69,777.89	118,771	59%
[3] Outreach	-	174,612.00	174,612	100%
Total Business Non-Incentive	89,677.48	929,150.35	1,151,912	81%
Business Incentives				
BEEM	424,080.00	2,178,752.00	5,138,670	42%
CBEEM	48,375.00	396,775.00	1,115,390	36%
New	-	-	1,307,000	0%
Total Business Incentives	472,455.00	2,575,527.00	7,561,060	34%
Total Business Programs	562,132.48	3,504,677.35	8,712,972	40%
Total Services and Initiatives	1,126,758.45	9,332,795.84	17,186,936	54%
Supporting Services				
Supporting Services	187,904.83	1,026,237.77	1,150,896	89%
Total Supporting Services	187,904.83	1,026,237.77	1,150,896	89%
Subtotal Non-Incentive (Prior to Tax)	466,992.29	3,248,688.74	4,590,452	71%
[1] Less Performance Incentives (Prior to Tax)	(55,708.36)	(445,666.88)	(700,000)	
Subtotal Non-Incentive Less Performance Incentives (PI)	411,283.93	2,803,021.86	3,890,452	
[2] Total Tax on Non-Incentive Without PI	19,379.70	132,078.39	216,302	
Performance Incentive Award (Inclusive of Tax)			700,000	
Subtotal Non-Incentive Billed	*430,663.63*	*2,935,100.25*	*4,806,754*	
Subtotal Residential and Business Customer Incentives	*847,670.99*	*7,110,344.87*	*13,747,380*	
Sub-Total Estimated Contractor Costs	*1,278,334.62*	*10,045,445.12*	*18,554,134*	
Performance Awards in Excess of Target Levels			133,000	
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels			18,687,134	

[1] Budget includes ($31,500) in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

[2] Budget includes $31,500 in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

[3] Continued current spend rate while awaiting carryover budget. In the interim, $1,433.49 for RLI Operations, $18,039.29 for Residential Outreach, $29,222.50 for CBEEM, and $22,270.69 for Business Outreach will be temporarily allocated to Supporting Services until approval of the Carryover budget (total of $70,965.96). This was done to maintain an accurate account of type of expense. These expenses will be reallocated out of supporting services to their respective categories upon carryover budget approval.

Executive Summary

Activity Highlights

- Offered a limited time $250 rebate on ENERGY STAR refrigerators for qualified residents of the Big Island and Maui County; the offer was valid between March 7, 2011 and March 21, 2011
- Offered limited time bonus rebates to the HOT WATER, COOL RATES co-funded American Recovery and Reinvestment Act (ARRA) State Energy Program (SEP) and the regular solar rebate program of up to an additional $750 for qualified Hawaii residents on Oahu, Maui County and the Big Island who installed solar water heaters; the offer began March 21, 2011 and will end May 31, 2011, or until the ARRA SEP funds are exhausted
- Continued the preparation for the Hawaii Energy Contract Renewal for the next two program years (July 1, 2011 through June 30, 2013) and the Program Year 2011 Annual Plan
- Approval of the Program Year 2010 budget to include carryover from Program Year 2009 which will be Revision 3 for the year

Marketing Highlights

- The $250 rebate for ENERGY STAR refrigerators appeared in the following media:
  - *Hawaii 24/7,* an online news site focused on the Big Island
  - *Maui Now,* an online news site focused on Maui
  - *Maui Tomorrow*, an online news site focused on Maui
  - *The Green Leaf*, *Honolulu Star Advertiser Blog*
- The bonus rebates "HOT WATER, COOL RATES" for solar water heating installations appeared in the following media:
  - *Honolulu Star Advertiser* newspaper
  - *Maui Now*
  - *The Molokai Dispatch,* Molokai local newspaper
  - *Clark Realty Website Blog*

Outreach Highlights

- Hosted multiple CFL bulb exchange events including:
  - Ocean View Teen Club CFL Exchange
  - West Hawaii Explorations Academy Exchange
  - Honolulu Community College Fashion Society CFL Exchange
- Hosted a booth for energy efficiency introduction, education, and presentation at the following events:
  - 2011 Hawaii Buildings, Facilities & Property Management Expo on Oahu
  - "Go Green Fair" at Koko Marina Center on Oahu
  - Financial Empowerment Day on the Big Island
  - Kealakehe High Environment Fair on the Big Island

Hawaii Energy *Conservation and Efficiency Program*

Monthly Performance Report – March 2011 (3/1/11 – 3/31/11)

Key Performance Metrics

Key Performance Metrics	Month's Results	YTD Results	PY2010 Targets	YTD % of Target PY2010
Annual Energy Savings Impacts (Net Generation Level)				
Residential (MWh)[1]	2,925	39,169	71,245	55.0%
Business (MWh)	7,669	25,425	61,370	41.4%
Peak Demand (kW)	1,935	12,650	23,126	54.7%
Total Resource Benefit	$ 11,662,999	$ 72,876,824	$ 148,596,954	49.0%
Island Equity (% of Energy Savings)				
Oahu	71%	77%	69%	+/-20% Met
Maui County	21%	13%	19%	>-20%
Hawaii County	8%	10%	11%	+/-20% Met
Market Transformation (Applications Completed)				
State Building Demo Projects	0	0	10	0.00%
Launch RCx Program	Met	Met	1/12011	Met
Community Partnership[2]	0	1	4	Not Met
Financials				
Total Non-Incentives Billed[3]	$ 427,121.16	$ 3,362,221.41	$ 6,065,076	55.4%
Total Incentives Billed	$ 1,043,997.10	$ 8,154,341.97	$ 15,025,382	54.2%
Total Program Costs Billed	$ 1,471,118.26	$ 11,516,563.38	$ 21,090,458	54.6%

[1]Report in October 2010 changed CFL energy value to 26.5 kWh at the gross customer level, should have been 32.6 kWh at the gross customer level resulting in 26.5 kWh net level, demand was also changed from .012 to .005

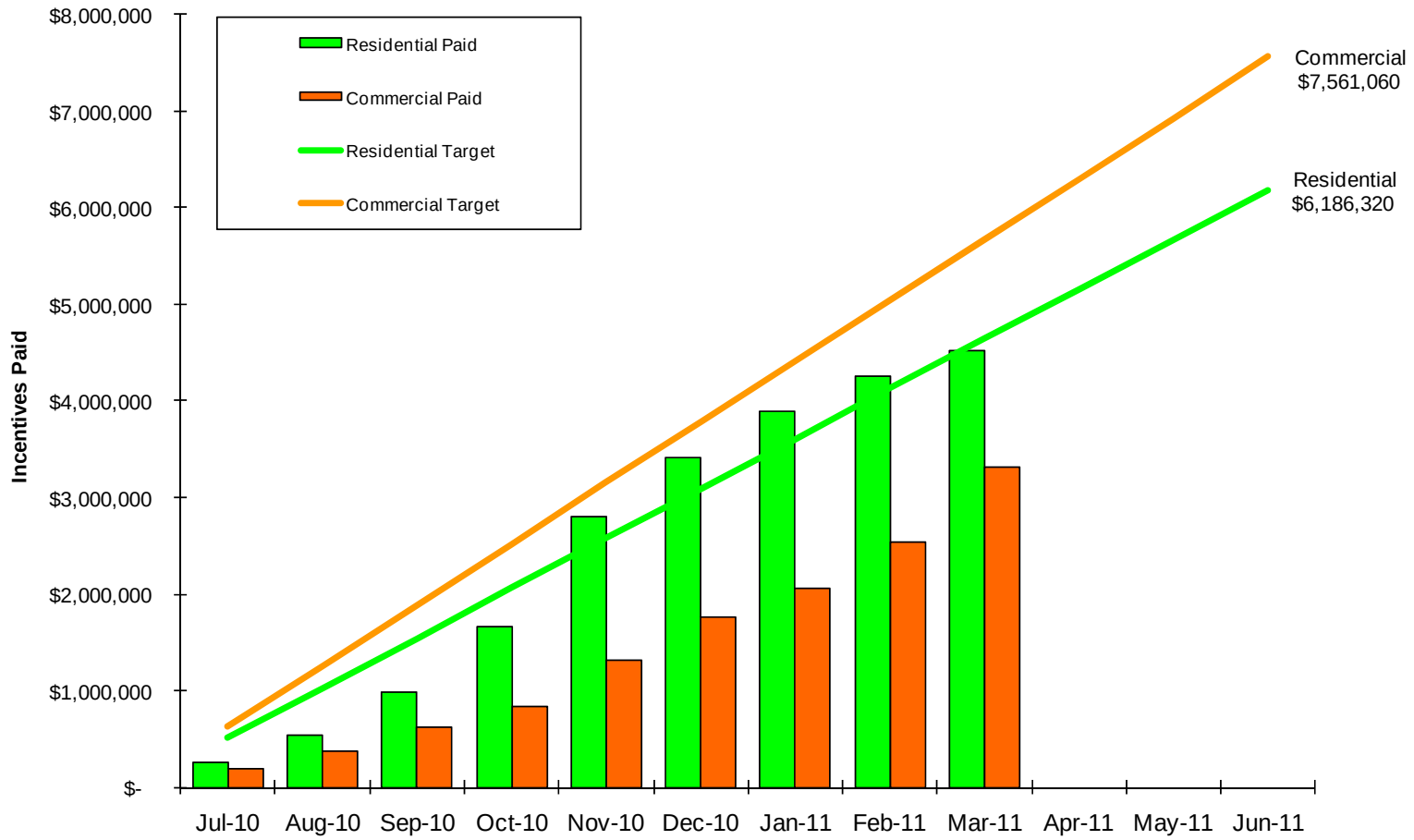
[2]Council for Native Hawaiian Advancement (CNHA) Memorandum of Agreement (MOA) as of 10/27/2010

[3]Total Budget reflects the carryover budget (PY10 R3) and the deduction of $700,000 in performance incentive fees for the award pool.

Performance Charts

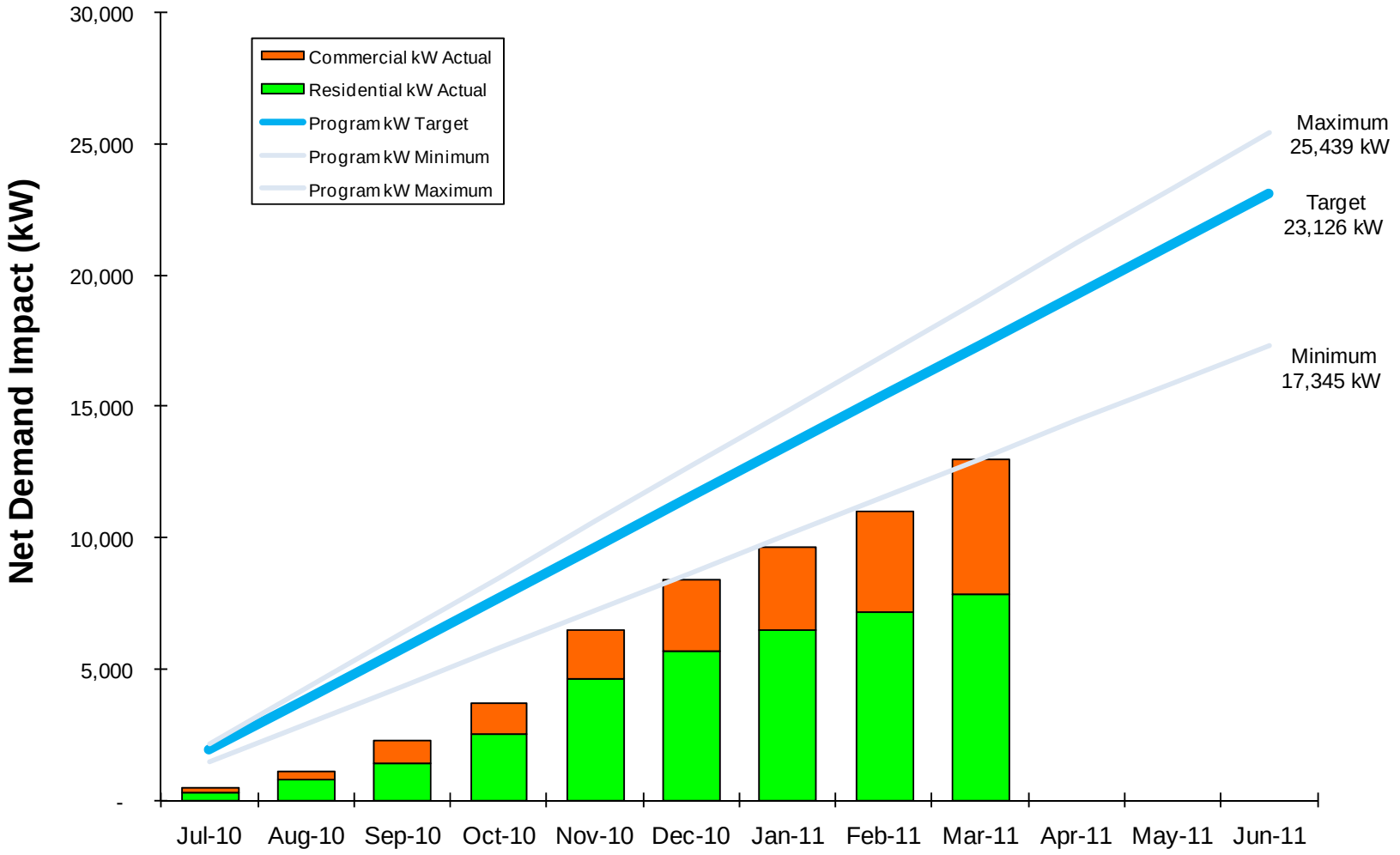
1. *PY2010 Incentive Payment Tracking* - This Chart shows the paid versus target incentives prior to carryover for the PY2010.

Chart 1: PY2010 Incentive Tracking



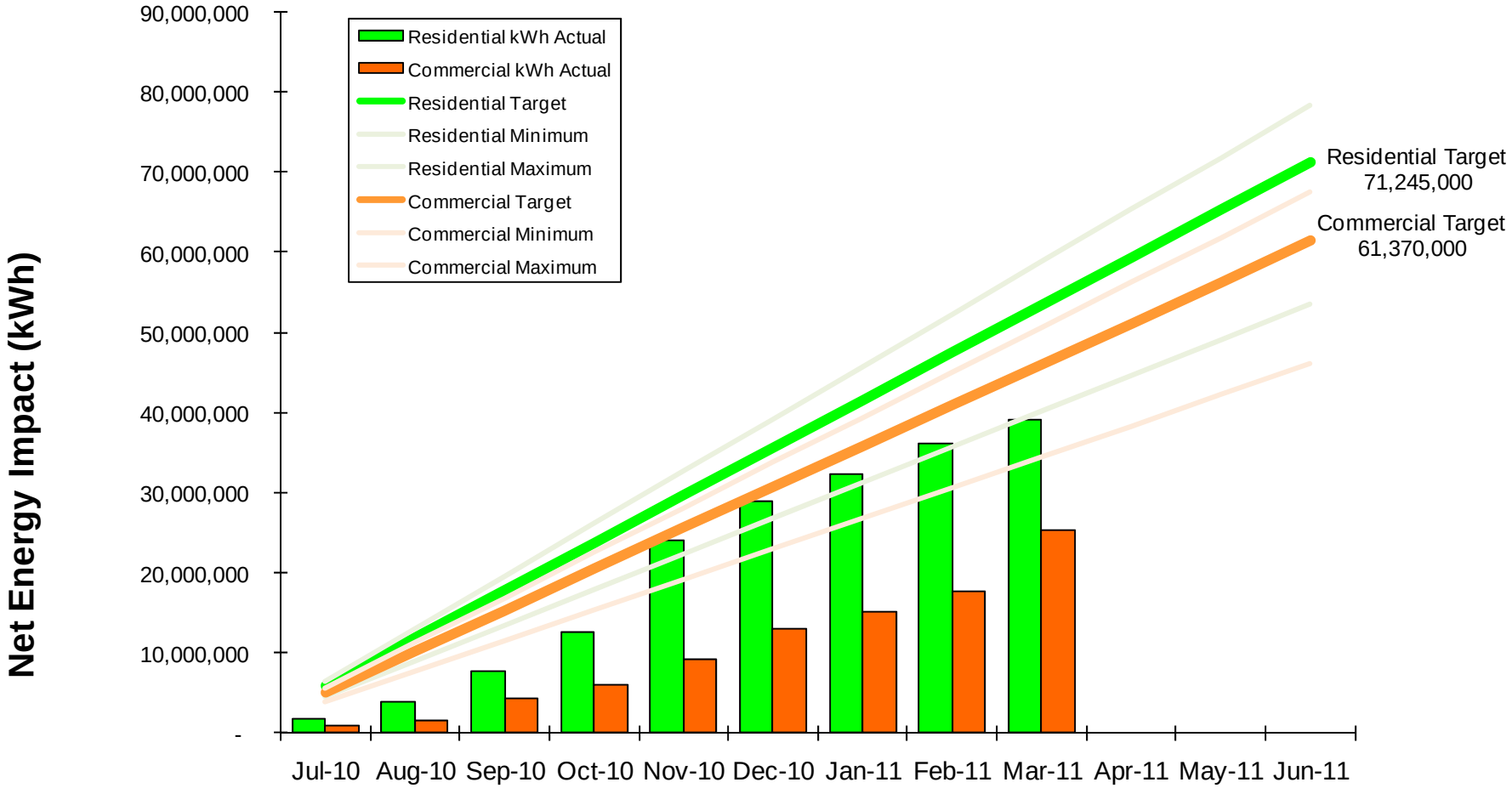
2. *PY2010 Net Demand Impact Tracking* - This Chart shows the combined demand impact versus target.

Chart 2: PY2010 Net Demand Impact Tracking



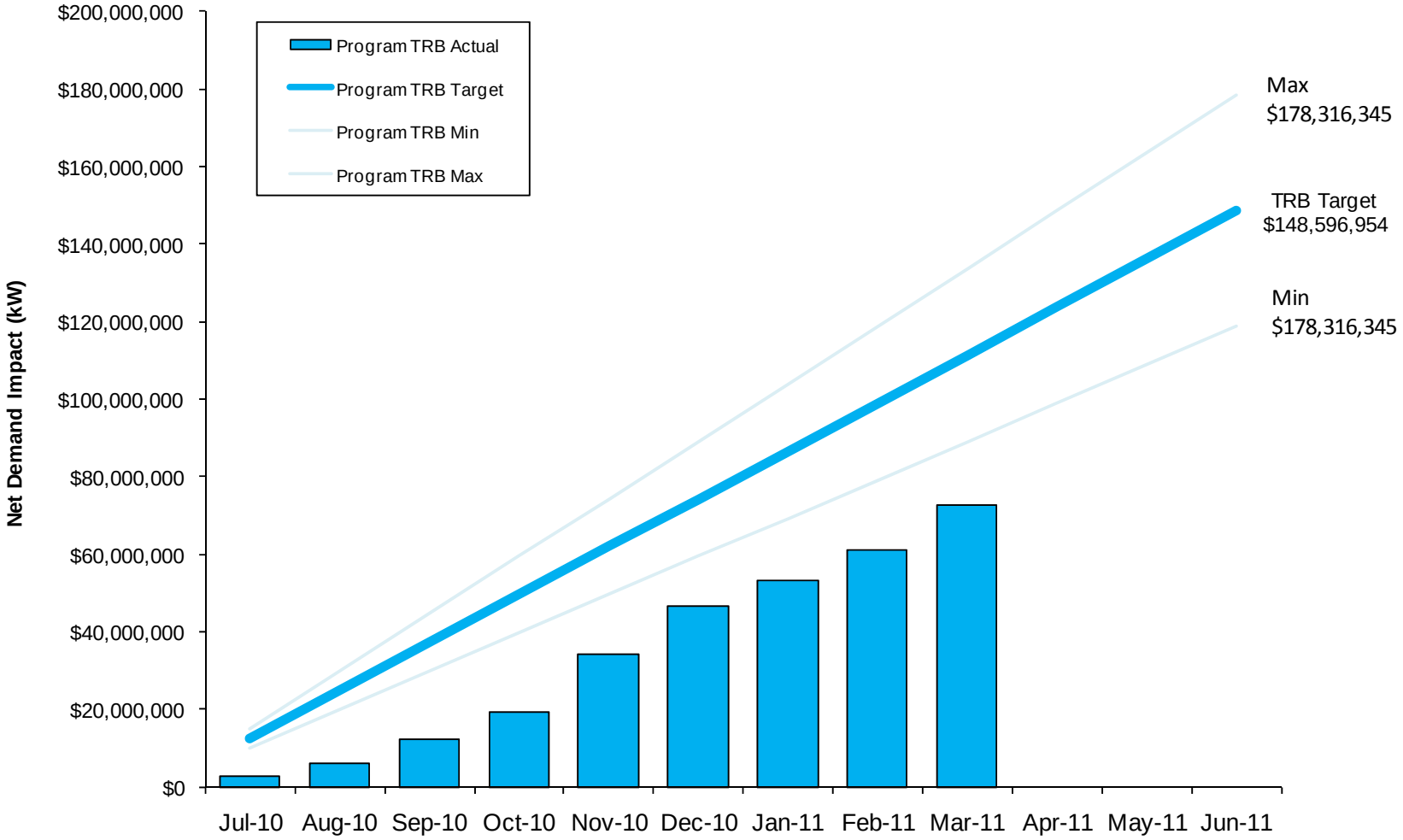
3. *PY2010 Net Energy Impact Tracking* - This Chart shows the net energy impact versus target for PY2010.

Chart 3: PY2010 Net Energy Impact Tracking



4. *PY2010 Total Resource Benefit Impact Tracking* - This Chart shows the total resource benefit impact versus target for PY2010.

Chart 4: PY2010 Total Resource Benefit Impact Tracking



Outreach Highlights

The following Publicity, Advertising, & Marketing Outreach activities took place this month.

Media Outlet	Subject	Date
HonuGuide (coupon book)	HonuGuide – Hawaii's sustainable island living guide (produced by Kanu Hawaii)	1-Mar
Maui Now	Limited $250 Rebate for ENERGY STAR Purchase on Maui	1-Mar
Hawaii 24/7	Hawaii Energy program offers $250 rebates for Maui and Hawaii County residents	2-Mar
Maui Tomorrow	$250 rebate for Maui for ENERGY STAR® refrigerators	2-Mar
Hawaii 24/7	UH-Hilo hosting CFL bulb exchange	3-Mar
HE website, social media	West Hawaii Explorations Academy CFL Exchange	5-Mar
West Hawaii Today	Rebates available for some appliances	6-Mar
Blue Planet Foundation	Two weeks to ditch the noisy, old fridge	7-Mar
Hawaii Home+REMODELING	Thoughts of Home	7-Mar
The Green Leaf	$250 to replace the clunky fridge	8-Mar
HE website, social media	Hawaii Building, Facilities and Property Management Expo	9-Mar to 10-Mar
The Molokai Dispatch	Energy Kokua for Business Owners	14-Mar
Maui Now	Solar Rebates Go Through the Roof	17-Mar
Star-Advertiser	Solar water heater rebate to double	17-Mar
HE website	Hawaii Energy offers limited-time BONUS rebates for qualified residential solar water heating installations	17-Mar
Hawaii Energy Options	Hawaii Energy Doubles Rebate for Solar Water Heating	17-Mar
Maui News	Solar water heater rebate to double	18-Mar
HE website, social media	Ocean View Teen Club CFL Exchange	05-Mar & 19-Mar
HE website	Go Green (Koko Marina Center)	19-Mar
The Molokai Dispatch	Cash for Water Heaters	23-Mar

*Date indicates date of event or posting on website. Subject may have been promoted via social media on multiple dates.

Publicity, Advertising, & Marketing Outreach activities continued:

Media Outlet	Subject	Date
Hawaii Home+REMODELING	Thoughts of Home	23-Mar
Sears advertisement	Trade-Up for Cool Cash ($125)	20-Mar & 24-Mar
Clark Realty website	Considering a Switch to Solar Hot Water? Bonus Rebate	24-Mar
Blue Planet Foundation e-newsletter	Hawaii Energy doubles solar hot water rebates through May 31	30-Mar
Solar Guy Radio	On air Radio discussion	31-Mar

*Date indicates date of event or posting on website. Subject may have been promoted via social media on multiple dates.

The following Education & Training Outreach events took place this month.

Outreach Event	Audience	Subject	Count	Date
Kealakehe High School	Robotics Club	Program introduction, bulb exchange	30	1-Mar
Energy Efficiency Presentation	Ocean View Community, Yen Chin	Program introduction, rebates	7	5-Mar
Yale Energy Efficiency Group	Yale Graduate students	Program introduction, bulb exchange	7	7-Mar
Energy Efficiency Presentation	Waikoloa Community Yen Chin	Program introduction, rebates	24	7-Mar
Financial Empowerment Day	Big Island Residents	Booth at Financial Empowerment Day, energy efficiency education presentation, question and answer	60	25-Mar
Kealakehe Environmental Fair	Kealakehe High School Students	Booth at Kealakehe High Environmental Fair, energy efficiency education presentation, question and answer	60	26-Mar
Humpy's Big Island Alehouse	Restaurant Owner, accountant	Potential project	4	28-Mar

Budget Status Table

	January & February Reallocations	March Allocations	Allocations to Date	PY10 Revision 3	Percent Spent
Residential Programs					
Residential Program Ops and Management					
REEM		$197,830.15	1,253,416.37	1,815,575	69%
RLI	1,433.49	$4,106.71	62,840.20	284,700	22%
New		$2,003.66	14,417.39	91,815	16%
Total Residential Programs	1,433.49	203,940.52	1,330,673.96	2,192,089	61%
Market Evaluation		6,735.00	31,869.67	97,176	33%
[3] Outreach	64,262.69	15,832.95	222,961.64	328,530	68%
Total Residential Non-Incentive	65,696.18	226,508.47	1,585,505.27	2,617,795	61%
Residential Incentives					
REEM		248,461.00	4,515,675.71	5,941,637	76%
RLI		19,524.10	287,127.26	406,228	71%
New		-	-	887,200	0%
Total Residential Incentives		267,985.10	4,802,802.97	7,235,065	66%
Total Residential Programs	**65,696.18**	**494,493.57**	**6,388,308.24**	**9,852,861**	**65%**
Business (C&I) Programs					
Business Programs Ops and Management					
BEEM		89,275.84	553,161.59	762,447	73%
[3] CBEEM	63,272.13	33,822.03	285,403.16	407,069	70%
New		4,737.50	37,303.21	188,880	20%
Total Business Programs	63,272.13	127,835.37	875,867.96	1,358,396	64%
Market Evaluation		7,835.24	77,613.13	129,857	60%
[3] Outreach	42,623.57	12,935.84	230,171.41	398,321	58%
Total Business Non-Incentive	105,895.70	148,606.45	1,183,652.50	1,886,574	63%
Business Incentives					
BEEM		502,155.00	2,680,907.00	5,203,994	52%
CBEEM		273,857.00	670,632.00	1,116,441	60%
New		-	-	1,469,882	0%
Total Business Incentives		776,012.00	3,351,539.00	7,790,317	43%
Total Business Programs	**105,895.70**	**924,618.45**	**4,535,191.50**	**9,676,891**	**47%**
Total Services and Initiatives	**171,591.88**	**1,419,112.02**	**10,923,499.74**	**19,529,751**	**56%**
Supporting Services					
Supporting Services	(171,591.88)	$88,494.31	943,140.20	1,287,781	73%
Total Supporting Services	**(171,591.88)**	**88,494.31**	**943,140.20**	**1,287,781**	**73%**
Subtotal Non-Incentive (Prior to Tax)	-	463,609.23	3,712,297.97	5,792,150	64%
[1] Less Performance Incentives (Prior to Tax)		(55,708.36)	(501,375.24)	(700,000)	
Subtotal Non-Incentive Less Performance Incentives (PI)		407,900.87	3,210,922.73	5,092,150	
[2] Total Tax on Non-Incentive Without PI		19,220.29	151,298.68	272,926	
Performance Incentive Award (Inclusive of Tax)				700,000	
Subtotal Non-Incentive Billed		*427,121.16*	*3,362,221.41*	*6,065,076*	
Subtotal Residential and Business Customer Incentives		*1,043,997.10*	*8,154,341.97*	*15,025,382*	
Sub-Total Estimated Contractor Costs		*1,471,118.26*	*11,516,563.38*	*21,090,458*	
Performance Awards in Excess of Target Levels				133,000	
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels				**21,223,458**	

[1] Budget includes ($31,500) in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

[2] Budget includes $31,500 in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

[3] Continued current spend rate while awaiting carryover budget in January and February. In March, the Budget PY10 R3 was approved and reallocations are included as a separate colomn. This was done to maintain an accurate account of type of expense.

March Performance Report - March 2011 (3/1/11-3/31/11) Appendix A

Peak Demand (kW)

	Reported kW	Reported YTD kW	Oct & Nov's Footnote Adj to kW	Corrected October & November kW	Corrected October & November YTD kW	March's footnote Adj to kW	March's Corrected kW	March's Corrected YTD kW
July	767	767	57	824	824	(284)	540	540
August	1,019	1,786	(64)	955	1,779	(320)	635	1,175
September	1,820	3,606	(5)	1,815	3,594	(711)	1,104	2,279
October	2,241	5,847	(6)	2,235	5,829	(812)	1,423	3,702
November	4,881	10,728	(287)	4,594	10,423	(2,125)	2,469	6,171
December	2,524	13,252		2,524	12,947	(638)	1,886	8,057
January	1,721	14,973		1,721	14,668	(463)	1,258	9,315
February	2,135	17,108		2,135	16,803	(735)	1,400	10,715
March	1,935	19,043		1,935	18,738		1,935	12,650
					Reduction from CFLs Adjustments=>		(6,088)	

Residential Energy Savings Impacts

	Initially Reported (1)	October Correction (2) CFL Value Correction	Reported as of March 2011 (3)	Diff (4) between (2) and (3)	Explanations for Diff (4) March CFL Value Correction	Explanations for Diff (4) Removal of SEP Refrigerator	Net
Jul-10	3,177	1,557	1,804	(247)	247		(0)
Aug-10	3,882	1,875	2,154	(279)	279		(0)
Sep-10	6,664	3,104	3,723	(619)	619		(0)
Oct-10	4,190	4,190	4,898	(708)	708		0
Nov-10	11,482		11,384	98	1,852	(1,949)	0
Dec-10	4,371		4,937	(566)	556		(10)
Jan-11	2,994		3,398	(404)	404		0
Feb-11	3,303		3,945	(642)	641		(1)
Mar-11	2,925		2,925	-			-
YTD	**42,988**		**39,169**	**(3,368)**			

Note 1: Report in December 2010 changed CFL energy value to 26.5 kWh at the gross customer level,
should have been 32.6 kWh at the gross customer level resulting in 26.5 kWh net level, demand was also changed from .012 to .005.

Business Energy Savings Impacts

	Initially Reported (1)	October Correction (2) CFL Value Correction	Reported as of March 2011 (3)	Diff (4) between (2) and (3)	Explanations for Diff (4) March CFL Value Correction	Explanations for Diff (4) Removal of SEP Refrigerator	Net
Jul-10	629	858	858	(0)			(0)
Aug-10	886	641	641	0			0
Sep-10	2,817	2,809	2,809	(0)			(0)
Oct-10	1,754	1,754	1,754	0			0
Nov-10	3,179		3,092	87		(87)	(0)
Dec-10	3,975		3,980	(5)			(5)
Jan-11	1,936		1,936	(0)			(0)
Feb-11	2,683		2,686	(3)			(3)
Mar-11	7,669		7,669	-			-
YTD	**25,528**		**25,425**	**79**			

Hawaii Energy Efficiency Program

Quarterly Performance Report – 3rd Quarter PY10 (01/01/11 – 03/31/11)

Executive Summary

Activity Highlights

- Launched the 25% Installed Cost Enhanced Customized Program for government and non-profit organizations
- Executed one-on-one customer meetings to introduce the Central Plant Optimization competition
- Submitted our Preliminary Statement of Position as a party to the Energy Efficiency Portfolio Standard (EEPS) Docket
- Conducted the annual solar contractor meetings as well as informational update workshops to communicate program developments and encourage greater participation
- Offered limited time bonus rebates to the HOT WATER, COOL RATES co-funded American Recovery and Reinvestment Act (ARRA) State Energy Program (SEP), the regular solar rebate program, and ENERGY STAR program for Maui and Hawaii counties to maximize use of SEP funding and increase visibility of Hawaii Energy's programs

Administration Highlights

- Began preparation for the Hawaii Energy contract renewal for the next two program years (July 1, 2011 through June 30, 2013) and development of the Program Year 2011 Annual Plan
- Hired Dani Salyer as a temporary Energy Data Specialist to assist with program year close
- Received approval of the Program Year 2010 Budget Revision 3 to include carryover from Program Year 2009

Marketing & Outreach Highlights

- Invited to speak or contribute to various media outlets across the state as well as placed advertisements in many publications
- Created buzz around our bonus rebates for ENERGY STAR and HOT WATER, COOL RATES
- Co-Sponsored a six show series called "Hawaii: The Statement of Clean Energy" broadcasted with *Hawaii News Now* on KGMB state-wide television station
- Launched an online forum monitored by two energy efficiency experts where people can communicate, ask questions and voice their opinions about energy efficiency and conservation
- Partnered with Kohala Center and Blue Planet Foundation (BPF) to increase participation in the Conserve Fundraise Learn (C.F.L.) Program; the program partners with community organizations to exchange incandescent bulbs for compact fluorescent lamps (CFLs) in hard to reach areas

Report Card

- The following page is a report card reflecting our performance and strategic actions we are taking to improve our performance

Hawaii Energy Efficiency Program

Quarterly Performance Report – 3rd Quarter PY10 (01/01/11 – 03/31/11)

Performance Indicator	Q3 Results[1]	YTD Results[1]	PY10 Targets	Status	Strategic Actions Taken This Quarter	Strategic Changes for Next Quarter
Residential Savings (MWh)	10,267	39,169	71,245	G	• Hosted solar meetings • Began solar bonus incentive	• Continue solar bonus incentive
Business Savings (MWh)	12,291	25,425	61,370	Y	• Launched 25% Installed Cost Enhanced Customized Incentive • Hosted Program Info Meetings	• Increase LED lights distribution and outreach activities
Peak Demand (kW)	4,593	12,650	23,126	Y		• Increase outreach activities
Total Resource Benefits (Est. in Millions)	$26.409	$72.877	$148.597	Y		• Focus on projects with larger resource benefit
Market Transformation -State Building Demo Project -Launch RCx Program -Community Partnership	 0 Met 1	 0 Met 1	 10 01/01/11 4	Y		• Initiate State demo projects and more community partnerships
Island Equity *-Oahu County (Est.)* *-Maui County (Est.)* *-Hawaii Country (Est.)*	 74% 16% 10%	 77% 13% 10%	 69% 19% 11%	Y	• Offered ENERGY STAR bonus to Maui and Hawaii • Partnered with Kohala Center and PBF • Increased media to neighbor islands	• Expand activities on neighbor islands
Budget[2] *-Non- Incentive Billed* *-Incentive Billed[1]* *-Total Billed*	 $1,361,733 $2,680,066 $4,041,799	 $3,362,221 $8,154,342 $11,516,562	 $5,365,076 $15,025,3821 $20,390,458	G	• Continued to ramp up to utilize approved PY2009 carryover	• Create greater push on business incentives • Continue to ramp up to prepare for PY2010

[1] Results for the quarter and cumulative take into account the adjustments that were made in March 2011 (CFL energy value was changed from 26.5 kWh at the gross customer level to 32.6 kWh; demand was changed from 0.012 kW to 0.005 kW for savings reported since October 2010).
[3] Total Budget reflects the carryover budget (PY10 R3) and the deduction of $700,000 in performance incentive fees for the award pool.

Executive Summary

Activity Highlights

- Escalated efforts to encourage businesses to install energy efficient lighting by increasing existing rebates
  - Prescriptive rebates were increased by 20 percent with some being doubled
  - All customized rebates, including lighting, were doubled for a limited-time through the "Lighten Up for Savings" program"
- Continued to add innovative consumer energy programs aimed at educating, encouraging and incentivizing the residents of Hawaii to embrace energy efficiency practices.
- Offered a bounty program to reward the residents of Hawaii who surrendered old, but working, appliances
  - Oahu residents received a $25 cash incentive per qualified appliance and a free pick up
  - Hawaii and Maui County residents received a $35 cash incentive per qualified appliance
- Hired David Mittelstadt as an Outreach Specialist
- Hired Bing Wang as the new Business Manager to replace Kathryn Clark who relocated to the East Coast while Kathryn Clark remained to wrap up Program Year 2010 projects

Marketing Highlights

- Hawaii Energy TV spot "Not Another Drop" designed by Wall-to-Wall Studios was selected as a Gold Award winner at the American Advertising Federation's Hawaii Chapter PELE Awards on April 23, 2011
- ARRA SEP co-sponsored First Hawaiian Bank solar interest buy-down incentive appeared in *Radio KSSK*
- "Hawaii Energy's Enhanced Solar Water Heating Rebate Ends Early After Exhausting Funds" appeared in the following media:
  - *Hawaii 24/7,* an online news site focused on the Big Island
  - *Charlene on Green,* a local energy radio talk show

Outreach Highlights

- Hosted a booth at Hawaii Clean Energy Day and provided energy efficiency introduction, education, and presentation to lawmakers, their staff and the public at the State Capitol
- Presented Hawaii Energy programs and rebates at Rebuild Hawaii Consortium Quarterly Meeting
- Hosted multiple CFL bulb exchange events including:
  - Montessori Education Center of Hawaii CFL Exchange (Oahu)
  - Hamakua 4H Under the Sun CFL Exchange (Hawaii)

Key Performance Metrics

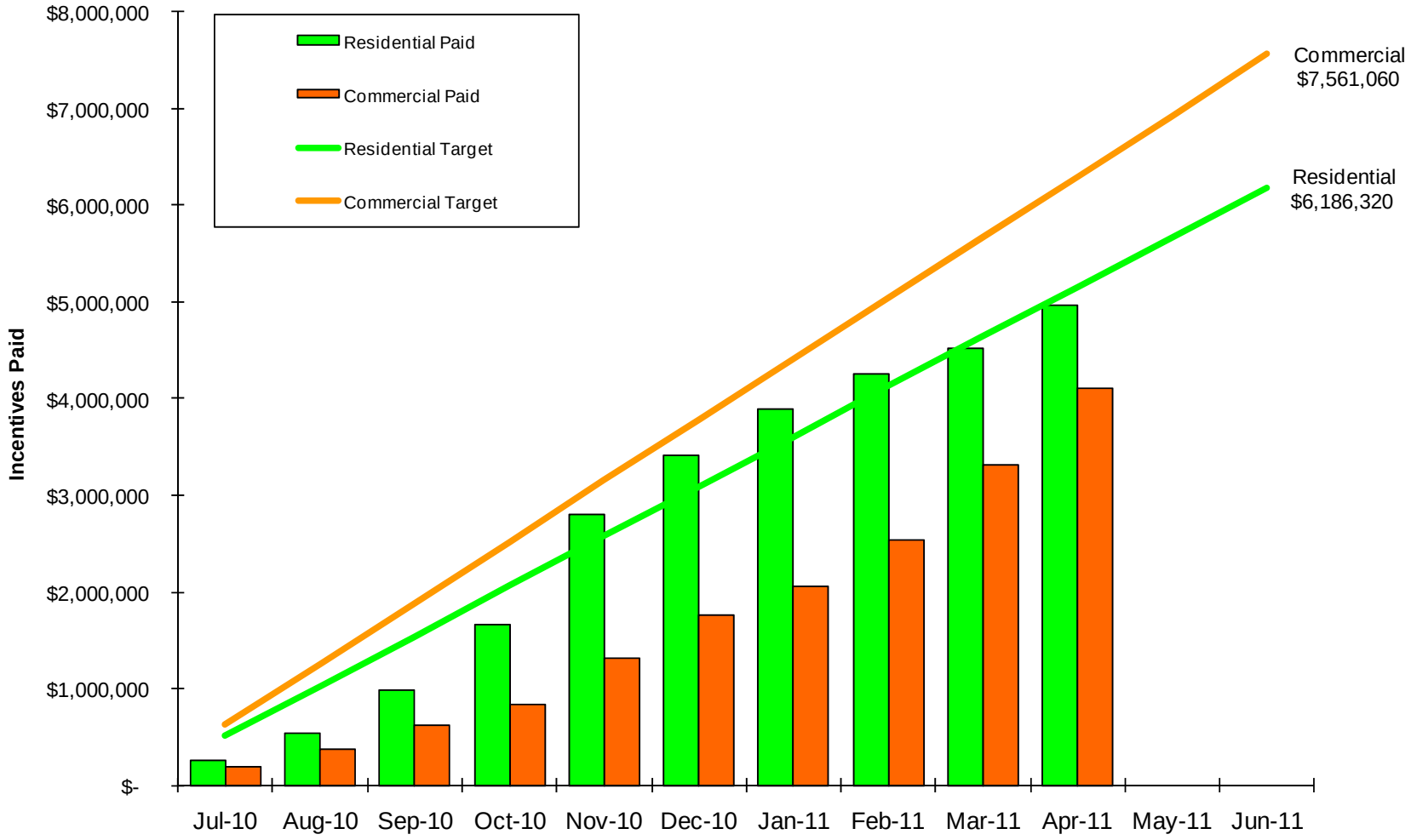
Key Performance Metrics	Month's Results	YTD Results	PY2010 Targets	YTD % of Target PY2010
Annual Energy Savings Impacts (Net Generation Level)				
Residential (MWh)	5,358	44,527	71,245	62.5%
Business (MWh)[1]	10,024	35,449	61,370	57.8%
Peak Demand (kW)	2,908	15,558	23,126	67.3%
Total Resource Benefit	$16,981,199	$89,858,023	$ 148,596,954	60.5%
Island Equity (% of Energy Savings)				
Oahu	89.0%	79.5%	69%	+/-20% Met
Maui County	6.3%	11.8%	19%	<-20%
Hawaii County	4.7%	8.8%	11%	<-20%
Market Transformation (Applications Completed)				
State Building Demo Projects	0	0	10	0.00%
Launch RCx Program	Met	Met	1/2011	Met
Community Partnership[2]	1	2	4	50.0%
Financials				
Total Non-Incentives Billed[3]	$541,315.51	$3,903,536.92	$6,065,076	64.4%
Total Incentives Billed	$1,231,745.34	$9,386,087.31	$15,025,382	62.5%
Total Program Costs Billed	$1,773,060.85	$13,289,624.23	$21,090,458	63.0%

[1] Business MWh increase this month was due to several large business projects such as: 1) State of Hawaii 10 Building Energy Saving Performance Contract (ESPC) project (counting 3,674 MWh or 37% of the total Business MWh); and 2) Military New Housing projects (counting 2,936 MWh or 29% of the total Business MWh).
[2] Pono Solutions Memorandum of Agreement (MOA) as of April 1, 2011.
[3] Total Budget reflects the deduction of $700,000 in performance incentive fees for the award pool.

Performance Charts

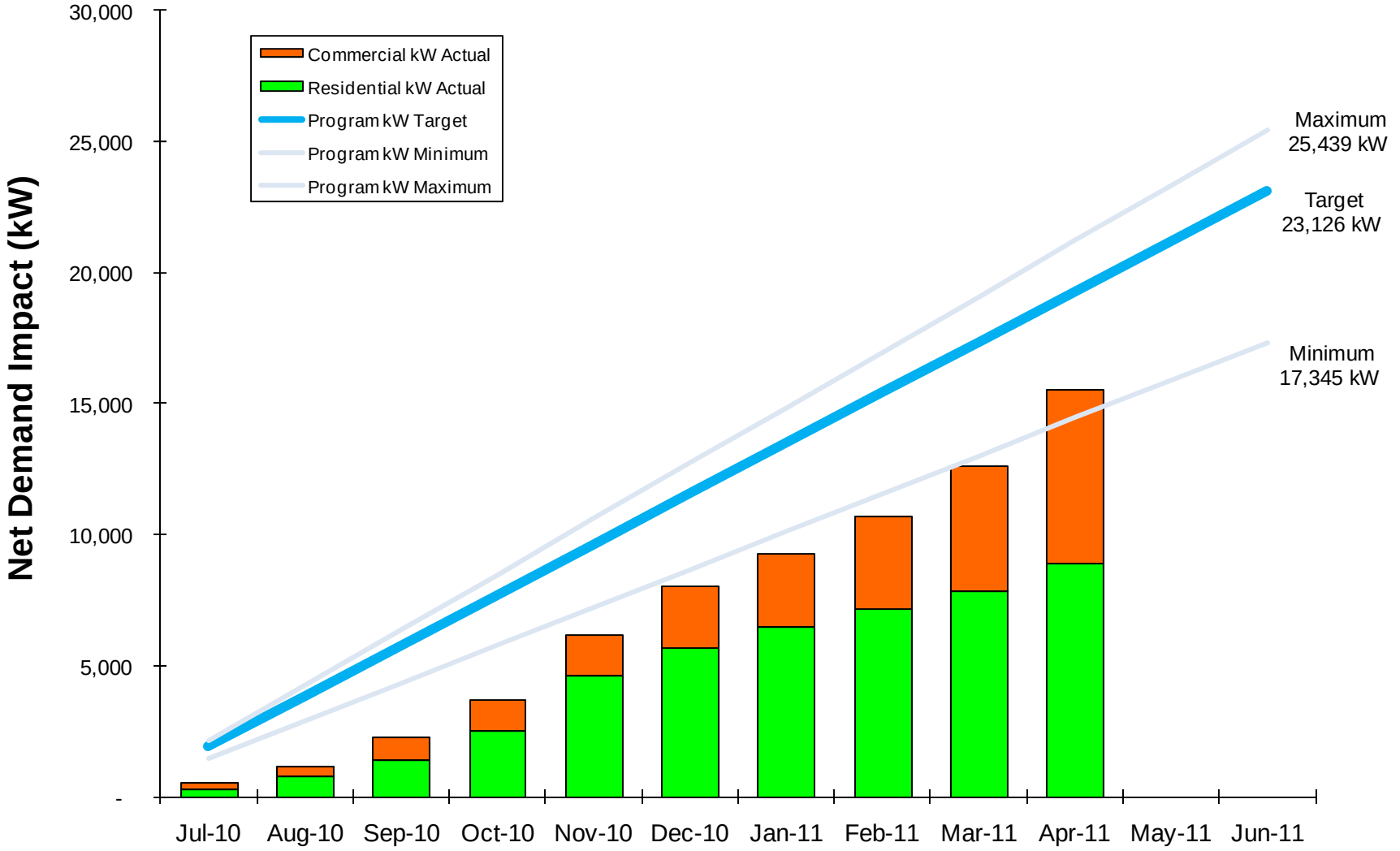
1. *PY2010 Incentive Payment Tracking* - This Chart shows the paid versus target incentives for the PY2010.

Chart 1: PY2010 Incentive Tracking



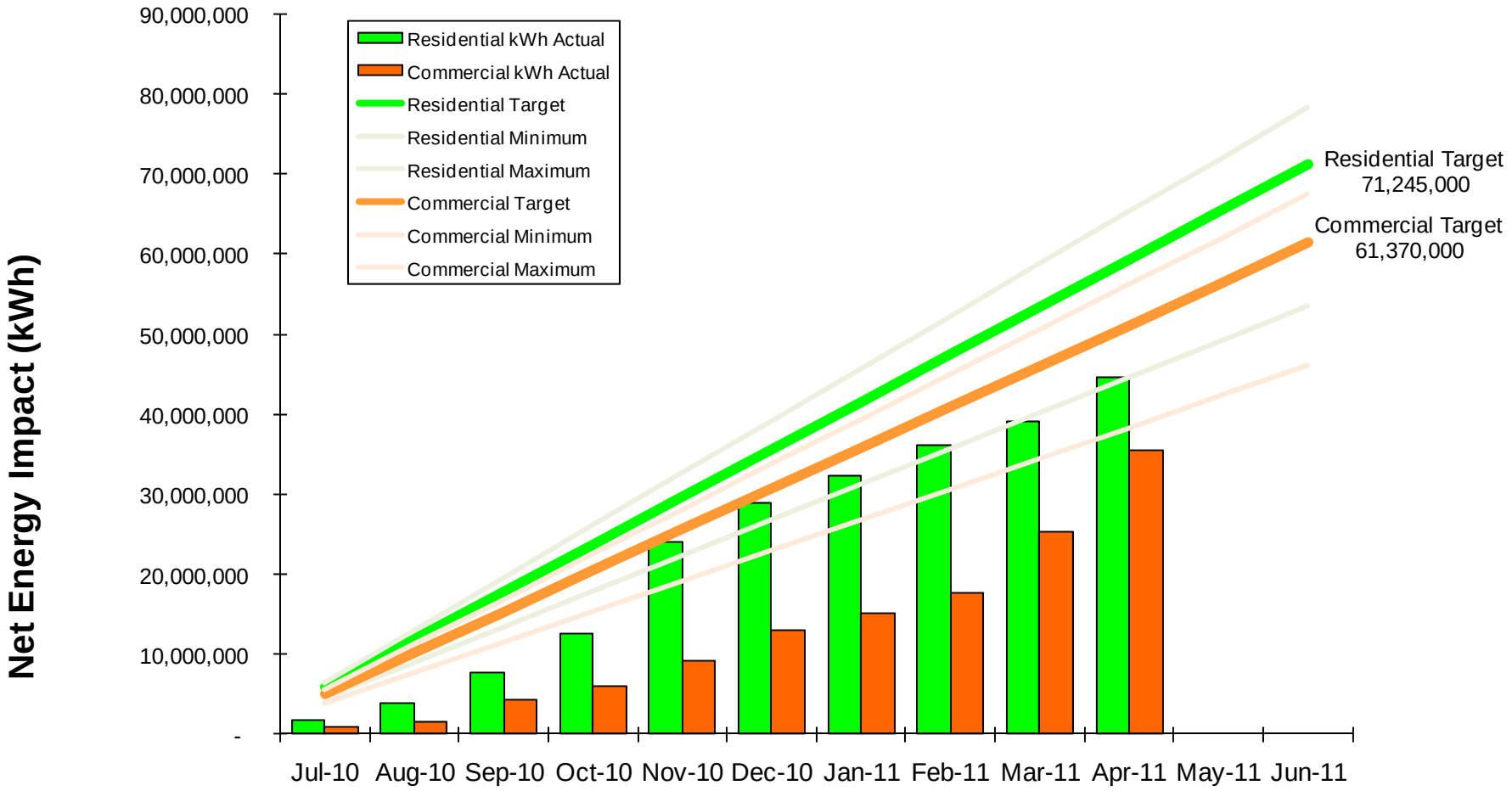
2. *PY2010 Net Demand Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010.

Chart 2: PY2010 Net Demand Impact Tracking



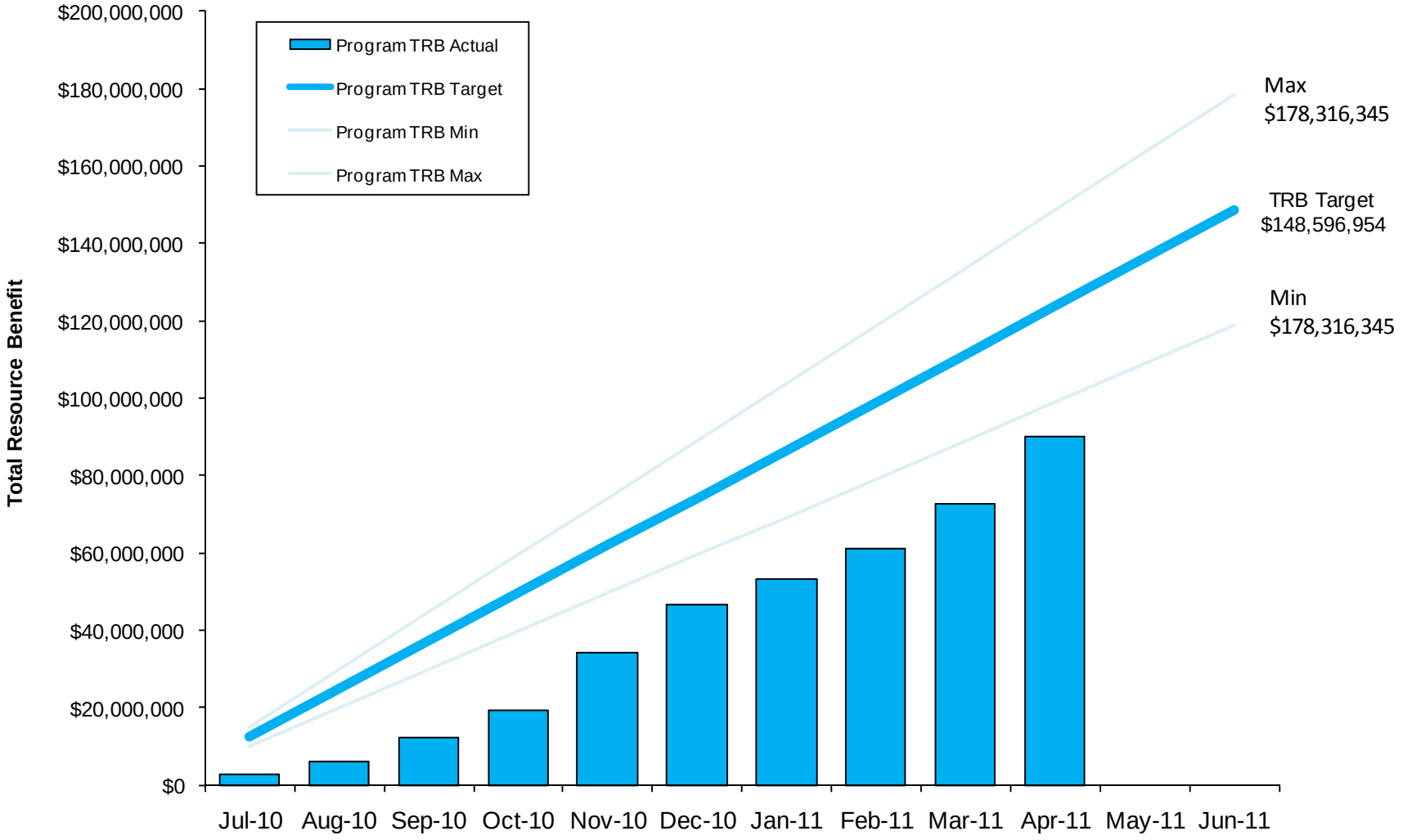
3. *PY2010 Net Energy Impact Tracking* - This Chart shows the net energy impact versus target for PY2010.

Chart 3: PY2010 Net Energy Impact Tracking



4. *PY2010 Total Resource Benefit Impact Tracking* - This Chart shows the total resource benefit impact versus target for PY2010.

Chart 4: PY2010 Total Resource Benefit Impact Tracking



Outreach Highlights

The following Publicity, Advertising, & Marketing Outreach activities took place this month.

Media Outlet	Subject	Date*
Radio (KSSK)	First Hawaiian Bank solar interest buy-down	18-April to 31-April
Honolulu Weekly	Energy House	13-April to 19-April
Hawaii 24/7	Hawaii Energy's bonus solar water heating rebate ends early after exhausting funds	18-April
Charlene on Green	Hawaii Energy's bonus solar water heating rebate ends early after exhausting funds	N/A

*Date indicates date of event or posting on website. Subject may have been promoted via social media on multiple dates.

The following Education & Training Outreach events took place this month.

Outreach Event	Audience	Subject	Count	Date
Montessori Education Center of Hawaii CFL Exchange (Hawaii)	Oahu Residents	CFL Bulb Exchange Event	30	2-April and 9-April
Rebuild Hawaii Consortium Quarterly Meeting	Federal, State, and local government agencies; schools, colleges and universities; utilities; energy services companies, and community and private business organization	Program and rebate overview and presentation	70	5-Apr
Prep for Earth and Ocean Day	West Hawaii Explorations Academy students, Ben Duke, teacher	Earth day and bulb exchange support	10	6-Apr
Outrigger Management	Lloyd Leong- Leis Co, Kristofer Nickleson and John Carvahlo- Outrigger Condo Collection	Program and rebates overview	5	11-Apr
Meeting, Chief Engineer King Kamehameha Hotel	Assist. Engineer	Follow up on renovation rebate application	3	11-Apr
Bill Carl, Humpys Big Island Alehouse	Management	Walk through to discuss possible project and energy audit	3	11-Apr
Mauna Kea/Hapuna Prince Engineering	Clyde Takayama	Program and rebates overview	3	11-Apr
Building Owners and Managers Association (BOMA) Sustainability Week	Commercial Real Estate	Program overview	80	12-Apr to 14-Apr
2011 “We Have the Power” Clean Energy Rally	Oahu Residents	Support Blue Planet Foundation’s Rally to push a policy House Bill 1520 SD2	100+	19-Apr
Hawaii Clean Energy Day	Oahu	Hawaii Energy table at State Capital	100+	20- Apr
Hamakua 4H Under the Sun CFL Exchange	Paauilo PTO Carnival, Hawaii	CFL Bulb Exchange Event	50+	21-Apr
2011 Earth and Ocean Festival at Keauhou	Keauhou Beach Resort, Hawaii	Attending the Earth and ocean Festival	70+	23-Apr
County of Hawaii, The Kohala Center, Friends of Natural Energy Laboratory of Hawaii	Will Rolston, Guy Toyama	Discussion of energy efficiency education work and material distribution for County of Hawaii	2	25-Apr

Hawaii Energy *Conservation and Efficiency Program*

Monthly Performance Report – April 2011 (4/1/11 – 4/30/11)

Budget Status Table

	April Allocations	Allocations to Date	PY10 Revision 3	Percent Spent
Residential Programs				
Residential Program Ops and Management				
REEM	$241,316.21	$1,494,732.58	1,815,575	82%
RLI	$7,886.21	$70,726.41	284,700	25%
New	$7,534.24	$21,951.63	91,815	24%
Total Residential Programs	256,736.66	1,587,410.62	2,192,089	72%
Market Evaluation	2,824.50	34,694.17	97,176	36%
Outreach	45,356.94	268,318.58	328,530	82%
Total Residential Non-Incentive	304,918.10	1,890,423.37	2,617,795	72%
Residential Incentives		-		
REEM	400,024.00	4,915,699.71	5,941,637	83%
RLI	39,345.34	326,472.60	406,228	80%
New	-	-	887,200	0%
Total Residential Incentives	439,369.34	5,242,172.31	7,235,065	72%
Total Residential Programs	**744,287.44**	**7,132,595.68**	**9,852,861**	**72%**
Business (C&I) Programs				
Business Programs Ops and Management				
BEEM	85,489.77	638,651.36	762,447	84%
CBEEM	26,801.94	312,205.10	407,069	77%
New	6,364.99	43,668.20	188,880	23%
Total Business Programs	118,656.70	994,524.66	1,358,396	73%
Market Evaluation	3,431.00	81,044.13	129,857	62%
Outreach	39,110.17	269,281.58	398,321	68%
Total Business Non-Incentive	161,197.87	1,344,850.37	1,886,574	71%
Business Incentives				
BEEM	715,881.00	3,396,788.00	5,203,994	65%
CBEEM	76,495.00	747,127.00	1,116,441	67%
New	-	-	1,469,882	0%
Total Business Incentives	792,376.00	4,143,915.00	7,790,317	53%
Total Business Programs	**953,573.87**	**5,488,765.37**	**9,676,891**	**57%**
Total Services and Initiatives	**1,697,861.31**	**12,621,361.05**	**19,529,751**	**65%**
Supporting Services				
Supporting Services	$106,548.91	$1,049,689.11	1,287,781	82%
Total Supporting Services	**106,548.91**	**1,049,689.11**	**1,287,781**	**82%**
Subtotal Non-Incentive (Prior to Tax)	572,664.88	4,284,962.85	5,792,150	74%
[1] Less Performance Incentives (Prior to Tax)	(55,708.36)	(557,083.60)	(700,000)	
Subtotal Non-Incentive Less Performance Incentives (PI)	516,956.52	3,727,879.25	5,092,150	
[2] Total Tax on Non-Incentive Without PI	24,358.99	175,657.67	272,926	
Performance Incentive Award (Inclusive of Tax)		-	700,000	
Subtotal Non-Incentive Billed	*541,315.51*	*3,903,536.92*	*6,065,076*	
Subtotal Residential and Business Customer Incentives	*1,231,745.34*	*9,386,087.31*	*15,025,382*	
Sub-Total Estimated Contractor Costs	*1,773,060.85*	*13,289,624.23*	*21,090,458*	
Performance Awards in Excess of Target Levels			133,000	
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels			**21,223,458**	

1 Budget includes ($31,500) in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

2 Budget includes $31,500 in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

Executive Summary

Activity Highlights

- Gave away LED lamps to small business and nonprofit organizations through a new limited time program called "Lighting the Future" where participants were required to agree to install the LED lamps prior to June 30, 2011; through a competitive bidding process, Hawaii Energy selected Toshiba as its supplier for their discounted pricing and a "buy one, get one free" promotional opportunity
- Announced exhaustion of the $1,000 solar water heating bonus incentive that was funded by American Recovery and Reinvestment Act (ARRA) to increase incentive to participate in our traditional solar rebate offering (non-financed)
- Continued refining the Hawaii Energy Contract Renewal for the next two program years (July 1, 2011 through June 30, 2013) and the Program Year 2011 Annual Plan
- Hired Meagan Suzuki as Data Specialist

Marketing Highlights

- Advertised and explained the Home Energy Report program through multiple web and social media outlets
- Announced, in partnership with Toshiba, the "Lighting the Future" program through multiple web and social media outlets

Outreach Highlights

- Hosted a booth at the "Pioneer Electric Annual Summer Trade Show" and presented business incentive programs to contractors, electricians, engineers and facility personnel
- Attended "WorkForce2011 Job & Career Fair," the largest job fair held in Hawaii; Hawaii Energy was selected by the Department of Labor and Industrial Relations to participate as an exhibitor to support green jobs, the theme of this year's event
- Hosted multiple meetings to introduce the "Lighting the Future" program"

Key Performance Metrics

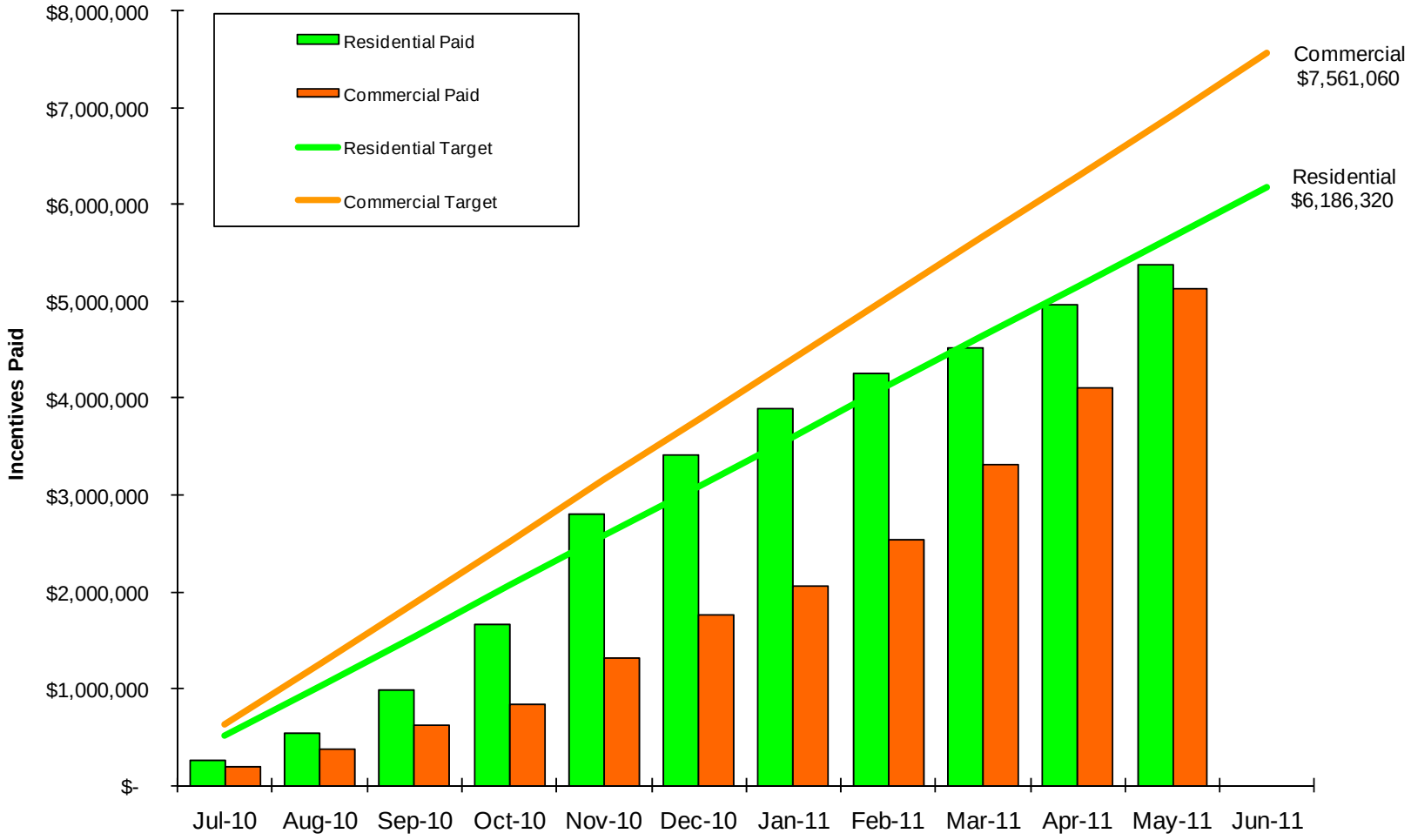
Key Performance Metrics	Month's Results	YTD Results	PY2010 Targets	YTD % of Target PY2010
Annual Energy Savings Impacts (Net Generation Level)				
Residential (MWh)	3,788	48,315	71,245	67.8%
Business (MWh)	9,984	45,433	61,370	74.0%
Peak Demand (kW)	2,066	17,624	23,126	76.2%
Total Resource Benefit	$19,195,341	$109,053,364	$ 148,596,954	73.4%
Island Equity (% of Energy Savings)				
Oahu	92.1%	81.3%	69%	+/-20% Met
Maui County	3.9%	10.6%	19%	>-20%
Hawaii County	4.0%	8.1%	11%	>-20%
Market Transformation (Applications Completed)				
State Building Demo Projects	0	0	10	0.00%
Launch RCx Program	Met	Met	1/2011	Met
Community Partnership[1]	1	3	4	75%
Financials				
Total Non-Incentives Billed[2]	$523,955.91	$4,427.492.83	$5,365,076	82.5%
Total Incentives Billed	$1,435,627.39	$10,821,714.70	$15,025,382	72.0%
Total Program Costs Billed	$1,959,583.30	$15,249,207.53	$20,390,458	74.8%

Notes:
1. Lighting the Future
2. Total Non Incentive Billed and Budgets reflect the deduction of performance incentive fees for the award pool ($700,000)

Performance Charts

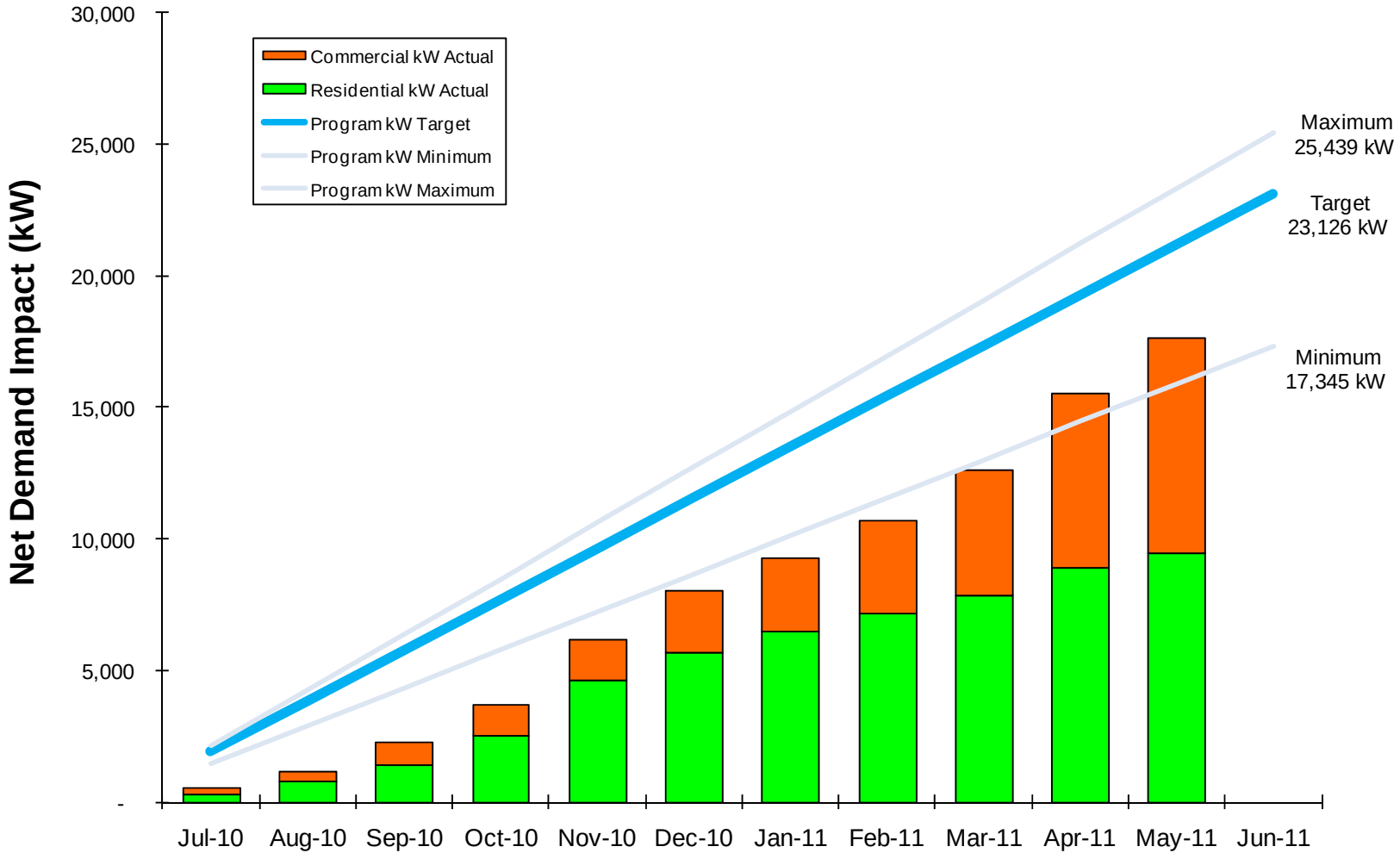
1. *PY2010 Incentive Payment Tracking* - This Chart shows the paid versus target incentives for the PY2010.

Chart 1: PY2010 Incentive Tracking



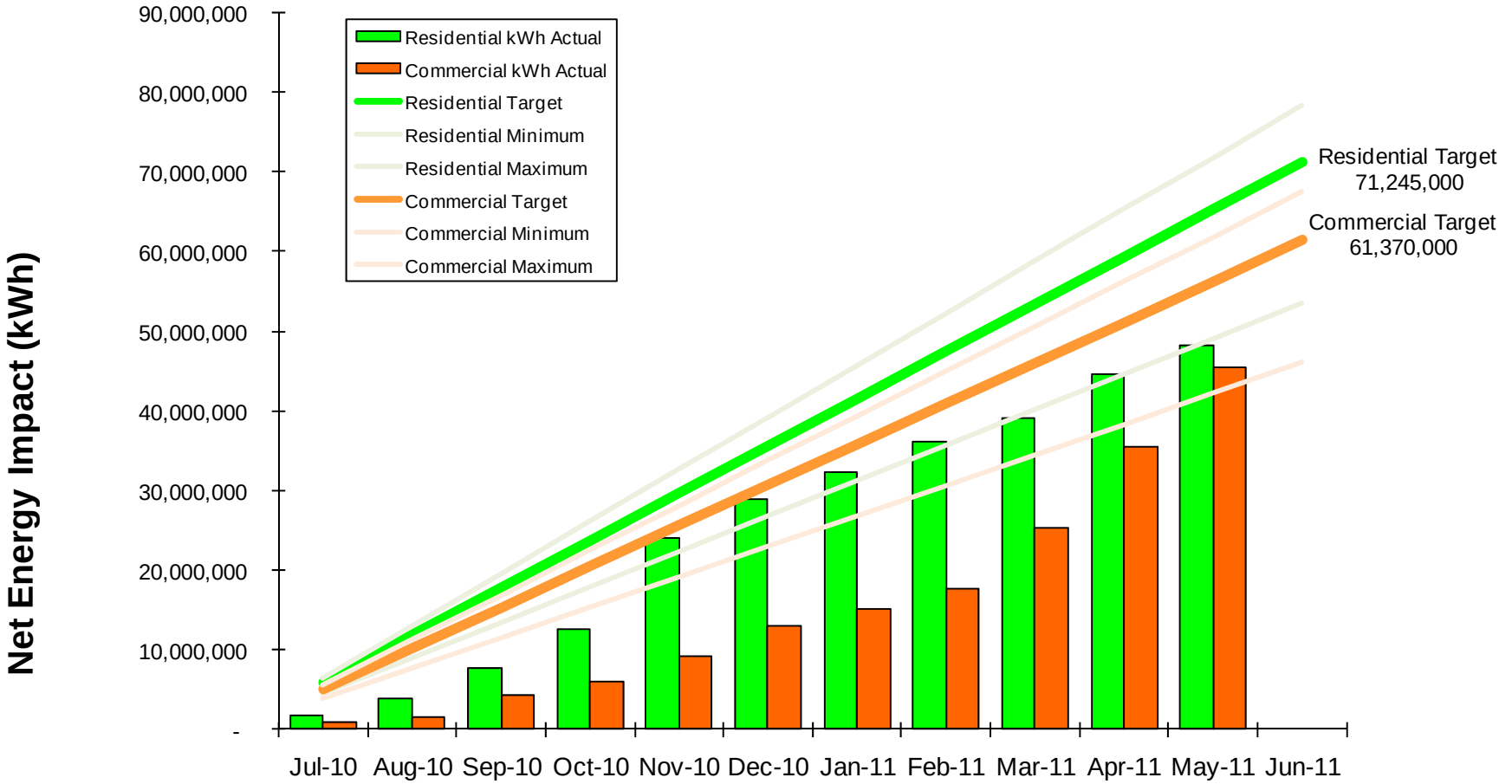
2. *PY2010 Net Demand Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010.

Chart 2: PY2010 Net Demand Impact Tracking



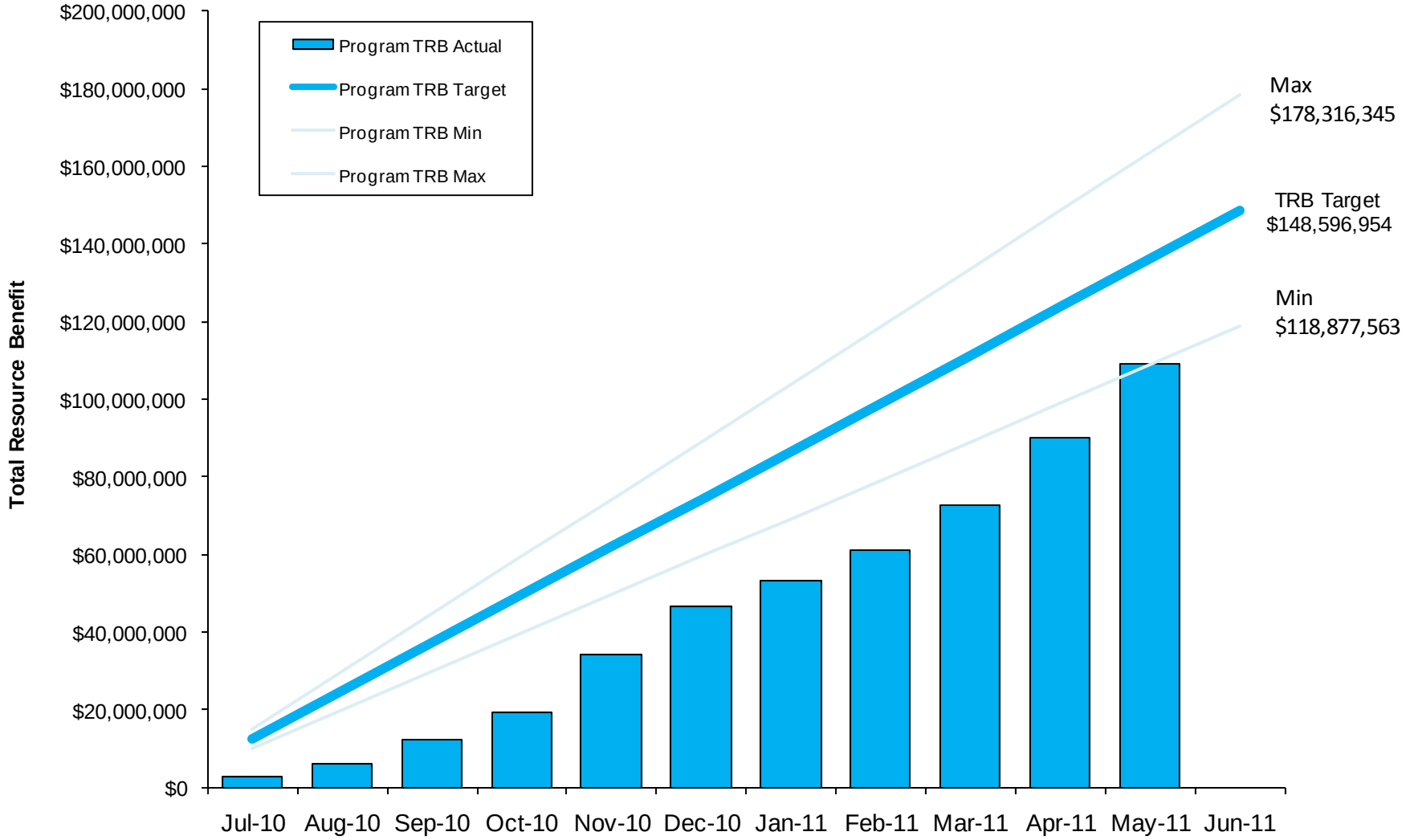
3. PY2010 Net Energy Impact Tracking - This Chart shows the net energy impact versus target for PY2010.

Chart 3: PY2010 Net Energy Impact Tracking



4. *PY2010 Total Resource Benefit Impact Tracking* - This Chart shows the total resource benefit impact versus target for PY2010.

Chart 4: PY2010 Total Resource Benefit Impact Tracking



Outreach Highlights

The following Publicity, Advertising, & Marketing Outreach activities took place this month:

Media Outlet	Subject	Date[1]
Honolulu Star-Advertiser	More funds to go toward solar water heater rebate	2-May
Hawaii 24/7	Cash reward for turning in old appliances	5-May
Web, Social Media	Hawaii Energy offers new program to help residents improve energy efficiency	6-May
Hawaii 24/7	Hawaii Energy helping residents improve energy efficiency	9-May
Web, Social Media	Pioneer Electric Annual Summer Trade Show (tabletop)	12-May
Honolulu Star-Advertiser	Isle ad businesses await judging for ADDY awards	13-May
Web, Social Media	WorkForce 2011 Job & Career Fair	18-May
Web, Social Media	Hawaii Energy, Toshiba announce Lighting the Future offering for small businesses and nonprofits	24-May
Web, Social Media	Hawaii Energy's $1,000 solar water heating incentive ends	24-May
Honolulu Star-Advertiser	Incentive reduced for solar water rebate program	25-May
Web, Social Media	Hawaii Energy lends a hand to Molokai residents with refrigerator trade-in program	26-May
Honolulu Star-Advertiser	Homeowner solar rebate reduced	26-May
Maui Now	Hui Up Program Offers Refrigerator Trade-In on Molokai	31-May

[1]Date indicates date of event or posting on website. Subject may have been promoted via social media on multiple dates.

The following Education & Training Outreach events took place this month:

Outreach Event	Audience	Subject	Count	Date
Pioneer Electric Annual Summer Trade Show (tabletop)	Contractors, electricians, engineers and military facilities personnel	Hawaii Energy business incentives	150	12-May
Job Fair	Job seekers	WorkForce 2011 Job & Career Fair	300	18-May
Meeting	Maui Hospitality and Engineering	Hawaii Energy incentives programs – Lighting the Future, Central Plant Optimization, Custom/Presciptive Incentives)	10	19-May

The following program events took place this month:

Outreach Event	Audience	Subject	Count	Date
Tradewind at the Ponds	Michael Shinners, Plant Manager	Limited-time offer	1	2-May
Hawaii Medical Center	Steve Castillo	2226 Liliha St. customized incentive	1	2-May
3M	Derric Hilfer	Review of Hawaii Energy program requirements	6	3-May
City Financial Tower	Paul Yokatake	VAV automation building control customized incentive	1	4-May
LEDGREEN	Howard Coffey	LED customized incentive	1	4-May
Conference	Water industry	American Water Works Association (AWWA) Hawaii Section 37th Annual Conference	n/a	3-May to 5-May
Windward Passage	Board members	Meeting	8	5-May
Chelsea Group	George Benda	Queen's Medical Center central plant optimization	1	6-May
LEDGREEN	Cadman Canahele	LED customized rebate	1	10-May
Titan LED	Bobby Parry	Introduction to Hawaii Energy, review of LED requirements, discussion of potential projects	2	11-May
County of Hawaii	Will Rolston	Hawaii Energy Business incentives and application	1	10- May
Kuhio Park Terrace	Greg Carroll	Meeting	4	11-May
Gentry Pacific Energy Audit	Shelly, Property Manager	Hawaii Energy business incentives	1	13-May
Executive Center	Clem Lagundimao, Building General Manager	Cooling tower with VFD incentive	1	17-May
WKF Inc. (1000 Bishop St.)	Freddie Realista, Facilities Manager	Limited-time offer and incentive update	1	17-May
Edition Hotel	Ike Harris, Engineer Director	Chiller retrofit project	1	17-May

The following program events took place this month (continued):

Outreach Event	Audience	Subject	Count	Date
Kaneohe Marine Corps Base Hawaii (KMCBH)	Roger Dunn, John Dunbar	Review KMCBH projects, review Hawaii Energy program requirements	3	18-May
Monsanto-Kunia	Dan Kerkemeyer	Potential incentive application	1	18-May
1523 Kalakaua Ave.	Vera Wagner (Collier)	T-12 to T-8 limited-time offer	1	18-May
ASB Kaneohe	Beth Nobre, Property Manager	Audit and meeting	2	19-May
Inn on the Park Call	Kevin KiSaw, Manager	Potential air cooled chiller project	1	23-May
Meeting	Glen Waki (McDonald's)	Meeting	1	24-May
New hire introduction	Mel Perriera (Hilton Grand Vacations), Jerry Robb (Sheraton Keahou), Hiram Higashida (Marriott), Jerry Nuaca (King Kamehameha), Wil Rolston (West Hawaii Civic Center)	Introducing Caroline Neary to Big Island customers	5	25-May
U.S. Coast Guard	Glenn Yanigi, Lorin Ching	Discussion of potential projects, review Hawaii Energy program requirements	3	27-May

Budget Status Table

	May Allocations	Allocations to Date	PY10 Revision 3	Percent Spent
Residential Programs				
Residential Program Ops and Management				
REEM	209,341.92	$1,704,074.50	1,815,575	94%
RLI	4,348.21	75,074.62	284,700	26%
New	11,068.13	33,019.76	91,815	36%
Total Residential Programs	224,758.26	1,812,168.88	2,192,089	83%
Market Evaluation	4,263.23	38,957.40	97,176	40%
Outreach	39,221.02	307,539.60	328,530	94%
Total Residential Non-Incentive	268,242.51	2,158,665.88	2,617,795	82%
Residential Incentives				
REEM	378,305.00	5,294,004.71	5,941,637	89%
RLI	37,410.39	363,882.99	406,228	90%
New	-	-	887,200	0%
Total Residential Incentives	415,715.39	5,657,887.70	7,235,065	78%
Total Residential Programs	**683,957.90**	**7,816,553.58**	**9,852,861**	**79%**
Business (C&I) Programs				
Business Programs Ops and Management				
BEEM	77,301.79	715,953.15	762,447	94%
CBEEM	32,402.50	344,607.60	407,069	85%
New	3,374.64	47,042.84	188,880	25%
Total Business Programs	113,078.93	1,107,603.59	1,358,396	82%
Market Evaluation	12,582.00	93,626.13	129,857	72%
Outreach	17,900.75	287,182.33	398,321	72%
Total Business Non-Incentive	143,561.68	1,488,412.05	1,886,574	79%
Business Incentives				
BEEM	763,781.00	4,160,569.00	5,203,994	80%
CBEEM	256,131.00	1,003,258.00	1,116,441	90%
New	-	-	1,469,882	0%
Total Business Incentives	1,019,912.00	5,163,827.00	7,790,317	66%
Total Business Programs	**1,163,473.68**	**6,652,239.05**	**9,676,891**	**69%**
Total Services and Initiatives	**1,847,431.58**	**14,468,792.63**	**19,529,751**	**74%**
Supporting Services				
Supporting Services	144,282.27	1,193,971.38	1,287,781	93%
Total Supporting Services	**144,282.27**	**1,193,971.38**	**1,287,781**	**93%**
Subtotal Non-Incentive (Prior to Tax)	556,086.46	4,841,049.31	5,792,150	84%
[1] Less Performance Incentives (Prior to Tax)	(55,708.36)	(612,791.96)	(700,000)	
Subtotal Non-Incentive Less Performance Incentives (PI)	500,378.10	4,228,257.35	5,092,150	
[2] Total Tax on Non-Incentive Without PI	23,577.81	199,235.48	272,926	
Performance Incentive Award (Inclusive of Tax)		-	700,000	
Subtotal Non-Incentive Billed	*523,955.91*	*4,427,492.83*	*6,065,076*	
Subtotal Residential and Business Customer Incentives	*1,435,627.39*	*10,821,714.70*	*15,025,382*	
Sub-Total Estimated Contractor Costs	*1,959,583.30*	*15,249,207.53*	*21,090,458*	
Performance Awards in Excess of Target Levels			133,000	
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels			**21,223,458**	

1 Budget includes ($31,500) in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

2 Budget includes $31,500 in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

Executive Summary

Activity Highlights

- Continued promoting and distributing LED lamps to small businesses and nonprofit organizations through the Lighting the Future offering; worked with distribution sites and Island Movers to coordinate massive shipments and storage
- Worked on finalizing the Hawaii Energy Contract Renewal for the next two program years (July 1, 2011 through June 30, 2013) and the Program Year 2011 Annual Plan
- Ongoing efforts to expand Hawaii Energy office in preparation for PY2011 through personnel selection and office expansion
- Appointed Doug Moose as Information Technology Database Lead to improve accuracy and efficiency of the Energy Performance Management Information System (EPMIS)
- Hired Caroline Neary, formerly working as part-time Outreach Specialist, as a Program Specialist to be dedicated to Hawaii Island

Marketing Highlights

- Lighting the Future LED offering appeared in various media
  - *Maui Now*
  - *Maui News*
  - *Maui Weekly*
  - *Focus Maui Nui,* Maui Economic Development Board website
- "Not Another Drop" TV spot won national silver ADDY award
- Bounty program appeared in various media
  - *Maui Now*
  - *Blue Planet Foundation e-newsletter*

Outreach Highlights

- Served as one of the main attractions at IConserve Energy Rally held at the Hawaii State Capitol where staff distributed gift bags containing CFLs, LEDs, advanced power strips, t-shirts and provided program information to state workers
- Attended Hawaii Hotel & Lodging Association chapter meeting and provided information on business programs to 300 hoteliers and contractors
- As a part of a partnership with Kanu Hawaii, Hawaii Energy provided 50 whole house monitors to Kanu's Hawaii Home Audit Project to help families learn and understand where energy is used in their home. The families will then create a plan to save energy with the help of interns who will monitor the progress and the information learned will be share with us.

Key Performance Metrics

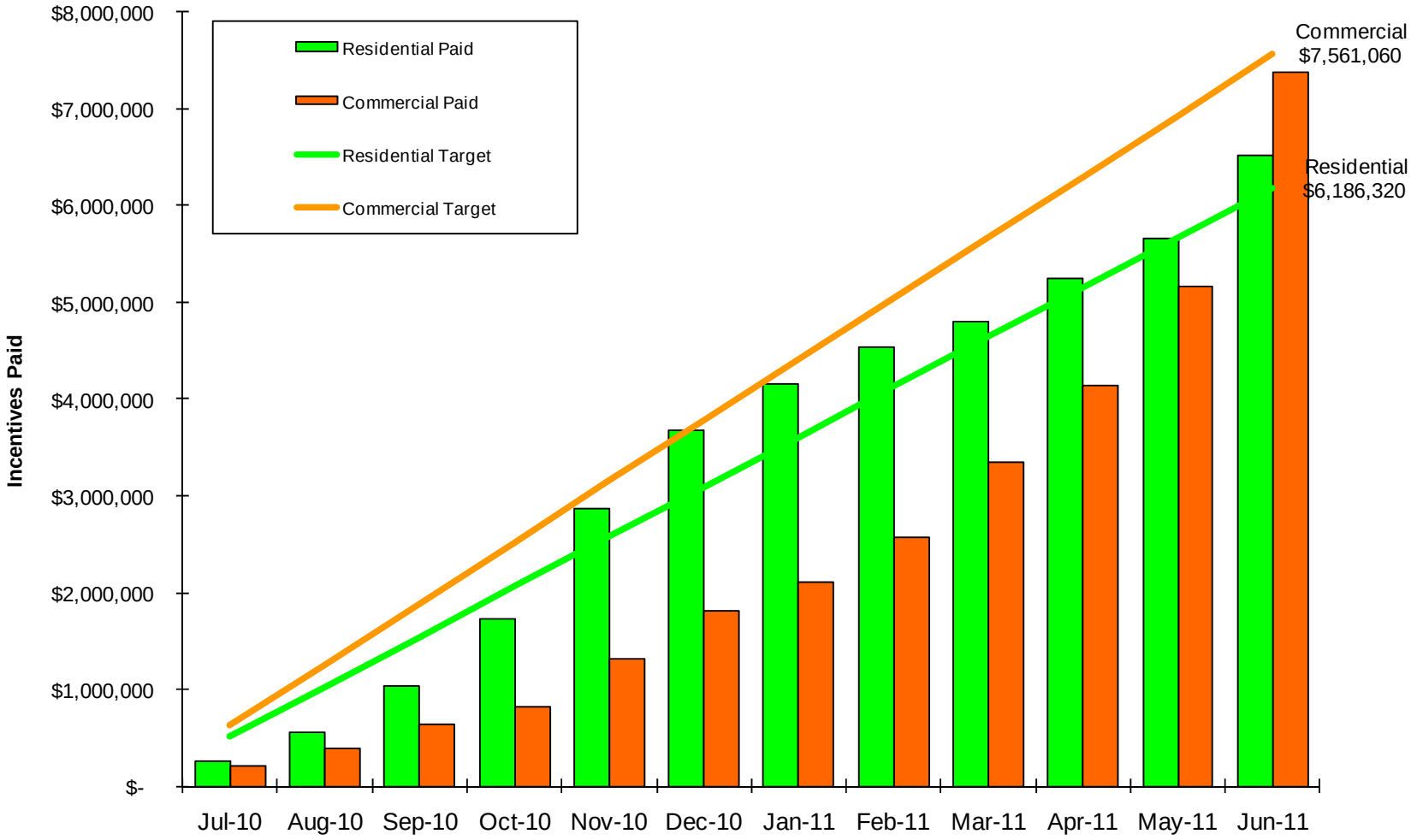
Key Performance Metrics	Month's Results	YTD Results	PY2010 Targets	YTD % of Target PY2010
Annual Energy Savings Impacts (Net Generation Level)[1]				
Residential (MWh)	9,316	56,790	71,245	79.7%
Business (MWh)	20,321	64,201	61,370	104.6%
Peak Demand (kW)	3,981	17,932	23,126	77.5%
Total Resource Benefit	$45,608,213	$211,327,115	$ 148,596,954	142.2%
Island Equity (% of Energy Savings)				
Oahu	71.7%	79.2%	69%	+/-20% Met
Maui County	13.5%	11.0%	19%	>-20%
Hawaii County	14.8%	9.8%	11%	+/-20% Met
Market Transformation (Applications Completed)				
State Building Demo Projects	0	0	10	0%
Launch RCx Program	Met	Met	1/2011	Met
Community Partnership[2]	1	4	4	100%
Financials				
Total Non-Incentives Billed[3]	$864,732.77	$5,292,225.60	$5,365,076	98.6%
Total Incentives Billed	$3,066,045.67	$13,887,760.37	$15,025,382	92.4%
Total Program Costs Billed	$3,930,778.44	$19,179,985.97	$20,390,458	94.1%

Notes:
1. The energy savings calculations for all measures were updated in the database to incorporate the latest qualifications, measure lives, values and methods provided in the updated PY10 TRM (March 2011). The TRB calculation changed in direct relation to the change in KW, KWh and measure lives
2. Kanu Hawaii Home Audit Project MOU
3. Total Non Incentive Billed and Budgets reflect the deduction of performance incentive fees for the award pool ($700,000)

Performance Charts

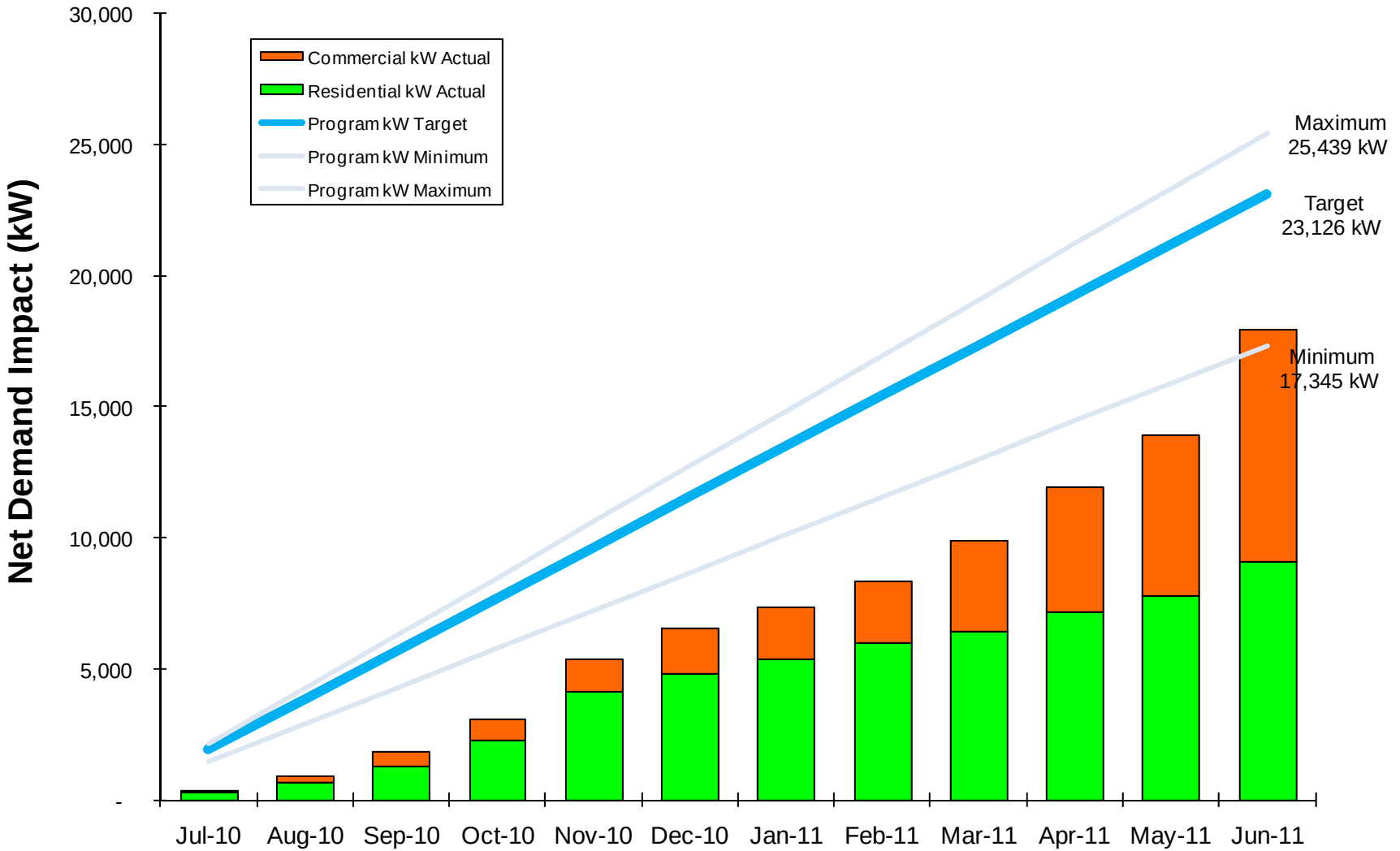
1. *PY2010 Incentive Payment Tracking* - This Chart shows the paid versus target incentives for the PY2010.

Chart 1: PY2010 Incentive Tracking



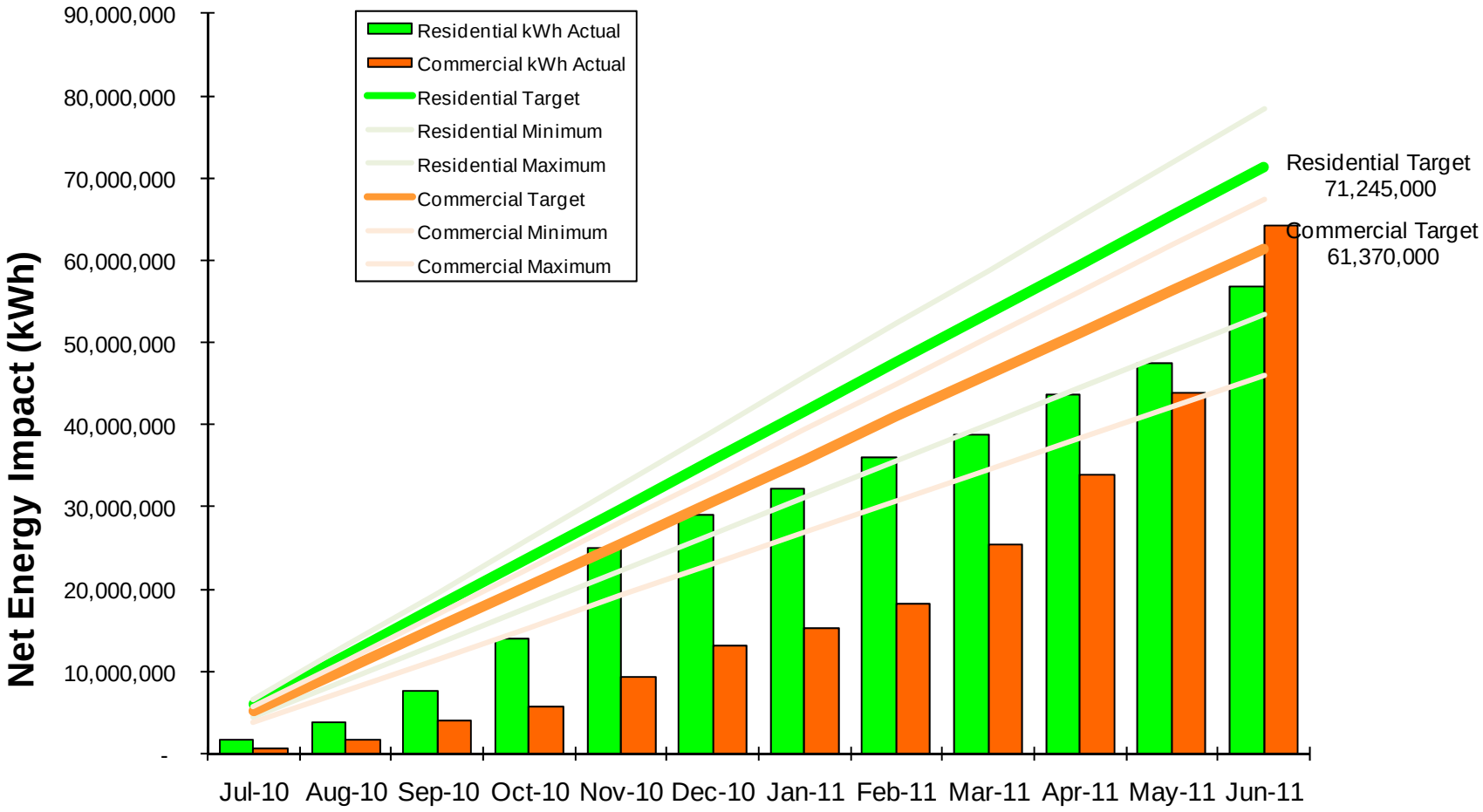
2. *PY2010 Net Demand Impact Tracking* - This Chart shows the combined demand impact versus target for PY2010.

Chart 2: PY2010 Net Demand Impact Tracking



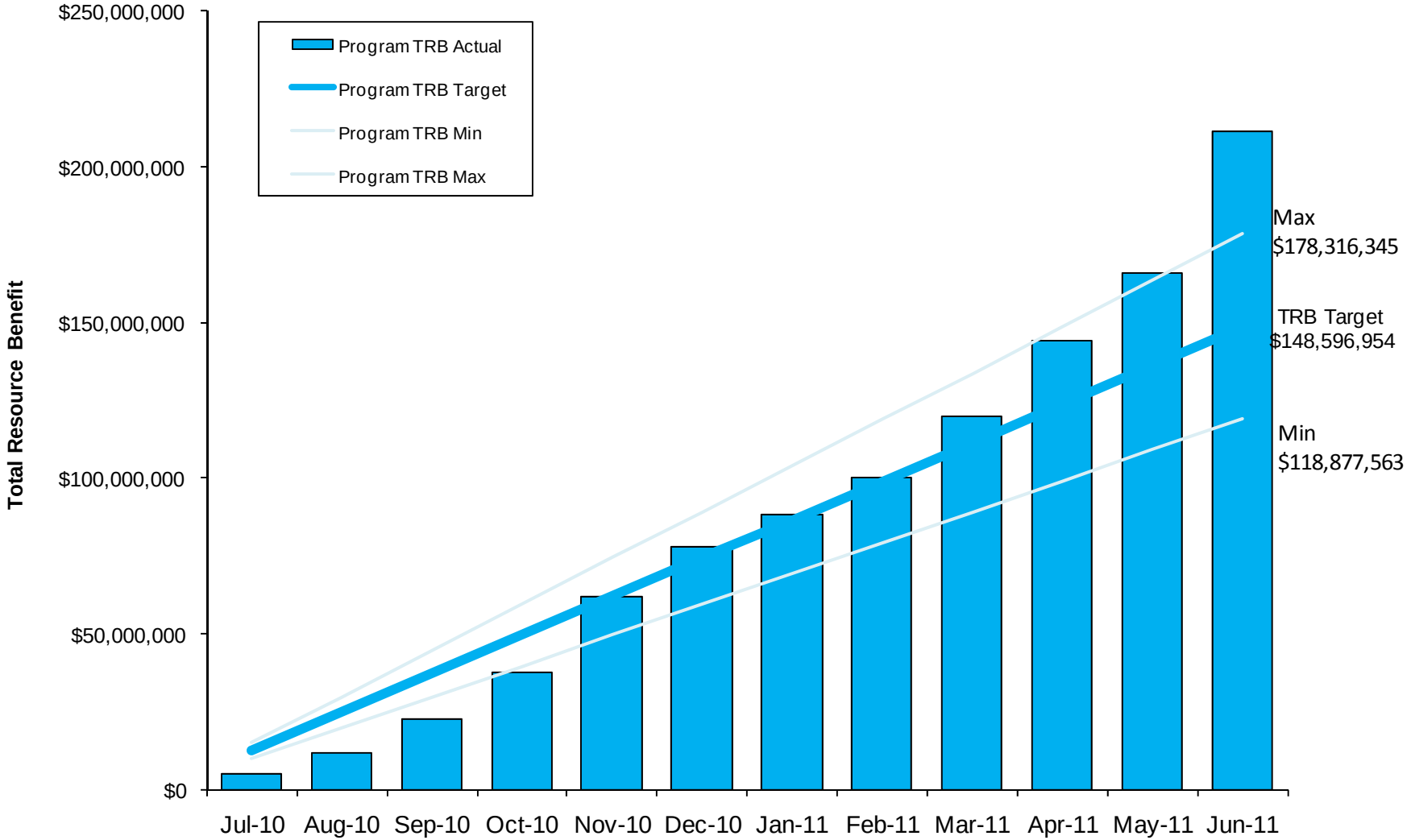
3. *PY2010 Net Energy Impact Tracking* - This Chart shows the net energy impact versus target for PY2010.

Chart 3: PY2010 Net Energy Impact Tracking



4. *PY2010 Total Resource Benefit Impact Tracking* - This Chart shows the total resource benefit impact versus target for PY2010.

Chart 4: PY2010 Total Resource Benefit Impact Tracking



Outreach Highlights

The following Publicity, Advertising, & Marketing Outreach activities took place this month.

Media Outlet	Subject	Date
Honolulu Star-Advertiser	LEDs offered to small biz, nonprofits	1-June
Maui Now	Get Free LED Lighting! Lamps Offered to Businesses, Nonprofits	2-June
Island energy Inquiry blog	Hawaii Energy, Toshiba Lighting the Future for Small Business and Non Profits	3-June
Hawaii Energy website	West Hawaii Explorations Academy CFL Exchange	4-June
Maui Now	Hawaii Energy Offers $35 Cash For Inefficient Appliances	6-June
Maui News	Businesses, groups can get free fixtures	10-June
Blue Planet Foundation e-newsletter	Blue Planet Foundation seeks groups interested in CFL fundraisers	13-June
Wall-to-Wall Studios blog	Wall-to-Wall Studios Wins National Silver ADDY for Hawaii Energy TV ad	15-June
Maui Weekly	Nonprofits and small businesses receive “Lighting the Future”	16-June
Blue Planet Foundation e-newsletter	Hawaii Energy’s Bounty Program pays cash for old appliances	20-June
Focus Maui Nui website (Maui Economic Development Board, Inc.)	Lighting the Way to Conserve Maui’s Energy	22-June
Hawaii 24/7	Kanu Hawaii announces energy challenge	28-June
Maui Economic Development Board advertisement in *The Maui News*	Focus Maui Nui: Lighting the Way to Conserve Maui	22-June to 29-June
Hawaii News Now	State Capitol in Battle of Buildings	29-June
Website, social media	iConserve Energy Public Rally	29-June

*Date indicates date of event or posting on website. Subject may have been promoted via social media on multiple dates.

The following Education & Training Outreach events took place this month.

Outreach Event	Audience	Subject	Count	Date
CFL Exchange	West Hawaii residents	West Hawaii Explorations Academy CFL Exchange	100	4-June
IConserve Energy Rally	State workers	IConserve Energy Public Rally	100	29-June
Hawaii Hotel & Lodging Association chapter meeting	Hoteliers and contractors	Business education	300	27-June

The following program events took place this month:

Outreach Event	Audience	Subject	Count	Date
Marina Ilikai AOAO	John Herkenrath	Pacific LED Solutions	1	1-June
WLS Lighting	Kevin Fletcher	Potential shopping center parking lot LED project	1	22-June
Hilo Hawaiian Hotel	Kurt Klint, manager, architects	Introduction to energy study and incentive options	3	6-June
Target	Joe Rozier (Head Contractor)	Introduction to business incentives	2	6-June

Budget Status Table

	June Allocations	Allocations to Date	PY10 Revision 3	PY10 Revision 4	Percent Spent
Residential Programs					
Residential Program Ops and Management					
REEM	360,910.36	2,064,984.86	1,815,574.76	2,076,900.38	99%
RLI	9,001.72	84,076.34	91,814.56	84,100.00	100%
New	10,579.72	43,599.48	284,700.00	44,295.00	98%
Total Residential Programs	380,491.80	2,192,660.68	2,192,089.32	2,205,295.38	99%
Market Evaluation	28,244.35	67,201.75	97,176.00	68,000.00	99%
Outreach	36,864.10	344,403.70	328,530.06	344,500.00	100%
Total Residential Non-Incentive	445,600.25	2,604,266.13	2,617,795.38	2,617,795.38	99%
Residential Incentives					
[3] REEM	425,365.00	5,719,369.71	5,941,637.41	5,941,637.41	96%
[5,6] RLI	2,156.74	366,039.73	406,227.79	406,227.79	90%
[3,5] New	425,490.97	425,490.97	887,200.00	887,200.00	48%
Total Residential Incentives	853,012.71	6,510,900.41	7,235,065.20	7,235,065.20	90%
Total Residential Programs	**1,298,612.96**	**9,115,166.54**	**9,852,860.58**	**9,852,860.58**	**93%**
Business (C&I) Programs					
Business Programs Ops and Management					
BEEM	118,565.70	834,518.85	762,447.42	838,184.00	100%
CBEEM	57,163.00	401,770.60	407,069.01	402,069.00	100%
New	12,377.93	59,420.77	188,880.00	90,321.00	66%
Total Business Programs	188,106.63	1,295,710.22	1,358,396.43	1,330,574.00	97%
Market Evaluation	60,383.19	154,009.32	129,856.72	155,000.00	99%
Outreach	101,722.52	388,904.85	398,320.55	400,999.70	97%
Total Business Non-Incentive	350,212.34	1,838,624.39	1,886,573.70	1,886,573.70	97%
Business Incentives					
BEEM	1,021,837.00	5,182,406.00	5,203,994.00	5,253,994.00	99%
CBEEM	787,898.00	1,791,156.00	1,116,440.90	1,976,440.90	91%
New	403,297.96	403,297.96	1,469,882.00	559,882.00	72%
Total Business Incentives	2,213,032.96	7,376,859.96	7,790,316.90	7,790,316.90	95%
Total Business Programs	**2,563,245.30**	**9,215,484.35**	**9,676,890.60**	**9,676,890.60**	**95%**
Total Services and Initiatives	**3,861,858.26**	**18,330,650.89**	**19,529,751.18**	**19,529,751.18**	**94%**
Supporting Services					
[4] Supporting Services	85,715.90	1,279,687.28	1,287,780.61	1,287,780.61	99%
Total Supporting Services	**85,715.90**	**1,279,687.28**	**1,287,780.61**	**1,287,780.61**	**99%**
Subtotal Non-Incentive (Prior to Tax)	881,528.49	5,722,577.80	5,792,149.69	5,792,149.69	99%
[1] Less Performance Incentives (Prior to Tax)	(55,708.36)	(668,500.32)	(700,000.00)	(700,000.00)	
Subtotal Non-Incentive Less Performance Incentives (PI)	825,820.13	5,054,077.48	5,092,149.69	5,092,149.69	
[2] Total Tax on Non-Incentive Without PI	38,912.64	238,148.12	272,926.00	272,926.00	
Performance Incentive Award (Inclusive of Tax)			700,000.00	700,000.00	
Subtotal Non-Incentive Billed	*864,732.77*	*5,292,225.60*	*6,065,075.69*	*6,065,075.69*	
Subtotal Residential and Business Customer Incentives	*3,066,045.67*	*13,887,760.37*	*15,025,382.10*	*15,025,382.10*	
Sub-Total Estimated Contractor Costs	*3,930,778.44*	*19,179,985.97*	*21,090,457.79*	*21,090,457.79*	
Performance Awards in Excess of Target Levels			133,000.00	133,000.00	
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels			**21,223,457.79**	**21,223,457.79**	

[1] Budget includes ($31,500) in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

[2] Budget includes $31,500 in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

[3] In December 2010, $248,407.96 in CFL costs for Residential Incentives that were incurred during PY2009 have been shifted to PY2010 because they were not expensed until PY 2010. (The Honeywell Invoices for $15,613.80 from 7/6/2010 and $232,794.16 from 7/12/2010 had been invoiced on RW Beck's 6/1-6/30/10 Incentive Invoice.)

[4] This month's supporting services is less than normal due to approval to reallocate Honeywell supporting services costs back to residential programs at a pro-rated amount between programs; January through June have been allocated in this manner (March and April were booked as residential from initial billing).

[5] The budget amounts in the PY2010 (R3) column for New and RLI non-incentives were erroneously swapped in the Budget table for Budget Modification 7 (Contract modification PBFA-09-05) dated 3/10/11. The amounts should have been $284,700 for New and $91,814.56 for RLI instead of $91,814.56 for New and $284,700 for RLI. Therefore, for budget modification R4, the decrease in RLI operations would only have been $7,714.56 and the revised budget is well above the previous PY10 RLI budget request of $57,300 (PY10 R2a).

[6] $2,070 CFL's and power strips giveaways at Iconserve Energy Rally on June 29, 2011, which were funded by RLI Program, were supposed for REEM Program.

Monthly Performance Report - June 2011 (6/1/11 - 6/30/11) - Appendix A

Reported as of May 2011	Residential Energy Savings Impacts (MWh)	Business Energy Savings Impacts (MWh)	Peak Demand (KW)	Total Resource Benefit $	Total Non-Incentive Billed $	Total Incentive Billed $	Total Program Costs Billed $
PY10 Target	**71,245**	**61,370**	**23,126**	**$ 148,596,954**	**$ 5,365,076.00**	**$ 15,025,382.00**	**$ 20,390,458.00**
Jul-10	1,804	858	540	$ 2,851,414	$ 162,674.01	$ 457,184.50	$ 619,858.51
Aug-10	2,154	641	635	$ 3,137,831	$ 321,621.68	$ 485,009.13	$ 806,630.81
Sep-10	3,723	2,809	1,104	6,553,816	$ 351,377.90	$ 720,180.63	$ 1,071,558.53
Oct-10	4,898	1,754	1,423	$ 6,842,376	$ 382,797.89	$ 879,455.81	$ 1,262,253.70
Nov-10	11,384	3,092	2,469	$ 15,111,178	$ 417,152.47	$ 1,635,451.08	$ 2,052,603.55
Dec-10	4,937	3,980	1,886	$ 11,970,833	$ 364,863.77	*$ 1,048,586.38*	$ 1,413,450.15
Jan-11	3,398	1,936	1,258	$ 6,806,127	$ 503,948.90	$ 788,398.39	$ 1,292,347.29
Feb-11	3,945	2,686	1,400	$ 7,940,250	$ 430,663.63	$ 847,670.99	$ 1,278,334.62
Mar-11	2,925	7,669	1,935	$ 11,662,999	$ 427,121.16	$ 1,043,997.10	$ 1,471,118.26
Apr-11	5,358	10,024	2,908	$ 16,981,199	$ 541,315.51	$ 1,231,745.34	$ 1,773,060.85
May-11	3,788	9,984	2,066	$ 19,195,341	$ 523,955.91	$ 1,435,627.39	$ 1,959,583.30
PTD Total	**48,315**	**45,433**	**17,624**	**$ 109,053,364**	**$ 4,427,492.83**	**$ 10,821,714.70**	**$ 15,000,799.57**

Reported as of Sept 23, 2011	Residential Energy Savings Impacts (MWh)	Business Energy Savings Impacts (MWh)	Peak Demand (KW)	Total Resource Benefit $	Total Non-Incentive Billed $	Total Incentive Billed $	Total Program Costs Billed $
PY10 Target	**71,245**	**61,370**	**23,126**	**$ 148,596,954**	**$ 5,365,076.00**	**$ 15,025,382.00**	**$ 20,390,458.00**
Jul-10	1,742	712	388	$ 4,974,332	$ 162,674.01	$ 457,184.50	$ 619,858.51
Aug-10	2,032	988	518	$ 6,825,685	$ 321,621.68	$ 485,009.13	$ 806,630.81
Sep-10	3,865	2,380	916	11,074,035	$ 351,377.90	$ 720,180.63	$ 1,071,558.53
Oct-10	6,291	1,724	1,290	$ 15,086,853	$ 382,797.89	$ 879,455.81	$ 1,262,253.70
Nov-10	11,077	3,567	2,261	$ 23,910,876	$ 417,152.47	$ 1,635,451.08	$ 2,052,603.55
Dec-10	4,064	3,725	1,194	$ 16,074,298	$ 364,863.77	*$ 1,048,586.38*	$ 1,413,450.15
Jan-11	3,101	2,080	801	$ 10,287,785	$ 503,948.90	$ 788,398.39	$ 1,292,347.29
Feb-11	3,847	2,948	1,015	$ 12,172,622	$ 430,663.63	$ 847,670.99	$ 1,278,334.62
Mar-11	2,831	7,331	1,507	$ 19,567,162	$ 427,121.16	$ 1,043,997.10	$ 1,471,118.26
Apr-11	4,726	8,516	2,028	$ 24,168,320	$ 541,315.51	$ 1,231,745.34	$ 1,773,060.85
May-11	3,898	9,909	2,032	$ 21,576,934	$ 523,955.91	$ 1,435,627.39	$ 1,959,583.30
Jun-11	9,316	20,321	3,981	$ 45,608,213	$ 864,732.77	$ 3,066,045.67	$ 3,930,778.44
PTD Total	**56,790**	**64,201**	**17,932**	**$ 211,327,115**	**$ 5,292,225.60**	**$ 13,887,760.37**	**$ 18,931,578.01**

Note:
1. Energy savings impact, Peak Demand (KW) and Total Resource Benefit were updated in accordance with Technical Review Manual (TRM), dated March 2011.

2. In December 2010, $248,407.96 in CFL costs for Residential Incentives that were incurred during PY2009 have been shifted to PY2010 because they were not expensed until PY 2010. (The Honeywell Invoices for $15,613.80 from 7/6/2010 and $232,794.16 from 7/12/2010 had been invoiced on RW Beck's 6/1-6/30/10 Incentive Invoice.)

Attachment D

Contractor Budget (Attachment F from Contract)

Attachment F
***Contractor* Budget**
For the Period beginning March 3, 2009 through June 30, 2011

	3/3/09 to 6/30/10	7/1/10 to 6/30/11	Total
Services and Initiatives			
Residential Program			
Program Management	804,482	695,254	1,499,736
Program Operations	898,875	635,969	1,534,844
Education & Training	63,450	67,837	131,287
Advertising	211,500	211,990	423,490
Evaluation	52,875	101,755	154,630
Call Center	21,150	12,719	33,869
Data Tracking	31,725	25,439	57,164
Customer Energy Efficiency Incentives	5,796,775	6,186,320	11,983,095
Total Residential Programs	7,880,832	7,937,283	15,818,115
C&I Programs			
Program Management	983,255	849,753	1,833,008
Program Operations	1,098,625	777,296	1,875,921
Education & Training	77,550	82,911	160,461
Advertising	258,500	259,098	517,598
Evaluation	64,625	124,367	188,992
Call Center	25,850	15,546	41,396
Data Tracking	38,775	31,092	69,867
Customer Energy Efficiency Incentives	7,084,948	7,561,060	14,646,008
Total Commercial & Industrial Programs	9,632,128	9,701,123	19,333,251
Ramp-Up Program costs	321,000	-	321,000
Total Services and Initiatives	17,833,960	17,638,406	35,472,366
Supporting Services			
General Administration	1,245,222	1,131,088	2,376,310
Information Technology	85,350	74,038	159,388
Ramp-Up Costs - General Administration	493,554	-	493,554
Ramp-Up Costs - Information Technology	118,850	-	118,850
Less: *Contractor* Contribution	(200,000)	-	(200,000)
Total Supporting Services	1,742,976	1,205,126	2,948,102
Sub-Total Estimated Contractor Costs	19,576,936	18,843,532	38,420,468
Performance Awards in Excess of Target Levels	133,000	133,000	266,000
Total Estimated *Contractor* Costs, including Performance Awards in Excess of Target Level	19,709,936	18,976,532	38,686,468

Note 1: Includes energy efficiency incentives of $12,881,723 and $13,747,380 for Program Years 2009 and 2010 respectively

	3/3/09			PBFAD-09-02 12/9/09 Effec: 12/1/09			JFA Approved 2/22/10			PBFAD 09-04 4/5/10 Effec: 5/4/10			JFA approved 6/25/10			JFA approved 10/20/10		
	PY 2009 Contract	PY 2010 Contract	Total Contract	PY 2009 (R1)	PY 2010 (R1)	Total Rev 1	PY 2009 (R2)	PY 2010 (R1)	Total Rev 2	PY 2009 (R3)	PY 2010 (R1)	Total Rev 3	PY 2009 (R4)	PY 2010 (R1)	Total Rev 4	PY 2009 (R4)	PY 2010 (R2)	Total Rev 1-10
Residential Programs																		
Residential Program Ops and Management																		
REEM (RNC+ESH)															0			0
REWH				1,207,347	1,173,521	2,380,868	1,207,347	1,173,521	2,380,868	1,207,347	1,173,521	2,380,868	1,207,347	1,173,521	2,380,868	1,207,347	1,744,085	2,951,432
RNC				84,912		84,912	84,912		84,912	84,912		84,912	84,912		84,912	84,912		84,912
ESH				849,125	960,153	1,809,278	849,125	960,153	1,809,278	889,125	960,153	1,849,278	889,125	960,153	1,849,278	889,125		889,125
New[1]									0			0			0		340,000	340,000
RLI [1]				33,344	10,411	43,755	33,344	10,411	43,755	33,344	10,411	43,755	33,344	10,411	43,755	33,344	60,000	93,344
Total Residential Programs	1,756,232	1,369,381	3,125,613	2,174,728	2,144,085	4,318,813	2,174,728	2,144,085	4,318,813	2,214,728	2,144,085	4,358,813	2,214,728	2,144,085	4,358,813	2,214,728	2,144,085	4,358,813
Outreach (E&T, Adv & Marketing)									0			0			0		149,598	149,598
Education & Training	63,450	67,837	131,287	63,450	67,837	131,287	63,450	67,837	131,287	63,450	67,837	131,287	63,450	67,837	131,287	63,450		63,450
Market Evaluation	52,875	101,755	154,630		101,755	101,755		101,755	101,755		101,755	101,755		101,755	101,755		101,755	101,755
Advertising/Marketing	211,500	211,990	423,490	341,729	81,761	423,490	341,729	81,761	423,490	341,729	81,761	423,490	341,729	81,761	423,490	341,729		341,729
Total Residential Non-Incentives	2,084,057	1,750,963	3,835,020	2,579,907	2,395,438	4,975,345	2,579,907	2,395,438	4,975,345	2,619,907	2,395,438	5,015,345	2,619,907	2,395,438	5,015,345	2,619,907	2,395,438	5,015,345
Less Performance Incentives				(350,000)	(350,000)	(700,000)	(350,000)	(350,000)	(700,000)	(350,000)	(350,000)	(700,000)	(350,000)	(350,000)	(700,000)	(350,000)	(350,000)	(700,000)
Sub-total Res Non-Incen Less PI	2,084,057	1,750,963	3,835,020	2,229,907.00	2,045,438.00	4,275,345	2,229,907.00	2,045,438.00	4,275,345	2,269,907.00	2,045,438.00	4,315,345	2,269,907.00	2,045,438.00	4,315,345	2,269,907.00	2,045,438.00	4,315,345
Residential Incentives -									0			0			0			0
REEM (REWH, RNc & ESH)									0			0			0			0
REWH	NA	3,402,476		2,986,000	3,458,832	6,444,832	2,986,000	3,458,832	6,444,832	3,093,610	3,458,832	6,552,442	3,093,610	3,458,832	6,552,442	3,093,610	5,008,370	8,101,980
RNC	NA			583,750		583,750	1,001,750		1,001,750	1,001,080		1,001,080	1,001,080		1,001,080	1,001,080		1,001,080
ESH	NA	2,474,528		1,989,250	2,474,528	4,463,778	1,571,250	2,474,528	4,045,778	3,228,943	2,474,528	5,703,471	3,228,943	2,474,528	5,703,471	3,228,943		3,228,943
New									0			0			0		887,200	887,200
RLI	NA	252,960		237,775	252,960	490,735	237,775	252,960	490,735	237,775	252,960	490,735	237,775	252,960	490,735	237,775	290,750	528,525
Total Residential Incentives	5,796,775	6,186,320	11,983,095	5,796,775	6,186,320	11,983,095	5,796,775	6,186,320	11,983,095	7,561,408	6,186,320	13,747,728	7,561,408	6,186,320	13,747,728	7,561,408	6,186,320	13,747,728
Performance Pool Award				350,000	350,000	700,000	350,000	350,000	700,000	350,000	350,000	700,000	350,000	350,000	700,000	350,000	350,000	700,000
Total Residential Programs	7,880,832	7,937,283	15,818,115	8,376,682.00	8,581,758.00	16,958,440	8,376,682.00	8,581,758.00	16,958,440	10,181,315.00	8,581,758.00	18,763,073	10,181,315.00	8,581,758.00	18,763,073	10,181,315.00	8,581,758.00	18,763,073
Business (C&I) Programs																		
Business Programs Ops and Management -												0			0			0
BEEM (CIEE & CINC)												0			0			0
CIEE	NA			547,784	272,439		547,784	272,439	820,223	547,784	272,439	820,223	547,784	272,439	820,223	547,784	504,021	1,051,805
CINC	NA			484,372	240,902		484,372	240,902	725,274	484,372	240,902	725,274	484,372	240,902	725,274	484,372		484,372
CICR (CBEEM)	NA			702,646	349,459		702,646	349,459	1,052,105	662,646	349,459	1,012,105	662,646	349,459	1,012,105	662,646	197,182	859,828
New									0			0			0		197,780	197,780
PV	NA			36,183	36,183		36,183	36,183	72,366	36,183	36,183	72,366	36,183	36,183	72,366	36,183		36,183
Subtotal Business Programs	2,146,505	1,673,687	3,820,192	1,770,985	898,983	2,669,968	1,770,985	898,983	2,669,968	1,730,985	898,983	2,629,968	1,730,985	898,983	2,629,968	1,730,985	898,983	2,629,968
Less Contractor Contribution	NA			(50,000)		(50,000)	(50,000)		(50,000)	(50,000)		(50,000)	(50,000)		(50,000)	(50,000)		(50,000)
Total Business Programs)	2,146,505	1,673,687	3,820,192	1,720,985	898,983	2,619,968	1,720,985	898,983	2,619,968	1,680,985	898,983	2,579,968	1,680,985	898,983	2,579,968	1,680,985	898,983	2,579,968
Outreach (E&T, Adv & Marketing)									0			0			0		182,840	182,840
Education & Training	77,550	82,911	160,461	77,550	82,911	160,461	77,550	82,911	160,461	77,550	82,911	160,461	77,550	82,911	160,461	77,550		77,550
Market Evaluation	64,625	124,367	188,992	64,625	124,367	188,992	64,625	124,367	188,992	64,625	124,367	188,992	64,625	124,367	188,992	64,625	124,367	188,992
Advertising/Marketing	258,500	259,098	517,598	417,669	99,929	517,598	417,669	99,929	517,598	417,669	99,929	517,598	417,669	99,929	517,598	417,669		417,669
Total Business Non-Incentive	2,547,180	2,140,063	4,687,243	2,280,829	1,206,190	3,487,019	2,280,829	1,206,190	3,487,019	2,240,829	1,206,190	3,447,019	2,240,829	1,206,190	3,447,019	2,240,829	1,206,190	3,447,019
Less Performance Incentives				(350,000)	(350,000)	(700,000)	(350,000)	(350,000)	(700,000)	(350,000)	(350,000)	(700,000)	(350,000)	(350,000)	(700,000)	(350,000)	(350,000)	(700,000)
Sub-total Bus Non-Incen less PI				1,930,829	856,190	2,787,019	1,930,829	856,190	2,787,019	1,890,829	856,190	2,747,019	1,890,829	856,190	2,747,019	1,890,829	856,190	2,747,019
Business Incentives -																		
BEEM (CIEE & CINC)															0		5,138,670	5,138,670
CIEE	NA			1,895,465	2,022,841	3,918,306	1,895,465	2,022,841	3,918,306	1,888,589	2,022,841	3,911,430	2,274,589	2,022,841	4,297,430	2,274,589		2,274,589
CINC	NA			1,676,042	1,788,673	3,464,715	2,192,042	1,788,673	3,980,715	2,191,803	1,788,673	3,980,476	2,641,803	1,788,673	4,430,476	2,641,803		2,641,803
CICR (CBEEM)	NA			2,431,324	2,594,710	5,026,034	1,915,324	2,594,710	4,510,034	157,806	2,594,710	2,752,516	235,806	2,594,710	2,830,516	235,806	1,115,390	1,351,196
PV	NA																	
New	NA			1,082,117	1,154,836	2,236,953	1,082,117	1,154,836	2,236,953	1,082,117	1,154,836	2,236,953	168,117	1,154,836	1,322,953	168,117	1,307,000	1,475,117
Total Business Incentives	7,084,948	7,561,060	14,646,008	7,084,948	7,561,060	14,646,008	7,084,948	7,561,060	14,646,008	5,320,315	7,561,060	12,881,375	5,320,315	7,561,060	12,881,375	5,320,315	7,561,060	12,881,375
Performance Pool Award				350,000	350,000	700,000	350,000	350,000	700,000	350,000	350,000	700,000	350,000	350,000	700,000	350,000	350,000	700,000
Total Business Programs	9,632,128	9,701,123	19,333,251	9,365,777.00	8,767,250.00	18,133,027	9,365,777.00	8,767,250.00	18,133,027	7,561,144.00	8,767,250.00	16,328,394	7,561,144.00	8,767,250.00	16,328,394	7,561,144.00	8,767,250.00	16,328,394
Ramp Up Program Costs	321,000		321,000	467,277		467,277	467,277		467,277	486,055		486,055	486,055		486,055	486,055		486,055
Less Contractor Contribution	NA			(50,000)		(50,000)	(50,000)		(50,000)	(50,000)		(50,000)	(50,000)		(50,000)	(50,000)		(50,000)
Ramp Up Program Costs Total	321,000	0	321,000	417,277	0	417,277	417,277	0	417,277	436,055	0	436,055	436,055	0	436,055	436,055		436,055
-																		
Total Services and Initiatives	17,833,960	17,638,406	35,472,366	18,159,736	17,349,008	35,508,744	18,159,736	17,349,008	35,508,744	18,178,514	17,349,008	35,527,522	18,178,514	17,349,008	35,527,522	18,178,514	17,349,008	35,527,522
Supporting Services -																		
GA	1,245,222	1,131,088	2,376,310	1,245,222	1,131,088	2,376,310	1,245,222	1,131,088	2,376,310	1,221,451	1,131,088	2,352,539	1,221,451	1,131,088	2,352,539	1,221,451		1,221,451
IT	85,350	74,038	159,388	277,648	74,038	351,686	277,648	74,038	351,686	274,372	74,038	348,410	274,372	74,038	348,410	274,372		274,372
Ramp Up GA	493,554		493,554	160,945		160,945	160,945		160,945	165,938		165,938	165,938		165,938	165,938		165,938
Ramp UP IT	118,850		118,850	122,783		122,783	122,783		122,783	126,059		126,059	126,059		126,059	126,059		126,059
Less Contractor Contribution	(200,000)		(200,000)	(100,000)		(100,000)	(100,000)		(100,000)	(100,000)		(100,000)	(100,000)		(100,000)	(100,000)		(100,000)
Total Supporting Services	1,742,976	1,205,126	2,948,102	1,706,598	1,205,126	2,911,724	1,706,598	1,205,126	2,911,724	1,687,820	1,205,126	2,892,946	1,687,820	1,205,126	2,892,946	1,687,820	1,205,126	2,892,946
Sub-Total Estimated Contractor Costs	19,576,936	18,843,532	38,420,468	19,866,334	18,554,134	38,420,468	19,866,334	18,554,134	38,420,468	19,866,334	18,554,134	38,420,468	19,866,334	18,554,134	38,420,468	19,866,334	18,554,134	38,420,468
Less: PI						0			0			0			0		(700,000)	(700,000)
Add: PI Award						0			0			0			0		700,000	700,000
Tax on Non-Incentive w/o PI			0			0			0			0			0			0
	19,576,936	18,843,532	38,420,468	19,866,334	18,554,134	38,420,468	19,866,334	18,554,134	38,420,468	19,866,334	18,554,134	38,420,468	19,866,334	18,554,134	38,420,468	19,866,334	18,554,134	38,420,468
PI's not earned for PY																		
Performance Awards in Excess of Target Levels	133,000	133,000	266,000	133,000	133,000	266,000	133,000	133,000	266,000	133,000	133,000	266,000	133,000	133,000	266,000	133,000	133,000	266,000
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels	19,709,936	18,976,532	38,686,468	19,999,334	18,687,134	38,686,468	19,999,334	18,687,134	38,686,468	19,999,334	18,687,134	38,686,468	19,999,334	18,687,134	38,686,468	19,999,334	18,687,134	38,686,468

	JFA approved 10/20/10			JFA approved 10/20/10			JFA recommendation 2/24/2011			Carry Over	JFA recommendation 8/1/2011r2			Hawaii Energy Request 11/16/11		
	PY 2009 (R4)	PY 2010 (R2a)	Total Rev 1-10	PY 2009 (R4)	PY 2010 (R2a)	Total Rev 2-10	PY 2009 (R5)	PY 2010 (R3)	Total	PY09 R4 less R5	PY 2009 (R5)	PY 2010 (R4)	Total	PY 2009 (R5)	PY 2010 (R5)	Total
Residential Programs																
Residential Program Ops and Management																
REEM (RNC+ESH)		2,133,674	2,133,674		1,665,602			1,815,574.76	1,815,574.76	0.00		2,076,900.38	2,076,900.38		2,076,900.38	2,076,900.38
REWH	1,207,347		1,207,347	1,207,347		1,207,347	1,206,862.42		1,206,862.42	484.58	1,206,862.42		1,206,862.42	1,206,862.42		1,206,862.42
RNC	84,912		84,912	84,912		84,912	82,242.26		82,242.26	2,669.74	82,242.26		82,242.26	82,242.26		82,242.26
ESH	889,125		889,125	889,125		889,125	742,569.68		742,569.68	146,555.32	742,569.68		742,569.68	742,569.68		742,569.68
New[1]			0		324,700	324,700		91,814.56	91,814.56	0.00		44,295.00	44,295.00		44,295.00	44,295.00
RLI [1]	33,344	10,411	43,755	33,344	57,300	90,644	31,758.07	284,700.00	316,458.07	1,585.93	31,758.07	84,100.00	115,858.07	31,758.07	84,100.00	115,858.07
Total Residential Programs	2,214,728	2,144,085	4,358,813	2,214,728	2,047,602	4,262,330	2,063,432.43	2,192,089.32	4,255,521.75	151,295.57	2,063,432.43	2,205,295.38	4,268,727.81	2,063,432.43	2,205,295.38	4,268,727.81
Outreach (E&T, Adv & Marketing)		149,598	149,598		142,866	142,866		328,530.06	328,530.06	0.00		344,500.00	344,500.00		344,500.00	344,500.00
Education & Training	63,450		63,450	63,450		63,450	38,211.24		38,211.24	25,238.76	38,211.24		38,211.24	38,211.24		38,211.24
Market Evaluation		101,755	101,755		97,176	97,176		97,176.00	97,176.00	0.00		68,000.00	68,000.00		68,000.00	68,000.00
Advertising/Marketing	341,729		341,729	341,729		341,729	172,555.21		172,555.21	169,173.79	172,555.21		172,555.21	172,555.21		172,555.21
Total Residential Non-Incentives	2,619,907	2,395,438	5,015,345	2,619,907	2,287,644	4,907,551	2,274,198.88	2,617,795.38	4,891,994.26	345,708.12	2,274,198.88	2,617,795.38	4,891,994.26	2,274,198.88	2,617,795.38	4,891,994.26
Less Performance Incentives	(350,000)	(350,000)	(700,000)	(350,000)	0	(350,000)	(350,000.00)	(350,000.00)	(700,000.00)	0.00	(350,000.00)	(350,000.00)	(700,000.00)	(350,000.00)	(350,000.00)	(700,000.00)
Sub-total Res Non-Incen Less PI	2,269,907.00	2,045,438.00	4,315,345	2,269,907.00	2,287,644.00	4,557,551	1,924,198.88	2,267,795.38	4,191,994.26	345,708.12	1,924,198.88	2,267,795.38	4,191,994.26	1,924,198.88	2,267,795.38	4,191,994.26
Residential Incentives -			0													
REEM (REWH, RNc & ESH)		5,933,360	5,933,360		5,008,370	5,008,370		5,941,637.41	5,941,637.41	0.00		5,941,637.41	5,941,637.41		6,066,637.41	6,066,637.41
REWH	3,093,610		3,093,610	3,093,610		3,093,610	3,013,645.00		3,013,645.00	79,965.00	3,013,645.00		3,013,645.00	3,013,645.00		3,013,645.00
RNC	1,001,080		1,001,080	1,001,080		1,001,080	959,330.00		959,330.00	41,750.00	959,330.00		959,330.00	959,330.00		959,330.00
ESH	3,228,943		3,228,943	3,228,943		3,228,943	2,417,390.59		2,417,390.59	811,552.41	2,417,390.59		2,417,390.59	2,417,390.59		2,417,390.59
New			0		887,200	887,200		887,200.00	887,200.00	0.00		887,200.00	887,200.00		762,200.00	762,200.00
RLI	237,775	252,960	490,735	237,775	290,750	528,525	122,297.21	406,227.79	528,525.00	115,477.79	122,297.21	406,227.79	528,525.00	122,297.21	406,227.79	528,525.00
Total Residential Incentives	7,561,408	6,186,320	13,747,728	7,561,408	6,186,320	13,747,728	6,512,662.80	7,235,065.20	13,747,728.00	1,048,745.20	6,512,662.80	7,235,065.20	13,747,728.00	6,512,662.80	7,235,065.20	13,747,728.00
Performance Pool Award	350,000	350,000	700,000	350,000	0	350,000	322,799.00	350,000.00	672,799.00	27,201.00	322,799.00	350,000.00	672,799.00	322,799.00	350,000.00	672,799.00
Total Residential Programs	10,181,315.00	8,581,758.00	18,763,073	10,181,315.00	8,473,964.00	18,655,279	8,759,660.68	9,852,860.58	18,612,521.26	1,421,654.32	8,759,660.68	9,852,860.58	18,612,521.26	8,759,660.68	9,852,860.58	18,612,521.26
Business (C&I) Programs																
Business Programs Ops and Management -			0													
BEEM (CIEE & CINC)		513,341	513,341		481,340	481,340		762,447.42	762,447.42	0.00		838,184.00	838,184.00		838,184.00	838,184.00
CIEE	547,784		547,784	547,784		547,784	423,461.97		423,461.97	124,322.03	423,461.97		423,461.97	423,461.97		423,461.97
CINC	484,372		484,372	484,372		484,372	335,284.15		335,284.15	149,087.85	335,284.15		335,284.15	335,284.15		335,284.15
CICR (CBEEM)	662,646	349,459	1,012,105	662,646	188,309	850,955	434,668.68	407,069.01	841,737.69	227,977.32	434,668.68	402,069.00	836,737.68	434,668.68	402,069.00	836,737.68
New			0		188,880	188,880		188,880.00	188,880.00	0.00		90,321.00	90,321.00		90,321.00	90,321.00
PV	36,183	36,183	72,366	36,183		36,183	14,149.94		14,149.94	22,033.06	14,149.94		14,149.94	14,149.94		14,149.94
Subtotal Business Programs	1,730,985	898,983	2,629,968	1,730,985	858,529	2,589,514	1,207,564.74	1,358,396.43	2,565,961.17	523,420.26	1,207,564.74	1,330,574.00	2,538,138.74	1,207,564.74	1,330,574.00	2,538,138.74
Less Contractor Contribution	(50,000)		(50,000)	(50,000)		(50,000)	(50,000.00)		(50,000.00)	0.00	(50,000.00)		(50,000.00)	(50,000.00)		(50,000.00)
Total Business Programs)	1,680,985	898,983	2,579,968	1,680,985	858,529	2,539,514	1,157,564.74	1,358,396.43	2,515,961.17	523,420.26	1,157,564.74	1,330,574.00	2,488,138.74	1,157,564.74	1,330,574.00	2,488,138.74
Outreach (E&T, Adv & Marketing)		182,840	182,840		174,612	174,612		398,320.55	398,320.55	0.00		400,999.70	400,999.70		400,999.70	400,999.70
Education & Training	77,550		77,550	77,550		77,550	56,336.55		56,336.55	21,213.45	56,336.55		56,336.55	56,336.55		56,336.55
Market Evaluation	64,625	124,367	188,992	64,625	118,771	183,396	53,016.92	129,856.72	182,873.64	11,608.08	53,016.92	155,000.00	208,016.92	53,016.92	155,000.00	208,016.92
Advertising/Marketing	417,669		417,669	417,669		417,669	204,632.75		204,632.75	213,036.25	204,632.75		204,632.75	204,632.75		204,632.75
Total Business Non-Incentive	2,240,829	1,206,190	3,447,019	2,240,829	1,151,912	3,392,741	1,471,550.96	1,886,573.70	3,358,124.66	769,278.04	1,471,550.96	1,886,573.70	3,358,124.66	1,471,550.96	1,886,573.70	3,358,124.66
Less Performance Incentives	(350,000)	(350,000)	(700,000)	(350,000)	0	(350,000)	(350,000)	(350,000)	(700,000)	0.00	(350,000)	(350,000)	(700,000)	(350,000)	(350,000)	(700,000)
Sub-total Bus Non-Incen less PI	1,890,829	856,190	2,747,019	1,890,829	1,151,912	3,042,741	1,121,550.96	1,536,573.70	2,658,125	769,278.04	1,121,550.96	1,536,573.70	2,658,125	1,121,550.96	1,536,573.70	2,658,125
Business Incentives -																
BEEM (CIEE & CINC)		3,811,514	3,811,514		5,138,670	5,138,670		5,203,994.00	5,203,994.00	0.00		5,253,994.00	5,253,994.00		5,253,994.00	5,253,994.00
CIEE	2,274,589		2,274,589	2,274,589		2,274,589	2,209,265.00		2,209,265.00	65,324.00	2,209,265.00		2,209,265.00	2,209,265.00		2,209,265.00
CINC	2,641,803		2,641,803	2,641,803		2,641,803	2,640,893.00		2,640,893.00	910.00	2,640,893.00		2,640,893.00	2,640,893.00		2,640,893.00
CICR (CBEEM)	235,806	2,594,710	2,830,516	235,806	1,115,390	1,351,196	235,665.10	1,116,440.90	1,352,106.00	140.90	235,665.10	1,976,440.90	2,212,106.00	235,665.10	1,976,440.90	2,212,106.00
PV										0.00						
New	168,117	1,154,836	1,322,953	168,117	1,307,000	1,475,117	5,235.00	1,469,882.00	1,475,117.00	162,882.00	5,235.00	559,882.00	565,117.00	5,235.00	559,882.00	565,117.00
Total Business Incentives	5,320,315	7,561,060	12,881,375	5,320,315	7,561,060	12,881,375	5,091,058.10	7,790,316.90	12,881,375.00	229,256.90	5,091,058.10	7,790,316.90	12,881,375.00	5,091,058.10	7,790,316.90	12,881,375.00
Performance Pool Award	350,000	350,000	700,000	350,000	0	350,000	322,799.00	350,000.00	672,799.00	27,201.00	322,799.00	350,000.00	672,799.00	322,799.00	350,000.00	672,799.00
Total Business Programs	7,561,144.00	8,767,250.00	16,328,394	7,561,144.00	8,712,972.00	16,274,116	6,535,408.06	9,676,890.60	16,212,298.66	1,025,735.94	6,535,408.06	9,676,890.60	16,212,298.66	6,535,408.06	9,676,890.60	16,212,298.66
Ramp Up Program Costs	486,055		486,055	486,055		486,055	486,054.08		486,054.08	0.92	486,054.08		486,054.08	486,054.08		486,054.08
Less Contractor Contribution	(50,000)		(50,000)	(50,000)		(50,000)	(50,000.00)		(50,000.00)	0.00	(50,000.00)		(50,000.00)	(50,000.00)		(50,000.00)
Ramp Up Program Costs Total	436,055	0	436,055	436,055	0	436,055	436,054.08	0.00	436,054.08	0.92	436,054.08	0.00	436,054.08	436,054.08	0.00	436,054.08
-																
Total Services and Initiatives	18,178,514	17,349,008	35,527,522	18,178,514	17,186,936	35,365,450	15,731,122.82	19,529,751.18	35,260,874.00	2,447,391.18	15,731,122.82	19,529,751.18	35,260,874.00	15,731,122.82	19,529,751.18	35,260,874.00
Supporting Services -										0.00						
GA	1,221,451		1,221,451	1,221,451		1,221,451	1,091,105.08		1,091,105.08	130,345.92	1,091,105.08		1,091,105.08	1,091,105.08		1,091,105.08
IT	274,372		274,372	274,372		274,372	261,383.94		261,383.94	12,988.06	261,383.94		261,383.94	261,383.94		261,383.94
Ramp Up GA	165,938		165,938	165,938		165,938	165,937.53		165,937.53	0.47	165,937.53		165,937.53	165,937.53		165,937.53
Ramp UP IT	126,059		126,059	126,059		126,059	126,058.84		126,058.84	0.16	126,058.84		126,058.84	126,058.84		126,058.84
Less Contractor Contribution	(100,000)		(100,000)	(100,000)		(100,000)	(100,000.00)		(100,000.00)	0.00	(100,000.00)		(100,000.00)	(100,000.00)		(100,000.00)
Total Supporting Services	1,687,820	1,205,126	2,892,946	1,687,820	1,150,896	2,838,716	1,544,485.39	1,287,780.61	2,832,266.00	143,334.61	1,544,485.39	1,287,780.61	2,832,266.00	1,544,485.39	1,287,780.61	2,832,266.00
Sub-Total Estimated Contractor Costs	19,866,334	18,554,134	38,420,468	19,866,334	18,337,832	38,204,166	17,275,608.21	20,817,531.79	38,093,140.00	2,590,725.79	17,275,608.21	20,817,531.79	38,093,140.00	17,275,608.21	20,817,531.79	38,093,140.00
Less: PI		(700,000)	(700,000)		(700,000)	(700,000)		(700,000.00)	(700,000.00)	0.00		(700,000.00)	(700,000.00)		(700,000.00)	(700,000.00)
Add: PI Award		700,000	700,000		700,000	700,000		700,000.00	700,000.00	0.00		700,000.00	700,000.00		700,000.00	700,000.00
Tax on Non-Incentive w/o PI			0		216,302	216,302		272,926.00	272,926.00	2,590,725.79		272,926.00	272,926.00		272,926.00	272,926.00
	19,866,334	18,554,134	38,420,468	19,866,334	18,554,134	38,420,468	17,275,608.21	21,090,457.79	38,366,066.00	2,590,725.79	17,275,608.21	21,090,457.79	38,366,066.00	17,275,608.21	21,090,457.79	38,366,066.00
PI's not earned for PY							54,402.00			(54,402.00)	54,402.00			54,402.00		
Performance Awards in Excess of Target Levels	133,000	133,000	266,000	133,000	133,000	266,000	133,000.00	133,000.00	266,000.00	0.00	133,000.00	133,000.00	266,000.00	133,000.00	133,000.00	266,000.00
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels	19,999,334	18,687,134	38,686,468	19,999,334	18,687,134	38,686,468	17,463,010.21	21,223,457.79	38,686,468.00	2,536,323.79	17,463,010.21	21,223,457.79	38,686,468.00	17,463,010.21	21,223,457.79	38,686,468.00

Notes:

[1] The dollar amounts in the PY2010 (R3) column for New and RLI non-incentives were erroneously swapped in the Budget table for Budget Modification 7 (Contract modification PBFA-09-05) dated 3/10/11. The amounts should have been $284,700 for New and $91,814.56 for RLI instead of $91,814.56 for New and $284,700 for RLI. Therefore, for budget modification R4, the decrease in RLI operations would only have been $7,814.56.

Attachment E

Performance Incentive Mechanism (Attachment C from Contract)

ATTACHMENT C
PERFORMANCE INCENTIVE MECHANISM

I. Overview

The *Contractor* and the *Commission* agree that a portion of payments to the *Contractor* shall be based on the *Contractor*'s performance in achieving the *Commission*'s objectives and successfully delivering the strategies and initiatives described in the *Scope of Work*. The performance incentive mechanism is designed to reward superior performance by the *Contractor* in the overall administration and delivery of energy efficiency services which achieve specific resource acquisition outcomes and market transformation goals.

For the period July 1, 2009 through June 30, 2010 (Program Year 2009) and July 1, 2010 through June 30, 2011 (Program Year 2010), a proportional holdback of direct billings (exclusive of incentives or payments made directly to participants, customers, and allies) will be set aside to fund the performance payment. This performance payment pool (Performance Pool) shall be in the amount of **$700,000** for each year. For each Program Year, the *Contractor* can earn up to **$700,000** in Performance Awards for meeting the *Target Level* for program Performance Indicators that are defined in this Attachment.

If the *Contractor* does not meet the Minimum Performance Level, no Performance Award shall be paid for that Performance Indicator. Tables C-2 through C-4 lists the Minimum Performance Level and the award amount allocated to that level. The Minimum Performance for the Market Transformation and Island Equity Performance Indicators is at the *Target Level*. The total performance payment for meeting the Minimum Performance Level in each category is **$567,000** for each Program Year.

For the same period, the *Contractor* can earn additional Performance Awards if the *Contractor* exceeds the *Target Level* for performance indicators as identified in Tables C-2 through C-4. The *Maximum Performance Award* that the *Contractor* can earn in Program Year 2009 or Program Year 2010 is capped at **$833,000** for each Program Year. The Market Transformation and Island Equity Performance indicators do not allow additional awards for exceeding the *Target Level.*

Performance Awards for the Energy, Peak Demand and Total Resource Benefits are calculated on a sliding scale based on *Contractor's* yearly achievements. For achievements falling between the *Minimum* and *Maximum Performance Level* the performance award shall be calculated as the sum of the *Minimum Performance Level* award plus the product of the Performance Indicator times the Performance Incentive Rate as specified in Tables C-2 through C-4. The Performance Indicators for Market Transformation goals do not provide for scaling.

Each performance award is a stand-alone payment and can be awarded regardless of achievements in other Performance Indicators.

The schedule and processes for documenting and verifying achievement of performance indicators is outlined in Section III of this Attachment. The *Contractor* shall submit claims

for Performance Awards. The *Commission* and/or the *Contract Manager* will verify the *Contractor*'s claims. The *Contract Manager* will make recommendations regarding all Performance Awards to the *Commission*.

Payment of any earned Performance Awards for Program Year 2009 and Program Year 2010 shall be made upon completion and approval of the Annual Report.

The performance award mechanism is subject to meeting *Commission* goals in four major areas: Resource Acquisition (Energy and Demand), Cost Effectiveness (Total Resource Benefits), Market Transformation, and Broad Participation (Island Equity), which are incorporated in Tables C-1 through C-4. The final amount of Performance Awards granted to *Contractor* will be subject to achievement of these minimum performance requirements and will be adjusted in accordance with Section C-III should the *Contractor* fail to meet any of the minimum performance requirements.

II. Description of Performance Indicators

The *Contractor* is eligible to earn an incentive for superior performance in certain specified areas. This section provides a more detailed description of Individual Performance Indicators, their weights as a percentage of the total Performance Award at the *Target Level*, their Minimum and Maximum Performance Levels, and the scaling between the two. The total *Performance Pool* is the same for Program Years 2009 and 2010; however, the Performance Indicators and awards for each year are unique. The Performance Indicators as described in Table C-1 below and in subsequent tables are:

Table C-1: Performance Indicators and Relative Awards

Table Number	Performance Indicator	% of 2009 Performance Pool	% of 2010 Performance Pool
C-1	Residential and Business Energy (kwh)	40%	40%
C-2	Peak Demand (kW)	15%	10%
C-3	Total Resource Benefits ($)	30%	30%
C-4,C-5	Market Transformation (PY 2009/10)	10%	10%
C-6	Broad Participation (Equity across each island)	5%	10%

The goals, threshold and scaling for each Performance Indicator are summarized in Tables C-2 through C-4.

A. Cumulative Annual Electric Energy Savings

1. Weighting

The overall weight for this performance indicator in the Residential and Business sectors is **40%** of the *Contractor*'s total Performance Award at the *Target Level* (**$700,000 * 0.40 = $280,000**) in Program Year 2009 and in Program Year 2010.

2. ***Target Level***
For the 2009 Program Year, the *Target Level* for this indicator (also known as the Electric Energy Savings Target) is **68,722 MWh for the Residential Sector** and **57,301 MWh for the Business Sector.**

For Program Year 2010, the *Target Level* for this indicator (also known as the Electric Energy Savings Target) is **71,245 MWh for the Residential Sector** and **61,370 MWh for the Business Sector.**

The Electric Energy Savings Target measures the sum of annualized first-year savings (at generation and net of free riders) achieved by implementation of all *Program* strategies and initiatives, during each *Program* Year.

3. **Scaling from Minimum to Maximum Performance**
The *Contractor* shall be eligible to receive a Performance Award for this indicator only if the *Commission* determines that the *Contractor* successfully achieves and documents Electric Energy Savings above the Minimum Performance level.

If the *Contractor* achieves the Minimum Performance level in either the Residential or Business Sector, it can earn **$105,000** in Program Year 2009 and the same incentive in Program Year 2010. If the *Contractor* exceeds the Minimum Performance Level, the Performance Award Amount shall be scaled between the Minimum Performance and Maximum Performance level of the actual Electric Energy Savings as detailed in Table C-2.

4. **Performance Award Cap at Maximum Performance level**
The Total Electric Energy Savings Performance Award is capped at **$175,000** for each of the Residential and Business Sectors in both Program Year 2009 and Program Year 2010. The maximum combined performance award for Annual Electric Energy Savings in either Program Year is **$350,000**.

5. **Performance Award Calculation**
The *Contractor's* Performance Award shall be the sum of:

- **$0** if verified cumulative annual Electric Energy Savings are less than Minimum Performance levels listed in Table C-2.

- **$105,000** for achieving the Minimum Performance Level plus **$2.04** per **MWh** for verified cumulative annual Electric Energy Savings between **51,542 MWh** and **68,722 MWh** and **$5.09** per **MWh** for verified savings between **68,723 MWh** and **75,594 MWh** in the Residential Sector in Program Year 2009.

- **$105,000** for achieving the Minimum Performance Level plus **$1.97** per **MWh** for verified cumulative annual Electric Energy Savings between **53,434 MWh** and **71,245 MWh** and **$4.91** per **MWh** for verified savings between **71,246 MWh** and **78,370 MWh** in the Residential Sector in Program Year 2010.

- **$105,000** for achieving the Minimum Performance Level plus **$2.44** per **MWh** for verified cumulative annual Electric Energy Savings between **42,976 MWh and 57,301 MWh** and **$6.11** per **MWh** for verified savings between **57,302 MWh** and **63,031 MWh** in the Business Sector in Program Year 2009.

- **$105,000** for achieving the Minimum Performance Level plus **$2.28** per **MWh** for verified cumulative annual Electric Energy Savings between **46,028 MWh and 61,370 MWh** and **$5.70** per **MWh** for verified savings between **61,371 MWh** and **67,507 MWh** in the Business Sector in Program Year 2010.

Table C-2: Annual Electric Energy Savings Performance Award Schedule

	Energy	Award	Rate
Res PY 2009	**MWh**	**Amount**	**$/MWh**
Target	68,722	$140,000	
Minimum Performance	51,542	$105,000	$ 2.04
Maximum Performance	75,594	$175,000	$ 5.09
Res PY 2010			
Target	71,245	$140,000	
Minimum Performance	53,434	$105,000	$ 1.97
Maximum Performance	78,370	$175,000	$ 4.91
Bus PY 2009			
Target	57,301	$140,000	
Minimum Performance	42,976	$105,000	$ 2.44
Maximum Performance	63,031	$175,000	$ 6.11
Bus PY 2010			
Target	61,370	$140,000	
Minimum Performance	46,028	$105,000	$ 2.28
Maximum Performance	67,507	$175,000	$ 5.70

B. Total Resource Benefits

This Performance Indicator is designed to encourage the *Contractor* to maximize energy-related and other resource benefits by implementing energy-efficiency measures and projects that provide persistent energy and demand savings.

1. Weighting

The overall weight for this performance indicator is **30%** of the *Contractor*'s total Performance Award at the *Target Level* ($700,000 * 0.30= **$210,000**) in Program Year 2009 and in Program Year 2010.

2. *100% Target Level*

The Total Resource Benefits ("TRB") Target Level shall be determined by the *Contractor* and approved by *Contract Manager* and *the Commission* before the beginning of each Program Year as part of the Annual Plan.

The TRB Performance Indicator includes cumulative savings over each Program Year as achieved by implementation of all *Program* services and initiatives. The TRB for any given service is defined as the present value of lifetime net resource savings in electricity, and demand that are valued at current projections of avoided resource costs.[1] Avoided costs do not include environmental or any other externalities (e.g., indirect economic benefits).

3. **Scaling from Minimum to Maximum Performance**
The *Contractor* shall be eligible to receive a Performance Award for this indicator only if the *Commission* determines that the *Contractor* successfully achieves and documents TRB above the Minimum Performance level.

   If the *Contractor* achieves the Minimum Performance level, it can earn **$175,000** in Program Year 2009 and the same incentive in Program Year 2010. If the *Contractor* exceeds the Minimum Performance Level, the Performance Award Amount shall be scaled linearly between the Minimum Performance and Maximum Performance level of the actual Total Resource Benefits as detailed in Table C-3.

4. **Performance Award Cap at Maximum Performance level**
The TRB Performance Award is capped at **$245,000** for each Program Year.

5. **Performance Award Calculation**
The *Contractor's* Performance Award shall be:

   - **$0** if verified cumulative annual Total Resource Benefits are less than Minimum Performance levels listed in Table C-3.

   - **$175,000** for achieving the Minimum Performance Level plus **$1,750** per each one percentage point of verified TRB between **80%** and **120%** of the Target in Program Year 2009 and 2010.

Table C-3: Total Resource Benefit Award Schedule

	TRB	Award Amount	Rate/%
Target	100%	$ 210,000	$ 1,750
Minimum Performance	80%	$ 175,000	
Maximum Performance	120%	$ 245,000	

C. Summer Peak Demand Savings
This Performance Indicator is designed to encourage the *Contractor* to achieve superior levels of peak summer demand savings in addition to annual energy savings and total

[1] TRB does not include measure costs, or any other costs or benefits to customers (e.g., productivity increases, changes in Operation & Maintenance costs).

resource benefits. Target goals for this Performance Indicator includes combined savings from both Residential and Business Sectors.

1. **Weighting**
   The overall weight for this performance indicator is **15%** of the *Contractor*'s total Performance Award at the *Target Level* (\$700,000 * 0.15 = **\$105,000**) for Program Year 2009 and **10%** of the *Contractor*'s total Performance Award at the *Target Level* (\$700,000 * 0.05 = **\$70,000**) for Program Year 2010.

2. ***Target Level***
   For Program Year 2009, the combined *Target Level* for this indicator (also known as the Summer Peak Demand Savings Target) is **20,098 kW.** For Program Year 2010, the combined *Target Level* for this indicator is **23,126 kW.** The Summer Peak Demand Savings Target measures the cumulative annual summer peak demand savings achieved by implementation of all *Contractor* services and initiatives.

   Summer Peak Demand is defined as the sum across all measures of the energy savings occurring weekdays between the hours of 5pm and 9pm during the months of August through November divided by the number of hours in that period. Peak is based on units installed in each year, regardless of the actual date of installation.

3. **Scaling from Minimum to Maximum Performance**
   The *Contractor* shall be eligible to receive a Performance Award for this indicator only if the *Commission* determines that the *Contractor* successfully achieves and documents Summer Peak Demand Savings above the Minimum Performance Level.

   If the *Contractor* achieves the Minimum Performance level, it can earn **\$105,000** in Program Year 2009 and **\$77,000** in Program Year 2010. If the *Contractor* exceeds the Minimum Performance Level, the Performance Award Amount shall be scaled between the Minimum Performance and Maximum Performance level of the actual Electric Energy Savings as detailed in Table C-4.

4. **Performance Award Cap at Maximum Performance level**
   The Summer Peak Demand Savings Performance Award is capped at **\$133,000** for Program Year 2009 and **\$98,000** Program Year 2010.

5. **Performance Award Calculation**
   The *Contractor's* Performance Award shall be:

   - **\$0** if verified Summer Peak Demand Savings are less than Minimum Performance levels listed in Table C-4.

   - **\$77,000** for achieving Summer Peak Demand Savings of **15,073 kW** plus **\$5.57** per kW for verified cumulative annual Summer Peak Demand Savings between **15,074 kW** and **20,097 kW** and **\$13.93** per kW for verified annual Summer Peak Demand Savings between **20,098 kW** and **22,107 kW** in Program Year 2009.

- **$42,000** for achieving Summer Peak Demand Savings of **17,345** kW plus **$4.84** per kW for verified cumulative annual Summer Peak Demand Savings between **17,345 kW** and **23,126 kW** and **$12.11** per kW for verified annual Summer Peak Demand Savings between **23,127 kW** and **25,439 kW** in Program Year 2010.

Table C-4: Peak Demand Performance Award Schedule

Combined Peak Demand Performance Goals			
	kW	Award	Rate
PY 2009 Target		Amount	$/kW
Target	20,097	$105,000	
Minimum Performance	15,073	$ 77,000	$ 5.57
Maximum Performance	22,107	$133,000	$ 13.93
PY 2010 Target			
Target	23,126	$ 70,000	
Minimum Performance	17,345	$ 42,000	$ 4.84
Maximum Performance	25,439	$ 98,000	$ 12.11

D. Market Transformation

Market Transformation goals vary by Program Year and are designed to encourage lasting change with regard to how energy is used in State businesses and homes. For the 2009 Program Year, Market Transformation goals include the introduction of new and emerging technologies and the development of a trade ally network of contractors and service providers. For the 2010 Program Year, Market Transformation goals support the installation of maximum efficiency demonstration projects at State buildings, the launch of a Retro-commissioning (RCx) Program and development of partnerships with non-profits and community organizations that can carry efficiency goals into the community.

The Market Transformation Performance Awards are fixed at the Target Level. No incentives shall be paid in the event that the Target Level is not met and no additional incentive shall be paid for exceeding the Target Level.

1. Weighting

The overall weight for this Performance Indicator is **10%** of the *Contractor*'s total Performance Award at the *Target Level* ($700,000 * 0.10 = **$70,000**) in each Program Year.

2. *Target Level*

To reach the *Target Level* for this indicator in Program Year 2009, the *Contractor* must achieve the following:

- Emerging Technologies: *Contractor* must initiate and complete installation of twenty (20) or more projects that incorporate a unique emerging technology application. A list of approved emerging technologies can be found in Section III.B.2. New technologies can be added to the list by mutual agreement of both the *Contractor* and the *Commission*.

- Ally Referrals: *Contractor* shall develop a list of trained trade allies that can assist with the development of program applications. A minimum of forty (40) *Program* application forms referred by trade allies from this list must be submitted.

To reach the *Target Level* for this indicator in Program Year 2010, the *Contractor* must achieve the following:

- State Buildings Demonstration Projects: *Contractor* must complete comprehensive retrofits at ten (10) State owned demonstration buildings.
- Launch RCx Program: *Contractor* must design and launch a commercial RCx program by January 1, 2011.
- Community Partnership: *Contractor* must establish and sign four (4) or more Community Partnership agreements.

1. Performance Award Calculation

The *Contractor's* Performance Award shall be the sum of:

- **$0** if fewer than twenty (20) Emerging Technology Projects are completed in Program Year 2009.
- **$0** if fewer than forty (40) completed Program Applications are received from trained Program Allies in Program Year 2009.
- **$0** if the RCx Program kickoff is not completed by January 1, 2011.
- **$0** if fewer than ten (10) State Building retrofits are completed in Program Year 2010.
- **$0** if fewer than four (4) Community Partnerships agreements are signed in Program Year 2010.
- **$35,000** for completing installation of twenty (20) or more Emerging Technology projects in Program Year 2009.
- **$35,000** for submittal of forty (40) or more completed Program Applications from trained Program Allies in Program Year 2009.
- **$35,000** for completing ten (10) or more State Building Retrofits in Program Year 2010.
- **$17,500** for completing the RCx Program design and kickoff on or before January 1, 2011.
- **$17,500** for completing four (4) or more Community Partnership agreements in Program Year 2010.

B. Island Equity:

This indicator is designed to ensure program benefits accrue to each Island commensurate with contributions from each Island to the PBF fund.

The Island Equity Performance Incentives are fixed at the 100% level. No incentives shall be paid in the event that the Target Level is not met and no additional incentive shall be paid for exceeding the Target Level.

1. **Weighting**
   The overall weight for this performance indicator is **5%** of the *Contractor*'s total Performance Award at the *Target Level* (**$700,000 * 0.05 = $35,000**) in Program Year 2009 and **10%** of the *Contractor*'s total Performance Award at the *Target Level* (**$700,000 * 0.10 = $70,000**) in Program Year 2010.

2. ***Target Level***
   The *Contractor*'s Island Equity Target for this performance indicator is to keep Customer Incentives within 20% of each Islands relative PBF contribution (as defined in Section III.G below) in Program Year 2009 and to deliver Energy Savings within 20% of each Islands relative PBF contribution (as defined in Section III.G below) in Program Year 2010.

3. **Performance Incentive Calculation**
   The *Contractor's* Performance Award shall be:

   - **$0** if the *Contractor* does not keep Customer Incentives within a minimum of 20% of the PBF contribution ratio of all Islands in Program Year 2009.
   - **$0** if the *Contractor* does not achieve delivery of Energy Savings within a minimum of 20% of the PBF contribution ratio of all Islands in Program Year 2010.
   - **$35,000** if the *Contractor* keeps Customer Incentives within 20% of relative PBF contribution ratio for all Islands in Program Year 2009.
   - **$70,000** if the *Contractor* achieves Energy Savings within 20% of relative PBF contribution ratio for all Islands in Program Year 2010.

III. Documentation and Verification

A. Cumulative Annual Electric Energy Savings, Total Resource Benefits, Summer Peak Demand Savings

In order to establish and validate achievements for the Performance Awards for these three indicators, the *Contractor* and the *Commission* agree to the following documentation and verification process.

1. **Verification Process**
By October 1 following each Program Year, the *Contractor* will submit a report to the *Commission*, *Contract Manager* and *the Program Evaluator* that establishes its claim for Annual Electric Energy Savings by Sector, and Total Resource Benefits by Sector and Summer Peak Demand Savings for the previous Program Year.

The *Contract Manager* and the *Program Evaluator* will review the *Contractor*'s report and, at their own discretion, review the *Contractor*'s project files in order to assess savings estimates for custom measures, comprehensive projects, or key input assumptions. The *Contract Manager* and the *Program Evaluator* will then meet with the *Contractor* in an attempt to resolve any differences on claimed savings.

By December 1 following each Program Year, the *Program Evaluator* will provide a technical report or memorandum to the *Contract Manager* with its recommendation on Annual Electric Energy Savings, Total Resource Benefits, and Summer Peak Demand Savings for each Program Year. Following receipt of this report, the *Contract Manager* will provide a recommendation to the *Commission* regarding Annual Electric Energy Savings, Total Resource Benefits, and Summer Peak Demand Savings for the associated Program Year.

Following receipt of the *Program Evaluators* report for each Program Year, the *Contract Manager* will also provide a recommendation to the *Commission* on the appropriate Performance Award for each category. Each year the *Commission* will make a final determination regarding Annual Electric Energy Savings, Total Resource Benefits, and Summer Peak Demand Savings from the previous year. By January 1 following each Program Year, the *Commission* will make a final determination regarding cumulative Annual Electric Energy Savings by sector, Total Resource Benefits, and Summer Peak Demand Savings by Sector and the appropriate Performance Award for each category.

2. **Establishment and Documentation of Savings Estimates**
The *Contractor* shall work with the *Contract Manager* and the *Program Evaluator* to establish and maintain reasonable savings estimates for prescriptive energy efficiency measures offered. The *Contractor* shall maintain its documentation of all prescriptive measure savings assumptions in the *Technical Reference Manual (TRM)*. For custom measures or projects, where prescriptive measure savings assumptions have not been established or do not apply, the *Contractor* shall maintain in its files documentation of all assumptions and calculations used to establish its claim for Electric Energy Savings, Total Resource Benefits, and Summer Peak Demand Savings. All information on savings assumptions and calculations used shall be available for review by the *Program Evaluator* and *Contract Manager*.

Net-to-Gross assumptions and values used to calculate Electric Energy Savings, Total Resource Benefits, and Summer Peak Demand Savings shall be documented in the *TRM* before the start of each Program Year. These same net-to-gross values and assumptions shall be used for the calculation of year-end performance awards.

3. **Updating of Estimates**
As part of its ongoing management and planning, the *Contractor* shall review and update, as appropriate, its estimates of Electric Energy Savings, Total Resource Benefits, and Summer Peak Demand Savings for measures, technologies and projects in order to reflect information obtained from measurement and evaluation studies, experiences gained from implementation of energy efficiency services and initiatives, and changes in building and appliance standards and codes. Revisions to these estimates shall be incorporated into the *TRM* at the start of each Program Year. The *Contractor* shall use these revised estimates of Annual Electric Energy Savings, Total Resource Benefits, and Summer Peak Demand Savings on a prospective basis for measures installed in reporting claims of Annual Electric Energy Savings, Total Resource Benefits, and Summer Peak Demand Savings for the remainder of the Program Year.

B. Emerging Technologies Market Transformation
In order to establish and validate achievements for the Performance Awards for this indicator, the *Contractor* and the *Commission* agree to the following documentation and verification process.

1. **Verification Process**
Emerging Technologies Market Transformation performance indicators shall be tracked and reported in the Annual Report. To meet the targeted performance goal of twenty (20) projects in this category, at least four (4) unique Emerging Technologies must be utilized. Each emerging technologies project size shall provide a minimum annual gross energy savings of 25,000 kWh. Review and final determination of Performance Awards shall be based on the process parallel to the one described above in Section III.A.1.

2. **Establishment and Documentation of Savings Estimates**
Contractor shall track and report Emerging Technologies that are installed as a result of customer participation in the *Program*. Emerging Technologies are defined as energy saving measures that are new or not yet commercialized. Additions or deletions to the following list of Emerging Technologies can be made only upon mutual agreement of both the *Contractor* and the *Commission*.

Approved Emerging Technologies:

a. Fresh water pumping,
b. Wastewater processing,
c. Data Centers – airflow optimization,
d. Data Centers – server virtualization and related technologies,
e. Parking Garages – perimeter dimming,
f. Parking Garages - ventilation control,
g. Non residential demand control ventilation (CO2 sensors in return airstream),
h. LED refrigeration case lighting,
i. LED interior lights
j. LED traffic lights,
k. District sea water cooling projects,

l. Integrated building design and construction standards,
m. Advanced energy management controls,
n. Variable volume refrigerant air conditioning
o. High performance commercial lighting (<0.5w/sf)
p. Bi-level stairwell and parking garage lighting

C. Ally Referrals

In order to establish and validate achievements for the Performance Awards for this indicator, the *Contractor* and the *Commission* agree to the following documentation and verification process.

1. Verification Process

Ally Referral performance indicators shall be tracked and reported in the Annual Report. Review and final determination of Performance Awards shall be based on the process parallel to the one described above in Section III.A.1.

2. Establishment and Documentation of Savings Estimates

Contractor shall document the date and attendance of Ally trainings in order to make any claims for this Performance Indicator. Each Ally training shall cover standards for equipment installation and program procedures for commercial or industrial *Program* incentive programs. Applications that are referred by a trained Ally count towards this Performance Indicator only if the contractor has attended and completed an Ally training previous to the application submittal date.

D. State Buildings

In order to establish and validate achievements for the Performance Awards for this indicator, the *Contractor* and the *Commission* agree to the following documentation and verification process.

1. Verification Process

State Building performance indicators shall be tracked and reported in the Annual Report. Review and final determination of Performance Awards shall be based on the process parallel to the one described above in Section III.A.1.

2. Establishment and Documentation of Savings Estimates

This Performance Indicator is intended to help facilitate retrofit of buildings owned or occupied by the State of Hawaii or local government buildings to maximum levels of efficiency. Eligible buildings shall contain a minimum of 10,000 square feet of conditioned space. To promulgate savings and techniques from these projects they may act as case studies or be used as promotional examples. In order for a facility retrofit to qualify towards this Performance Indicator, total project savings shall be greater than 10% of yearly electric consumption or greater than 100,000 gross kWh/year. In the event that constraints imposed by the State impede the completion of *Program* sponsored energy efficiency projects, privately owned buildings by be substituted with the approval of *Contract Manager.*

E. RCx Program Launch

In order to establish and validate achievements for the Performance Awards for this indicator, the *Contractor* and the *Commission* agree to the following documentation and verification process.

1. Verification Process

This Performance Indicator is based on the design and kickoff of a Retro-Commissioning Program for commercial buildings. The target goal for this Performance Indicator is to have all program collateral produced and available for potential participants, all program application materials available and program procedures and incentives finalized and approved by the *Contract Manager*. Upon completion of these tasks, the *Contractor* shall submit written documentation of completion to the *Contract Manager* for approval. The *Contract Manager* shall approve the request or document lack of compliance within 2 weeks of submittal.

F. Community Partnership

In order to establish and validate achievements for the Performance Awards for this indicator, the *Contractor* and the *Commission* agree to the following documentation and verification process.

1. Verification Process

Community Partnership performance indicators shall be tracked and reported in the Annual Report. Review and final determination of Performance Awards shall be based on the process as described above in Section III.A.1.

2. Establishment and Documentation of Savings Estimates

The goal of this Performance Indicator is to leverage community groups, agencies and associations to maximize savings from limited program budgets and to encourage lasting change with respect to energy efficiency. Relationships between contractor and community organizations shall be evidenced by a signed agreement upon which each party has obligations or commitments that result in measureable energy savings.

G. Island Equity

In order to establish and validate achievements for the Performance Awards for this indicator, the *Contractor* and the *Commission* agree to the following documentation and verification process.

1. Verification Process

Island Equity performance indicators shall be tracked and reported in the Annual Report. Review and final determination of Performance Awards shall be based on the process as described above in Section III.A.1.

2. Establishment and Documentation of Savings Estimates in Program Year 2009

Contractor shall offer *Program* services and incentives in a geographically equitable manner. To track this Performance Indicator, program Customer Incentives shall be reported by each HECO utility service area or Island. Customer Incentives include incentives or payments made directly to *Program* participants, customers, and allies.

The total Customer Incentive expenditures for each island shall be reported for each Program Year. To be eligible for a Performance Award in this category, contractor must establish that Customer Incentive expenditures or the *Program* energy savings are within 20% of yearly PBF contribution ratios for all participating islands. Table C-5 below demonstrates an example of this Performance Indicator.

3. **Establishment and Documentation of Savings Estimates in Program Year 2010** Contractor shall offer *Program* services and incentives in a geographically equitable manner. To track this Performance Indicator, program savings shall be reported by each HECO utility service area or Island. The total energy savings for each island shall be reported for each Program Year. To be eligible for a Performance Award in this category, contractor must establish that energy savings are within 20% of yearly PBF contribution ratios for all participating islands. Table C-5 below illustrates an example of this calculation:

Table C-5: Island Equity Performance Calculation

Island	PBF Contribution (x1,000)	PBF %	Target MWh	Target (x1,000)
HECO	$ 10,000	69%	79,167	$ 8,611
HELCO	$ 1,600	11%	12,667	$ 1,378
MECO	$ 2,800	19%	22,167	$ 2,411
Total	$ 14,400			
Total energy savings (MWh):				114,000
Customer Incentive Budget (x1,000):				$12,400

In this example the total energy savings as reported and verified in the Annual Report is 114,000 MWh. The contribution to the PBF fund by Island is shown in the first two columns. To be eligible for either Performance Award, the *Program* energy savings or Customer Incentive expenditures must be within 20% of the Target amount shown for each Island.

Attachment F

PY2010 Annual Plan

Hawaii Energy

Conservation and Efficiency Programs

Annual Plan Program Year 2010

Submitted to: **Hawaii Public Utilities Commission**

Submitted by:

RW BECK (an SAIC company)
1132 Bishop St., Suite 1800
Honolulu, HI 96813

Septmber 10, 2010

TABLE OF CONTENTS

1.0 INTRODUCTION

This Annual Plan provides strategies and a roadmap for administration and delivery of the Hawaii Energy *Conservation and Efficiency Program*s (HECEP) portfolio for Program Year (PY) 2010 (July 1, 2010 to June 30, 2011). This Plan is for the second year of the Hawaii Energy programs and will therefore build upon the successes and lessons learned during the first year. With this new Plan, we will continue evolution of our overall strategies to increase program participation, maximize cost-effective energy savings, reduce dependence on imported fossil fuel and encourage expansion of energy efficiency, conservation and renewable energy measures throughout the islands. This year, we will introduce a focus on individual behavior change, personal energy awareness and group cultural change regarding energy use and sustainability in Hawaii.

To better understand the strategies we will employ for PY2010, it is useful to briefly review last year's key activities, successes and lessons learned.

1.1 PY2009 Key Activities Summary

The new Hawaii Energy Efficiency Program, operated by Science Applications International Corporation (SAIC), successfully took over the demand side management (DSM) program from the Hawaiian Electric Companies (HECO) as of July 1, 2009.

The transition was relatively smooth, with most rebates and procedures previously offered by HECO continued for the first year under the new SAIC management, so as to prevent customer concerns about rebate interruptions.

An initial staff of nine (9) was hired by SAIC to administer the new Program, which included several key people from the former HECO DSM program. In addition, SAIC subcontracted with Honeywell, Wall-to-Wall and the Bennet Group to provide respectively, residential rebate processing, marketing design and public relations.

After six (6) months of operation from the SAIC offices at the Airport Center, we moved to our permanent downtown location at1132 Bishop St., Suite 1800 in January 2010.

Also in January 2010, SAIC transferred all of its energy efficiency programs to R.W. Beck, a wholly owned SAIC subsidiary. This was done primarily to streamline SAIC's non-federal operations. A contract novation was completed with the Hawaii Public Utilities Commission (PUC) and R.W. Beck became the new contractor.

During PY2009, working with our marketing design subcontractor, we rolled out **"Hawaii Energy *Conservation and Efficiency Programs*"** (HECEP or "Hawaii Energy") as a new program name and brand, complete with a memorable logo.

Additionally, a substantial outreach and ally development effort was initiated to improve our education and marketing of energy efficiency and conservation efforts to our customers. Besides vendor allies who directly marketed our incentive programs, a number of influential outreach partner relationships were established, including:

> American Society of Heating, Refrigerating, Air Conditioning Engineers (ASHRAE), Building Owners and Managers Association Hawaii (BOMA Hawaii), University of Hawaii, Blue Planet Foundation, Native Hawaiian Council, KANU Hawaii, State and County Energy Offices, Hawaiian Electric Companies (HECO, MECO, HELCO), Kauai Island Utility Cooperative (KIUC), Office of Community Services (OCS), Maui Economic Opportunity (MEO), Department of Energy (DOE), Department of Business Economic Development and Tourism (DBEDT), Department of Defense (DOD), Hawaii Building Engineers Association (HBEA), Board of Water Supply (BWS) and Department of Hawaiian Homelands (DHHL).

These outreach partners assisted our Program with shared advertising, marketing, sponsorships, education, strategies, networking, reciprocal website-pointers, residential low income customer contacts, direct install efforts and compact fluorescent lamp (CFL) distributions.

Additionally, Hawaii Energy collaborated with our Contract Manager (Jim Flanagan Associates), our Program Evaluator (ECO Northwest) and our Technical Advisory Group (TAG), including the PUC and its staff to form an active, integrated team approach to improving our Program goals, standards, processes, operations and services. The Program also took a leadership role in development and implementation of the Hawaii Clean Energy Initiative (HCEI), serving on the HCEI Steering Committee and the End Use Efficiency Working Group (EUEWG).

Further, the Program is a standing member of the Hawaii Energy Policy Forum (HEPF), a UH-sponsored think-tank on state energy policy issues and the Consortium for Energy Efficiency (CEE), an international trade group for Programs such as Hawaii Energy.

At the PUC's direction, Hawaii Energy, in its role as the Public Benefits Fee Administrator (PBFA) joined as a participant/party in two pending dockets before the PUC, the Energy Efficiency Portfolio Standard (EEPS) docket and the Integrated Resource Planning Framework (IRP/CESP) docket. These dockets, and possibly others, need input from and collaboration with the PBFA in order to ensure that energy conservation and efficiency interests are adequately represented and reach maximum potential as part of the overall state energy strategy.

As we approach the beginning of our second operational year, the Program is hiring additional staff to accommodate its expanding programs, responsibilities and workload.

1.2 PY2009 Key Successes and Lessons Learned

During its first operational year, the Program experienced a number of successes and lessons learned that have enabled us to plan for future program expansion and improvement from a firm foundation. Some of the key successes and lessons learned from PY2009 are as follows:

- Energy Programs Management Information System (EPMIS) – HECEP and its SAIC software design colleagues developed, tested and commissioned an energy program management and information system that is unique in the industry. EPMIS has been critical to Hawaii Energy's process streamlining, quality control and access to real-time customer and program data. It also automates the process of rebate tracking, processing and accounting, giving Program specialists, managers and Program Evaluators a robust platform from which to operate our Program, manage data and derive useful trends and other information.

- Technical Reference Manual (TRM) – HECEP further developed a comprehensive technical reference manual for the Program that provides methods, formulas and default assumptions for estimating "deemed energy savings" and peak impacts from measures and projects that receive incentives from the HECEP. The TRM will be continuously updated as new information, data and efficiency measures are developed.

- Photovoltaic (PV) Incentive Program – Pursuant to a Legislative initiative and at the PUC's direction, HECEP developed a small PV Incentive Program for consideration by the PUC. We are prepared to move forward to implement the program when direction and funding are determined.

- Residential Low Income (RLI) and Hard to Reach Customers – To satisfy the PUC's high interest in reaching underserved markets, the Program utilized community-based outreach and marketing allies to deliver direct install measures such as smart strips, CFLs and low flow water showerheads to RLI and hard to reach customers. This strategy resulted in greater RLI and hard to reach penetration than that of all previous years of the predecessor program. In addition, it generated strong supportive feedback from our RLI outreach allies and customers.

- Educating Participating Customers – HECEP has designed an expansion of its Solar Water Heater (SWH) inspection program to incorporate a short energy conservation and efficiency education component during each homeowner's new SWH inspection by Program inspectors. Besides a brief overview of the care, maintenance and proper operation of the new SWH heater, the inspector briefs the customer on general energy savings tips and distributes CFLs and low flow water faucets. Full implementation is planned for early PY2010.

- Reduction of SWH Incentives – During PY2009 we had to eliminate SWH incentives for residential new construction and lower incentives from $1,000 to $750 for existing home SWH heaters. This was done to accommodate statutory changes affecting new residential construction and to maintain the budget integrity of the SWH program. During this difficult process, we were in close consultation with our SWH vendor and trade group allies which resulted in an understanding acceptance of these unpopular actions.

- Submetering Trial – HECEP has recently introduced a pilot program to offer rebates to centrally metered condominiums to install submeters on each unit. Preliminary results from submetering efforts are promising and suggest that we should continue to offer and track the results of this program into next year.

- Point of Purchase CFL Rebate Program – With our last quarter CFL push, we have used our exceptional retail, wholesale and distributor ally relations to establish in-store processes that allow Point of Purchase (POP) rebates for qualifying CFL purchases at participating outlets. The POP rebate appears to significantly increase participation and will likely be continued into PY2010 for CFLs and possibly expand to include other Energy Star purchases.

- Energy Star Appliances Expanded to Neighbor Islands – Beginning in March 2010, HECEP initiated a soft start to delivery of the ESH program on the neighbor islands. Since March, the neighbor islands have begun to take advantage of the same incentive benefits that have been available to Oahu for years. The expanded program will continue into PY2010.

- Data Mining of Existing Data – Since HECEP began receiving customer usage data from the HECO companies, we have been able to combine this data with other-sourced information to extrapolate valuable trends and conclusions about energy use, conservation and efficiency. We will further explore the applications of the data in PY2010.

- Complementary Administration of ARRA Stimulus Programs – At the request of the State Energy Office and the PUC, HECEP negotiated and signed supplemental contracts with the PUC to administer an additional $7M in stimulus funds from the American Recovery and Reinvestment Act (ARRA) which the State Energy Office designated for specific energy efficiency programs. Considerable workforce time and effort were spent modifying our programs to accommodate the integration of new ARRA programs with our existing programs. The initial results of the first executed program, Trade-Up for Cool Cash (clunker refrigerator turn-in and Energy Star purchase), were spectacular and far exceeded expectations. The ARRA-funded programs will continue in PY2010 with their own dedicated resources as well as some matrixed resources to leverage program experience.

- Marketing With Social Media, Twitter and Facebook – Recognizing the emerging value of using new social media tools as a component of our marketing and outreach effort, HECEP recently hired a communications specialist to establish the Program on Twitter, Facebook and other social media. In the first month, the Program has an on-line following which we expect will significantly increase in the coming Program Year.

- Hawaii's Critical Energy Needs Suggest Additional Program Success Metrics– HECEP's first Program Year experience suggests that the use of "deemed savings" alone to determine success may be insufficient to meet the bigger critical energy consumption reduction needs of the Hawaii Clean Energy Initiative.

  Because of Hawaii's severe energy situation, there is a clear need to know with some certainty what real progress is being made in reaching the state's energy savings goals on a macro basis. This issue needs to be explored further to determine what is required and how best to meet the requirements.

  As an initial step towards acquiring more actual measured data, PY2010 will introduce programs such as the Central Plant Performance Competition that will include pre, post and on-going metering.

- CFL Contribution to Savings – Due to relative costs of available savings measures and the deemed energy savings allowed for various efficiency measures by the TRM, CFLs have become a major component of energy savings available to the Program. This reality suggests that it will be extremely difficult to meet future Program incentive goals at current levels without continuing use of CFLs and/or significantly higher rebate and operating budgets. Further exploration of this issue is needed going forward.

- Performance Incentive Goals for PY2009 – Currently, HECEP is on track to meet most minimum and some target contract performance goals for PY2009. However, the final result will be dependent on the heightened marketing efforts we have undertaken during the last quarter that will not be completed until 30 Jun 2010. The final results will not be tallied for several weeks thereafter.

2.0 PROGRAM STRATEGIES for PY2010

Within the context of our contract requirements and based on lessons learned and experiences of our first Program Year, HECEP has established the following Program strategies, initiatives and offerings for PY2010:

2.1 General Strategy Refinements and Initiatives

Contract Primacy, Flexibility,Trust and Transparency – The contract between SAIC (now R.W.Beck) and the PUC governs this Program and determines its primary direction and goals. Complementing the contract terms, a strong team working relationship has developed between the PBFA, Contract Manager and the PUC, backed by flexibility, trust and transparency and focused on achieving what is best for Hawaii's energy future. It is HECEP's strategic intent to continue adherence to these core principles in PY2010 and to continue building the team relationship while contributing in substantial ways to Hawaii's energy future success.

Correct Problem Areas Encountered During PY2009 – HECEP will make it a priority to correct critical PY2009 problem areas or deficiencies identified through input from the PUC, Contract Manager, Program Evaluator, allies, customers and vendors. Known critical problem areas from PY2009 are: i) timeliness of deliverables ii) EPMIS software design and data integrity; iii) budget, invoice and accounting consistency.
These problems are currently being addressed internally by HECEP management.

Expand Engagement with Effort to Achieve Hawaii's Energy Goals – Currently, the Program is formally engaged as a participant/party in the IRP/CEIP Framework and EEPS PUC dockets. It is also a key member of the Hawaii Clean Energy Initiative (Steering Committee and End Use Efficiency Working Group). Further, the Program is engaged in a host of other related informal relationships and activities that contribute its expertise to the successful integration of all strategies aimed at energy sustainability for Hawaii. HECEP's strategy will be to continue expansion of its engagement as a source of expertise and advocacy for energy conservation and efficiency as well as its fundamental support for Hawaii's energy sustainability efforts.

Teamwork – Our HECEP program staff and subcontractors, the Contract Manager, Technical Advisory Group (TAG), Program Evaluator and the PUC have demonstrated an unprecedented collaborative effort to improve the performance and cost-effectiveness of the Program. HECEP intends to continue to strongly support this team concept and expand this collaborative effort in the coming Program Year.

Rollover of Unspent PY2009 Funds **–** To the extent allowed under our Contract, any funds budgeted, but not spent in PY2009 will be rolled over to the same budget line item for 2010 (line items that were combined will be added to the new combined budget line item), unless approved otherwise through formal concurrence by the Contract Manager and PUC. At this time, it appears PY2009 carryover is expected to be greater than 10% of the PBF funds and we are seeking the Contract Manager and PUC approval of the carryover.

Eliminate or Mitigate Rebate Activities that Actually Increase Load - During the first Program Year, it has become apparent that certain legacy rebate offerings may actually have adverse affects on desired energy savings. For instance,

- *Air Conditioners Impulse Purchases* - $75 rebates for a window air-conditioner that could be purchased for $99 tended to result in multiple sales of window air-conditioners that were not intended to replace existing air-conditioners.
- *Old Refrigerator in the Garage* - Offering rebates for refrigerators without requiring turn-in or recycling of an old refrigerator tended to result in both the old and new refrigerators being connected to the grid.

In PY2010 we are initiating several changes to our Program offerings that will eliminate or significantly reduce the unwanted load growth resulting from continuation of these rebate practices. Moving forward, we will continue to look for and correct any unintended load building caused by the Program's rebate offerings.

Encourage Real-Time Measurement – There is growing evidence that giving customers access to their own electric usage data in real-time can induce self-initiated conservation and efficiency efforts and better general personal energy awareness. We plan to explore this phenomenon with pilot programs to determine if it is cost-effective to provide a means of real-time energy measurement to a customer and what results can be expected.

Additionally, the ARRA-funded peer group comparison will pilot the premise of feedback on a monthly basis to drive energy awareness and conservation behavior. We will build upon the lessons learned and develop programs to continue the successful aspects of what we learn.

Modify Program Incentive Goals to Include an Actual Measured Component – HECEP will explore with the Contract Manager and PUC a strategy to add an actual measured energy savings component (ie., avg kwh/day billed) to the Program incentive goals, adjusted for weather, economic conditions, population and other variables. This will provide a mechanism to give some measured confirmation to the TRM's "deemed savings" which makes up the majorityof the current Program incentive goals. This will also begin to validate the results of behavior change efforts, especially if the the total measured reduction is more than the total deemed savings. This effort may present its own measurement problems, particularly the adjustments, but for Hawaii's Clean Energy Initiative goals, complete reliance on "deemed savings" is not really answering the question that the state needs answered.

Total Resource Benefit (TRB) for PY2010 – In accordance with Contract Attachment C, Section B.2., HECEP has determined that the appropriate TRB target for PY2010 is $148,176,624. The TRB assumptions and calculations can be found in Appendix E to this Annual Plan.

2.2 Market Intervention and Initiatives

2.2.1 Residential

Residential Program Upgrades – The Residential Program for PY2010 has been modified from the legacy program that was taken over by HECEP and continued through PY2009.

During PY2010 we will make the following changes:

- The former Residential Efficient Water Heating (REWH), Residential New Construction (RNC) and Energy Solutions for the Home (ESH) programs will merge into the first of three major Residential Program components known as "*Residential Energy Efficiency Measures*" or REEM.
- A second Residential Program component known as "*New Residential Programs Incubator"* or NEW will also be established.
- The final Residential Program component for PY2010 will be "*Residential Low Income"* or RLI.

These changes are designed to more accurately describe the programs so as to avoid confusion as programs change. A summary listing of the new Residential Program offerings can be found in the table below and a detailed description of the Residential Program can be found in Sec 4.0 . Appendix C contains a projection of potential energy savings for the planned programs.

Residential Programs PY2010	
Program	**Category**
REEM	**Residential Energy Efficiency Measures**
	High Efficiency Water Heating
	High Efficiency Lighting
	High Efficiency Air Conditioning
	High Efficiency Appliances
	Energy Awareness, Measurement and Control Systems
NEW	**New Residential Programs Incubator**
	Residential Energy Services & Maintenance
	Residential Design and Audits
RLI	**Residential Low Income**

Residential Low Income (RLI) – We will follow-up on the significant success the Program had in PY2009 in serving RLI and hard to reach customers through the use of community-action allies, such as Council for Native Hawaiian Advancement, Honolulu Community Action Program, Maui Economic Opportunity and Hawaii County Economic Opportunity Council. The good relations and cooperation we developed with these important allies will be further enhanced during PY2010, allowing us to reach even more RLI customers.

Explore Residential Financing – One of the most common requests HECEP receives from customers and vendors is that we find a way to provide financing or relief from the signigicant up front capital costs of major conservation and efficiency measures such as residential solar water heating.

- *Solar Interest Buy Down* - With the advent of the ARRA stimulus funding that we will be administering for the State Energy Office, we will be testing an interest buy down mechanism for solar hot water heaters that enables more people to finance and thereby mitigate the high upfront costs of solar hot water installation. This program will be co-funded with 75% from ARRA and 25% from the Public Benefits Fee (PBF).

In addition to the ARRA program, we will continue to work with local financing institutions to develop other ways to provide affordable financing. The results of these multiple efforts will be used to develop a permanent plan for financing energy efficiency measures in the future.

Program Promotion of Professional Recycling and Disposal – During the Program's recent creation and implementation of the ARRA Refrigerator Trade-Up for Cool Cash Rebate Program, it became apparent that there were areas in the islands where professional recycling and proper disposal of refrigerant-containing appliances were not easily available. Therefore, recycling and disposal arrangements developed for the ARRA Programs were designed to provide a service that could be continued after the ARRA Program was completed.

This ARRA-funded effort will now be transitioned to the PBF programs as we make every reasonable effort to ensure that all appliances rebated under our Program will have direct access to proper recycling and/or disposal.

Peer Comparison to Encourage Behavior Change – In addition to running an ARRA-funded pilot Peer Comparison program for residential customers through a contract with OPOWER in PY2010, we are also planning to test our own PBF funded variations of the peer comparison strategy for other peer groups (Office Buildings, Hotels, Etc.). This process will use data mining among commercial and residential customers. Our strategy will look for ways to effect measurable energy savings through behavior change.

Encourage Supplementing A/C with Less Energy Consuming Measures – During the first Program Year, it has become clear that the current home buyer standards for housing in Hawaii have evolved to demand full house air-conditioning in order for a developer to be competitive. Efforts need to be made to encourage design concepts and equipment that use of natural cooling and avoid full house air-conditioning during moderate island weather conditions. Our Program strategy for PY2010 will be to develop allies, designs, education and incentives that can provide alternatives to 24/7 full house air-conditioning.

Point of Purchase (POP) Rebates – During PY2009, POP rebates for CFLs have shown to add value to the rebate by eliminating the customer's paperwork. The retailers also have an incentive to actively pursue sales in market by promoting lower in-store CFL costs leveraging the rebate. Both of these actions combined benefit the program and have resulted in greater program participation. In PY2010, HECEP plans to expand the highly successful POP rebates of CFLs to other rebated products to the extent practical.

2.2.2 Business

Business Program Upgrades – The Business Program for PY2010 has been modified from the legacy program that was taken over by HECEP and continued through PY2009.

During PY2010 we will make the following changes:

- The former Commercial industrial Energy Efficiency (CIEE), and Commercial Industrial New Construction (CINC) programs will merge into the first of four major Business Program components known as "*Business Energy Efficiency Measures*" or BEEM.
- The former Commercial Industrial Customized Rebate (CICR) will be renamed as the "*Custom Business Energy Efficiency Measures"* or CBEEM.
- A third Business Program component known as "*New Business Programs Incubator"* or NEW will be established.
- The final Business Program component for PY2010 will be "*Business Renewable Energy Promotion"* or BREP.

These changes – explained in more detail later - are designed to more accurately describe the programs to avoid customer confusion as programs change.

A summary listing of the new Business Program offerings can be found in the table on the right and a detailed description of the Business Program can be found in Sec 5.0.

Appendix C contains a projection of potential energy savings for the planned programs.

Business Programs PY2010

Program	Category
BEEM	**Business Energy Efficiency Measures**
	High Efficiency Lighting
	High Efficiency HVAC
	High Efficiency Water Heating
	High Efficiency Water Pumping
	High Efficiency Motors
	Building Envelope Improvements
	Energy Star Business Equipment
	Energy Awareness, Measurement and Control Systems
CBEEM	**Custom Business Energy Efficiency Measures**
	Customized Project Measures
NEW	**New Business Programs Incubator**
	Business Service and Maintenance
	Business Direct Installation
	Business Design and Audits
BREP	**Business Renewable Energy Promotion**

2.2.3 Market Evaluation

From the lessons learned of PY2009, Hawaii Energy will dedicate a greater amount of effort to market evaluation activities. The following activities and concepts will be applied to evaluate and determine the next strategies for future program efforts and the best offerings tailored to the residential and business markets.

Evolutionary Program Strategy – In order to evolve in the continuously changing Hawaii energy environment, HECEP's strategy will be to continue to utilize successful legacy programs, eliminate or modify underperforming programs, and institute new programs and strategies in search of the best performance and values in energy savings. This will require timely changes in our operational strategies, incentive offerings and individual program budgets throughout the Program Year. Such changes will be accomplished in close collaboration with our Contract Manager, Program Evaluator, Technical Advisory Group and PUC.

Personal Behavior and Group Cultural Change – From measurable data observed in our first Program Year, it is clear that the Program will likely have to modify its strategy going forward to include greater emphasis on individual personal behavior awareness and group cultural change in order to achieve the aggressive energy savings goals the state needs to achieve as part of its HCEI goals. This will require some fundamental changes and continued innovation in the way we measure and estimate savings, particularly for behavior-based programs.

The first step in this process will be the OPOWER peer comparison initiative scheduled to be tested on 15,000 residential households in PY2010 using ARRA stimulus funds made available by the State Energy Office.

In addition, a number of other educational outreach and ally collaborations, such as the Blue Planet and Kanu Hawaii work, will be initiated and tested in PY2010 to find the best approaches to bring about the necessary individual behavior and group cultural changes for the State.

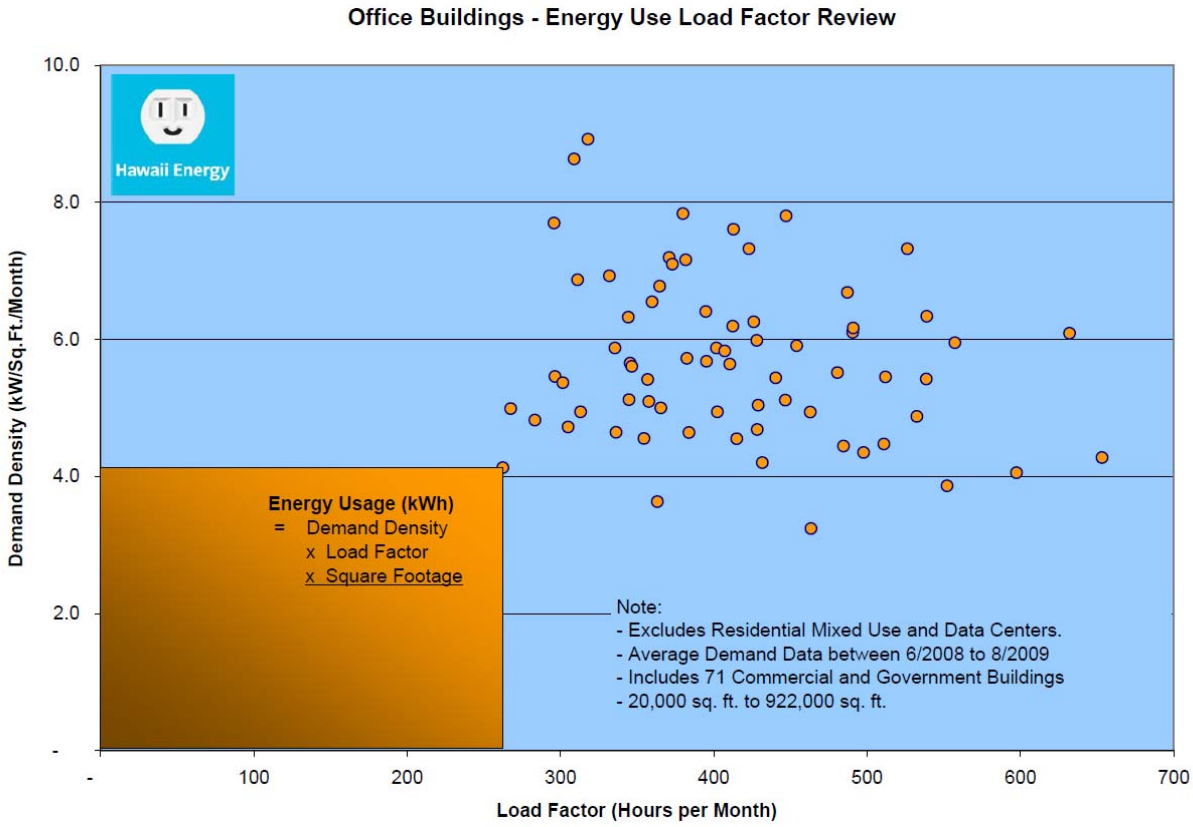
Energy Data Mining and Extrapolation – Building on our first Program Year success at locating and mining raw energy data available (from HECO and DBEDT) and extrapolating useful trends and conclusions for use in the Program, we plan to expand this effort for PY2010.

The trends give us significant indications of which of our residential and commercial customers are doing well with energy use and which are not (compared to the peer group norms).

In PY2010, our strategy will be to use these extrapolations to target customers for outreach and education visits by Program representatives.

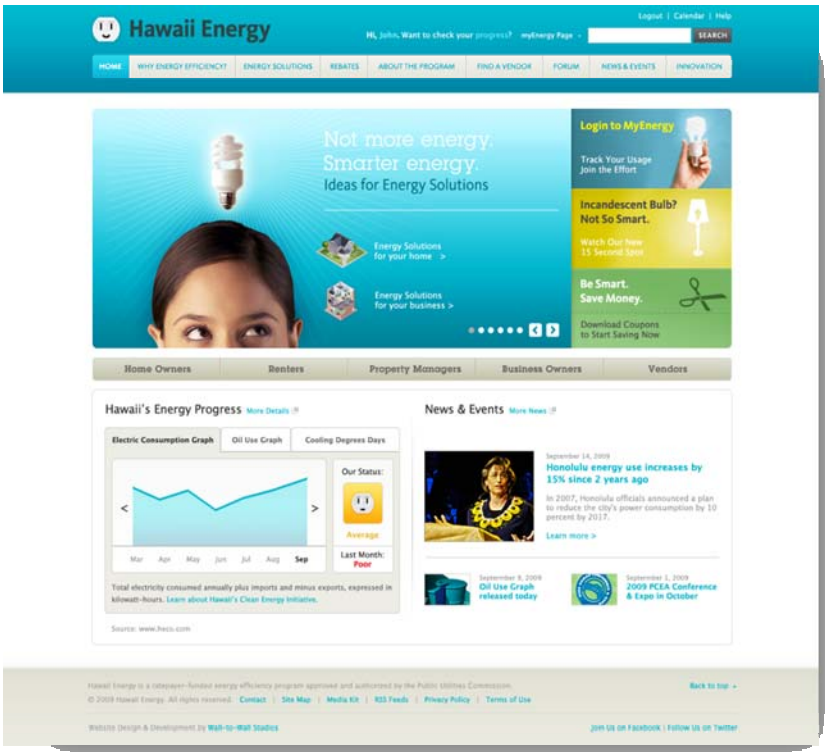
We will coordinate with DBEDT's ARRA effort to benchmark Hawaii Hotels using Energy Star rating criteria.

The figure below demonstrates to office building customers the energy performance envelope of their peer group buildings. This data can be used to validate the work they have performed or demonstrate how much better their building can perform.



2.2.4 Outreach

Complete and Expand New Interactive Website – Development of the Program's interactive website during PY2009 has been delayed by a number of minor difficulties, including design upgrades and a shortage of substantive material readily available in one place. Currently, the first phase of the new website is targeted to be on-line in July 2010 with additional phases scheduled to go live in 30 day intervals until the website is complete.



Some key features of the website will be current report cards for HCEI and Program goals, general energy usage graphs for each island, energy savings tips, FAQs, energy forums, qualified vendor lists, rebates available and the latest energy news. The Program strategy is to use our limited media advertising budget and social media presence to lead customers to our interactive website where the education, engagement and personal energy awareness can begin.

Customer Education, Feedback, and Recognition – With our new interactive website that will be introduced as we start our new Program Year, the Program will make a significant leap forward in its continuing effort to expand customer education, feedback and recognition. The new website will be a central location where customers can learn about Hawaii's energy issues and how they can take advantage of incentive offerings to help increase their conservation and efficiency. The website will also enable instantaneous feedback from customers as to what is on their minds about energy and the Program. Finally, among other things, the website will be used to recognize customers (as well as vendors and allies) for noteworthy contributions to achieving Hawaii's energy goals.

Vendors, Associations and Allies for Marketing and Outreach – During the first Program Year, we have been impressed with the significant positive response received from our efforts to engage trade vendors and associations, community organizations and diverse allies to assist with marketing, education and outreach for our Program.

We have tapped community organizations and allies who have enabled us to engage previously unreachable low income and hard to reach customers with education and direct install programs.

We have benefited greatly from the use of vendors as our primary sales force, improving both sales for the vendors and feedback to the Program. Additionally, we have engaged vendor associations to assist with planning and socializing Program changes affecting their industries with notable success.

We have also experimented with sharing marketing, education and outreach activities with various community-based allies whose energy conservation and efficiency goals are aligned with ours. We intend to continue and expand these joint efforts in PY2010 as they are significant force-multipliers for the Program.

Building Marketing "Buzz" to Move Products and Services – From the Program's overwhelming recent successes in Point of Purchase CFL sales and the rolling out the ARRA-funded Refrigerator Trade-Up for Cool Cash Rebate Program (First Phase - 4000 units - sold out in first day), it is clear that a carefully promoted marketing "buzz" can significantly enhance customer interest and attention to our Program and its message.

We plan to make expanded use of comprehensive marketing and public relation plans to move Program incentives, services and messages during PY2010.

3.0 PROGRAM BUDGET AND PERFORMANCE INCENTIVE GOALS FOR PY2010

3.1 Program Budget

We streamlined the budget to enable Hawaii Energy, the Contract Manager and the PUC to put greater focus on effective implementation rather than line item budget constraints and change requests while also providing a necessary level of visibility to our expenses. Therefore, the majority of the changes are to the non-incentive budget in areas where there is significant overlap in the intention of the activities. Below are the changes:

- The new "REWH," "RNC," and "ESH" are combined as "REEM"
- The new "CINC" and "CIEE" are combined as "BEEM"
- "Education & Training" and "Advertising & Marketing" are combined as "Outreach"
- "General Administration" and "Information Technology" are combined as "Supporting Services."

To offer greater visibility to incentives, we will provide in our Quarterly Reports the status of incentives in the following categories:

- Residential
  - High Efficiency Water Heating
  - High Efficiency Lighting
  - Appliance (includes AC and measurement/control systems)
  - Low Income
  - New

- Business
  - High Efficiency Lighting
  - Non-lighting
  - Custom
  - New

In addition, we can provide further incentive detail through downloads from the EPMIS.

Due to the high interest as to the level of CFL rebate distribution in comparison to our other program offerings, we will immediately notify the Contract Manager as soon as it becomes apparent that we have exceeded or will exceed the amount budgeted for CFLs in Appendix C. CFLs are different from our standard rebates in that there is a significant lag in the time between when the customer receives the rebate until we receive the vendor request for reimbursement. We will request increases in our CFL budget allocation as far in advance as practical to minimize exceeding our budget.

Formal changes to the budget (Attachment A and summarized in Table 3.1.1) will be in accordance with contract Amendment #4, dated 05 April 2010.

Table 3.1.1 PY10 Budget Table Summary

Activity	Non-Incentive	Incentive	Total
Residential Programs			
REEM	1,744,085	5,008,370	6,752,455
RLI	60,000	290,750	350,750
NEW	340,000	887,200	1,227,200
Total Residential Programs	**2,144,085**	**6,186,320**	**8,330,405**
Residential Market Evaluation	**101,755**	**-**	**101,755**
Residential Outreach	**149,598**	**-**	**149,598**
Total Residential Services and Initiatives	**2,395,438**	**6,186,320**	**8,581,758**
Business Programs			
BEEM	504,021	5,138,670	5,642,691
CBEEM	197,182	1,115,390	1,312,572
NEW	197,780	1,307,000	1,504,780
Total Business Programs	**898,983**	**7,561,060**	**8,460,043**
Business Market Evaluation	**124,367**	**-**	**124,367**
Business Outreach	**182,840**	**-**	**182,840**
Total Business Services and Initiatives	**1,206,190**	**7,561,060**	**8,767,250**
Total Services and Initiatives	**3,601,628**	**13,747,380**	**17,349,008**
Total Supporting Services	**1,205,126**	**-**	**1,205,126**
Estimated Contractor Costs	**4,806,754**	**13,747,380**	**18,554,134**

Note: This version of the budget includes taxes for each line item. For reporting purposes, subsequent versions of the program budget show tax as a separate line item. The total budget remains the same for either case.

PROGRAM BUDGET AND PERFORMANCE INCENTIVE GOALS FOR PY2010 Cont.

3.2 Performance Incentive Goals Tables

Table C-2	Annual Electric Savings
Res PY10	Net Energy* (MWh)
Target	71,245
Min	53,434
Max	78,370
Bus PY10	
Target	61,370
Min	46,028
Max	67,507

Table C-3	Total Resource Benefit Schedule (2010)
	TRB ($)
Target	$148,596,954
Min	$118,877,563
Max	$178,316,345

Table C-4	Peak Demand Performance Award Schedule
	Demand (kW)
Target	23,126
Min	17,345
Max	25,439

Table C-5	Island Equity Performance Indicator
Island	Energy Achieved (% of kWh)
HECO	70%
MECO	19%
HELCO	11%

Market Transformation	
Activity	Due
Launch RCx Program	01/01/11
Complete 10 State Building Retrofits	06/30/11
Sign 4 Community Partnership Agreements	06/30/11

* Customer Level Savings impacts are grossed up for Generation,Transmission and Distribution losses and then reduced by the Net-to-Gross factor (shown below) to determine program driven impacts.

County Generation and T&D Losses		
Oahu	Maui	Hawaii
11.17%	9.96%	9.00%

Net-to-Gross
All Islands
73.00%

4.0 RESIDENTIAL PROGRAM DETAILS FOR PY2010

4.1 Residential Energy Efficiency Measures

4.1.1 High Efficiency Water Heaters

4.1.1.1 Solar Water Heater Incentive
4.1.1.2 Solar Water Heater Interest Buydown
4.1.1.3 Solar Water Heater Incentive (ARRA Sep Leveraged)
4.1.1.4 Solar Water Heater Energy Hero Gift Packs
4.1.1.5 Heat Pumps
4.1.1.6 High Efficiency Water Heaters
4.1.1.7 High Efficiency Water Heaters w/ Timers
4.1.1.8 Instantaneous Water Heaters

4.1.2 High Efficiency Lighting

4.1.2.1 CFLs
4.1.2.2 LED

4.1.3 High Efficiency Air Conditioning

4.1.3.1 Window AC
4.1.3.2 Split System AC
4.1.3.3 Ceiling Fans
4.1.3.4 Solar Attic and Whole House Fans

4.1.4 High Efficiency Appliances

4.1.4.1 Refrigerator
4.1.4.2 Refrigerator with Recycling
4.1.4.3 Garage Refrigerator / Freezer Bounty
4.1.4.4 Clothes Washer
4.1.4.5 Dishwasher

4.1.5 Energy Awareness, Measurement and Control Systems

4.1.5.1 Room Occupancy Sensors
4.1.5.2 Whole House Energy Metering
4.1.5.3 Residential Energy Awareness and Action Competitions

RESIDENTIAL PROGRAM DETAILS FOR PY2010 Cont.

4.2 New Residential Programs

4.2.1 Residential Energy Services & Maintenance

4.2.1.1 AC Annual Tune-up

4.2.1.2 Solar Water Heater Tune-up

4.2.2 Residential Design and Audits

4.2.2.1 Efficiency Inside Home Design

4.2.2.2 Hawaii Energy Hero Audits

4.3 Residential Low Income

4.3.1 Residential Low Income Measures

4.3.1.1 RLI Solar Inspections (ARRA WAP)

4.3.1.2 RLI Solar Inspections (DHHL)

4.3.1.3 RLI Energy Hero Gift Packs

4.3.1.4 RLI CFL Exchange

4.3.1.5 RLI Hawaii Energy Hero Audits

Program Category	**4.1 All Residential Programs** **Overview of All Categories**
Target Market	• Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers. • Solar Contractors, Plumbing Contractors and General Contractors • Architect and Engineers
Projected Impacts	Demand 11,184 kW Energy 57,781,668 kWh Incentive Budget $6,186,320
Technologies	**Incentivized Measures** — **Incentive** • Solar Water Heating Systems — $750 • High Efficiency Electric Water Heaters — $40 - $70 • Heat Pumps — $175 • Low Flow Showerheads (RLI give-away) — $5 • CFL- Standard — $ 1 • CFL- Specialty — $ 3 • CFL - Dimmable — $ 5 • Window AC — $50 • Ductless Split Systems — $110 • Solar Attic Fans* — $50 • Whole House Fans* — $50 • Ceiling Fans — $40 • Clothes Washers — $50 • Dishwashers — $50 • Refrigerator — $50 • Refrigerator with Recycling* — $100 • Refrigerator/Freezer Bounty* — $100 • Smart Strips (RLI give-away)* — $20 • Air Conditioner Maintenance* — $50 *New or expanded measures
Key Changes	• Merging of REWH, RNC, and ESH Programs under the single Program Name of "Residential Energy Efficiency Measures" • The creation of categories by equipment type • Addition of new measures as indicated above

Program Category	**4.1.1 Residential Energy Efficiency Measures** **High Efficiency Water Heating**
Target Market	• Homeowners, Landlords, Tenant, and Property Managers • Manufacturers, Distributors, Dealer, and Retailers • Solar Contractors, Plumbing Contractors, and General Contractors • Architect and Engineers
Impacts	Demand 1,104 kW Energy 3,610,051 kWh Incentive Budget $1,590,100

Technologies	**Incentivized**
	• Solar hot water system — Incentive $750 — Units 4,110
	• High efficiency electric water heaters — Incentive $40 - $70 — Units 850
	• Heat pump water heaters — Incentive $175 — Units 250
	• Hawaii Energy hero gift packs — Incentive $40 — Units 4,110
	  o Low flow showerheads
	  o CFLs
	
	Under Review for Potential Incentives
	• Instantaneous water heaters
	• Waste heat recovery from HVAC system
	• Peak demand reduction timers for water heater

Market Barriers	**General** • Trust and credibility of technology providers • Quality of system design, equipment and installation • Knowledge operation and maintenances of technologies • Large up-front cost **Owner Occupant** • Access to and/or understanding of financial options • Time between purchase and tax refunds (carrying cost) **Landlords and Property Managers** • May not pay for electricity cost • Reluctance to invest without a financial return • Short term investment **Renters and Lessees** • Do not have the authority or responsibility for the hot water system • Renter lease term shorter than simple payback

Description & Implementation Strategies	**Solar Water Heating** *Standard Solar Water Heating* The program will provide a $750 rebate for solar hot water systems installed by qualified contractors. The process is: • Customers contact a contractor from a list of participating contractors on Hawaii Energy's website • Contractor comes to the home, reviews site conditions, interviews the customer to analyze the hot water usage and then provides a written proposal for complete installation; Contractor's proposed sale price reflects the inclusion of the $750 rebate • Contractor fills out the Program's system sizing form • Contractor provides rebate form and helps customer to fill it out • Contractor provides Hawaii Energy with building permit number • Contractor installs solar water heating system • Contractor reviews system operation and maintenance with customer • Hawaii Energy will conduct a post-installation inspection to make sure the system has been installed properly • Upon successful inspection, Hawaii Energy will rebate the contractor $750 *ARRA Leveraged Solar Water Heating* The program will provide a co-funded combined incentive that will buy down the interest charges for a solar water heater loan from a participating lending institution made on solar hot water systems that are installed by qualified contractors. This incentive will cover the first 6 points of the loan interest up to a total maximum of $1,000. The Program will provide 25% of the incentive and the ARRA funded component will provide the remaining 75%. The savings claimed by the Program will be prorated accordingly. The process includes: • The customer contacts a participating lender from a list of participating lenders on Hawaii Energy's website • The customer enters into a financing agreement with the lender that indicates the sale price, loan amount, interest component and the Hawaii Energy Incentive and ARRA buy down amounts • The customer executes the "Standard" installation process • Upon successful inspection, the lender will be paid the combined ARRA / Hawaii Energy incentive

Description & Implementation Strategies (cont'd)	**High Efficiency Electric Hot Water Heaters** For high efficiency electric hot water heaters, we will provide $40, $50, or $70 rebates for qualifying models. Rebate levels are based on the size and efficiency of the water heater. Rebate applications for water heaters are provided by the retailers at the time of purchase or a customer can visit our website and download the form. Rebate applications must include an original purchase receipt showing brand and model number. **Residential Heat Pump** Residential heat pump rebates are available at $175. Rebate applications for water heaters are provided by the retailers at the time of purchase or a customer can visit our website and download the form. Rebate applications must include an original purchase receipt showing brand and model number. **Trade Allies** The program will conduct outreach with key allies including the Solar Technical Advisory Group, solar contractors, suppliers, government and housing agencies; financial institutions; and housing, apartment, and contractor associations. This team will promote the program, solicit feedback for more efficient program operation, and identify opportunities for implementation and coordination of efforts. The program currently inspects 100% of all systems, but may reduce this level for vendors demonstrating high level of performance.
Key Changes	• Change to a performance based inspection program which is expected to reduce final system inspections by 50% • Contractor or customers may request the inspection if one is not selected to be done • Require systems to incorporate backup element active light warning system • Leveraged loan interest buy down incentive • Recognizing the growing product availability and sales efforts regarding residential heat pumps, increase educational efforts
Marketing Strategies	• Direct contact with participating solar contractors • Community event promotion of High Efficiency Water Heating • Utility bill stuffers • Listing of participating contractors on our website • Print advertising and Social media

Program Category	**4.1.2 Residential Energy Efficiency Measures** **High Efficiency Lighting**
Target Market	• Homeowners, Landlords, Tenants, and Property Managers • Manufacturers, Distributors, Dealers, and Retailers
Impacts	Demand 6,244 kW Energy 40,566,948 kWh Incentive Budget $1,582,230
Technologies	• ENERGY STAR CFL – Standard $ 1 • ENERGY STAR CFL – Specialty $ 3 • ENERGY STAR CFL – Dimmable $ 5 • Hawaii Energy private label packaging will have special rebate pricing • ENERGY STAR LED products will be reviewed after the official product offering becomes available from ENERGY STAR
Market Barriers	**General** • Lack of understanding about how energy is used in the home • Lack of information about product energy efficiency • Lack of understanding as to which technology is the most effective to reduce energy consumption • Product availability of specialty and dimmable CFLs within the customer shopping area **Owner Occupant** • Ability to self-install • Ability to find appropriate CFLs for fixture or ceiling fan • Disposal concerns • May not pay for electricity cost (condominiums) **Landlords and Property Managers** • No control over the hours used for lighting • May not pay for electricity cost • Reluctance to invest without a financial return • Short term investment **Renters and Lessees** • Do not have the authority or responsibility for the lighting fixtures • May not pay for electricity

Residential Energy Efficiency Measures - High Efficiency Lighting Cont.

Description & Implementation Strategies	There is a critical need to increase the participation in the CFL program by 50% as the value for the energy savings per CFL was reduced by the PY2009 TRM review from 65 kWh/Lamp to 32.7 kWh/lamp. Since the programs historically had CFLs support 40 to 50% of the savings this is a large hurdle to overcome. The CFL rebates will be offered using instant redeemable coupons which are provided for point of sale purchase reductions. The process includes: • Distributors, retailers and manufacturers complete a Memorandum of Understanding (MOU) cooperative agreement in which they provide funds for the advertising, promotion, and coupons for instant rebates for the CFLs to customers • Retailers signing the MOU agree to display signage showing the rebate has been provided by the Program, provide assistance in ordering and stocking qualifying products, and provide sales staff training • Retailers agree to promote consumer education, undergo staff training and follow proper coupon redemption procedures. • Retailers with the ability to track incentives using sales data are given the option for issuing rebates without the use of coupons, provided they can demonstrate the ability of providing accurate, timely data on point of purchase information by store by SKU **Trade Allies** The program is implemented through strong working relationships between the program, the major CFL manufacturers, and the national retailers. The participating CFL manufacturers are: GE, FEIT, Sylvania, TCPi and Philips. The participating national retailers are: COSTCO, Sam's Club, Home Depot and Walmart who have all utilized their buying power to offer a better blend of quality, affordable CFLs across the State.
Key Changes	• Working with manufacturers to produce a "Hawaii Energy" packaging of CFLs that explains how to select and use CFLs • The new packaging will be sold at retailers as well as given to customers as a "Gift Pack" with education about how to select and use CFLs
Marketing Strategies	• New Hawaii Energy packaging explaining proper CFL applications • Advertisements to explain how to select a CFL • Educational information online and in the media • Leverage allies to share CFL information and increase participation • Encourage an increase in selection of CFLs available • Social media

Program Category	**4.1.3 Residential Energy Efficiency Measures** **High Efficiency Air Conditioning**
Target Market	• Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers. • HVAC and General Contractors • Architect and Engineers
Impacts	Demand 429 kW Energy 1,720,016 kWh Incentive Budget $237,040
Technologies	• Window AC $50 • Ductless Split Systems $110 • Solar Attic Fans $50 • Whole House Fans $50
Market Barriers	**General** • Lack of understanding of how energy is used in the home • Lack of information about product energy efficiency • Lack of understanding as to which are the most effective ways to reduce energy consumption **Owner Occupant** • Inability to self install • Existing air conditioning opening prevents the proper selection for energy savings • Home owner association rules **Landlords and Property Managers** • No control over the hours used for air condition. • May not pay for electricity cost • Reluctance to invest without a financial return • Short term investment **Renters and Lessees** • Do not have the authority or responsibility for the HVAC system • May not pay for electricity

Residential Energy Efficiency Measures - High Efficiency Air Conditioning Cont.

Description & Implementation Strategies	The program will continue to provide prescriptive incentives to residential customers who purchase and install energy efficiency measures that meet or exceed ENERGY STAR® standards. The process inclides: • The customer purchases a qualified high efficiency air conditioner. • The customer obtains an application through the program's website, in hard copy from Hawaii Energy, or through point of sale retailer displays. **Trade Allies** We will continue to build relationships with manufactures, distributors and dealers by offering workshop and events to train Allies on Hawaii Energy's offerings and processes while seeking input on how to create additional offerings and refinements to existing programs.
Key Changes	• Elimination of rebates for window air conditioners under one ton to reduce load building • For systems above one ton, require proof that the new unit is replacing an old unit that is being eliminated • Encourage variable speed drive (VFD) inverter split system units • Addition of solar attic fans and whole house fans rebates
Marketing Strategies	• Provide cost of ownership information on rebate application forms Provide more information on the website explaining how to properly use HVAC systems • Advertise to explain how to select a HVAC system • Find organizations to assist with HVAC outreach • Add advertisements to utility bills • Social media

Program Category	**4.1.4 Residential Energy Efficiency Measures** **High Efficiency Appliances**
Target Market	• Homeowners, Landlords, Tenants, and Property Managers • Manufacturers, Distributors, Dealers and Retailers • Wholesalers and General Contractors • Architect and Engineers
Impacts	Demand 1,585 kW Energy 3,739,680 kWh Incentive Budget $1,347,500
Technologies	Ceiling Fans $40 Clothes Washers $50 Dishwashers $50 Refrigerator $50 Refrigerator with recycling $75 Refrigerator/Freezer Surrender $100
Market Barriers	**General** • Lack of understanding of how energy is used in the home • Lack of information about energy efficient products • Lack of understanding as to which are the most effective ways to reduce energy consumption • Lack of understanding of the importance of size and operation for energy savings • Large up-front cost • Ease of receiving a rebate **Owner Occupant** • Ability to self install • Home owner association rules • Availability of product when needed **Landlords and Property Managers** • No control over the hours of use • May not pay for electricity cost • Reluctance to invest without a financial return • Short term investment **Renters and Lessees** • Do not have the authority or responsibility for the appliances • May not pay for electricity

Residential Energy Efficiency Measures - High Efficiency Appliances

Description & Implementation Strategies	The program will continue to provide prescriptive incentives to residential customers who purchase and install energy efficiency measures that meet or exceed ENERGY STAR® standards. We will explore point of purchase rebates for appliances this year. The process includes: • The customer purchases a qualified high efficiency air conditioner. • The customer obtains an application through the program's website, in hard copy from Hawaii Energy, or through point of sale retailer displays. **Implementation** We will continue to build relationships with manufacturers, distributors and dealers by offering workshop and events to train allies on Hawaii Energy's offerings and processes while seeking input on how to create additional offerings and refinements to existing programs. We will leverage the relationships that were created with retailers across the State through the Trade Up for Cool Cash offering. We will work with Sears and Best Buy to explore point of purchase rebates that enable retailers to deduct the rebate at time of purchase.
Key Changes	• Old refrigerators and freezers surrendered for recycling qualify for a rebate (without a purchase of Energy Star qualified appliance) • Old refrigerators and freezers surrendered for recycling qualify for an increased rebate (with a purchase of Energy Star qualified appliance) • Break out savings and incentive levels by Appliance type and CEE Tier Levels • Potential to count Water Utility energy savings from dishwasher and washing machine installations.
Marketing Strategies	• Provide point of purchase (POP) signage and information • Provide cost of ownership information on rebate application forms • More information on the website explaining good practices on how to use ENERGY STAR appliances • Advertising explaining how to select and use appliances for the best energy savings • Find organizations to assist with appliance outreach

Program Category	**4.1.5 Residential Energy Efficiency Measures** **Energy Awareness, Measurement and Control Systems**
Target Market	**General** • Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers **Residential Energy Awareness and Action Competitions** • 6,000 DHHL Homes • Public-Private Military Housing • Faith-Based Communities • Neighborhood Community Associations
Impacts	Demand 3 kW Energy 174,971 kWh Incentive Budget $251,500
Technologies	(Pilot) Room Occupancy Sensors $5 / unit (Pilot) Whole House Energy Metering $100 / unit (Pilot) Residential Energy Awareness and Action Competitions
Market Barriers	**General** • Awareness of technologies • Understanding of best application • Installation • Proper application of room occupancy sensors

Description & Implementation Strategies	**Room Occupancy Sensors Mail-in Rebate** These sensors control the use of lighting in areas around the home with infrequent use such as laundry, storage, garage or spare areas. They are not intended for high use areas or CFLs. **Whole House Energy Metering Devices Mail-in Rebate** These devices collect energy data by induction and wirelessly transmit the information to a display unit which can be carried anywhere throughout the house. **Residential Energy Awareness and Action Competitions** • Develop process to create baseline usage records and provide peer comparisons. • Hold community meetings in the neighborhoods and educate on energy efficiency measures, where and how to buy and financing options. • Utilize video clips and Hawaii-based audit forms developed by Kanu Hawaii under their EPA grant. • Develop an Energy Hero Prize structure and recognition program to encourage the efforts and celebrate successes. **Implementation** The program will be implemented through strong working relationships between the program and the major manufacturers of occupancy sensors. As well as encourage national retailers to utilize their buying power to offer quality, affordable sensors across the State.
Key Changes	• New Program
Marketing Strategies	• Provide POP signage and information • Provide cost of ownership information on rebate application forms and benefits of ownership on our website

Program Category	**4.2.1 New Residential Programs** **Residential Energy Services & Maintenance**
Target Market	• Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers. • Mechanical and Solar Service Contractors
Impacts	Demand 176 kW Energy 329,144 kWh Incentive Budget $57,200
Technologies	Home AC Annual Tune-up $50 / unit Solar Water Heater Tune-up $50 / unit
Market Barriers	**General** • Awareness of need for maintenance • Resistance to engage unknown contractors
Description & Implementation Strategies	**Home AC Annual Tune-up and Solar Water Heater Tune-up** • Demonstrate the benefits of tune-ups • Educate customer of potential savings and system longevity • Utilize the participating contractors to contact the customers and have them arrange for the service work • Participating contractors will use the Hawaii Energy Checklist to inspect and record the pre and post conditions • Participating contractor's invoice must show that checklist requirements have been met and signed by the servicing technician • Customers can have two incentives per location annually
Key Changes	• Split Systems addition to central systems for AC tune-up • New solar water heater tune-up
Marketing Strategies	• Direct contact with Mechanical and Solar Contractors • Provide POP signage and information • Distribute educational materials at community events, neighborhood board meetings and homeowners association meetings • Provide cost of ownership information on rebate application forms and benefits of ownership on our website

Program Category	**4.2.2 New Residential Programs** **Residential Design and Audits**
Target Market	• Residential Home Developers
Impacts	Demand 1,203 kW Energy 4,812,500 kWh Incentive Budget $830,000
Technologies	• Building Envelope Measures o Roof o Wall o Windows o Shading • High Efficiency Lighting • High Efficiency Air Conditioning o Right sizing of equipment to envelope improvements • Site Selection and Orientation • Energy Star Equipment • Whole House Fans • Home Energy Management Systems • Occupancy Sensor light switches • Daylighting • Photovoltaic (PV)Systems and Analysis o Show cash positive payback with mortgage amortization • Solar System Status Alarms/Reporting • Switched/Timer outlets for charging stations to eliminate phantom loads.
Market Barriers	**Home Developers** • Need to design and equip homes to respond to home buyer market forces • Homes are not competitive for sale in Hawaii if they are not designed with A/C • Prior prescriptive components such as ceiling fans are not typically developer installed

Description & Implementation Strategies	• Offer new construction developers $0.08/kWh for the expected annual energy saved and $125/kW for the demand reduction between 5 and 9 p.m. weekdays for designs as compared in an acceptable energy model software to a code-designed home; it may include a minimum reduction level to achieve before incentives take effect; it will include incentive for features that provide utility peak demand savings that may not be able to be determined in an energy model • The program will hold military home developments to the same Code Standards and State Laws as private developers are held to. • Based on the use of computer energy modeling programs to compare a code-built home to the developer's home design offerings • Modeling allows the developer maximum flexibility in designing their homes and dovetail with the existing federal tax credits and Energy Star programs • Encourage interaction with the developer to maximize utilization of incentives through comparing model scenarios • Allow a limited number of developer constructed net-zero homes with PV systems to be considered as an efficiency measure.
Key Changes	• Elimination of prescriptive measure packages in favor of the use of energy models to make comparisons between enhanced and energy code compliant designs
Marketing Strategies	• Direct contact with home developers and the BIA • Promotion of the participating developers in trade-publications such as the BIA, Parade of Homes, and Hawaii Home Remodeling and Design • Recognition of the awardees and description of the changes made to the homes on the Hawaii Energy website • Energy Hero Awards to be placed in the model homes and available for use in the developer's marketing materials

Program Category	**4.3 Residential Low Income** **Residential Low Income Measures**
Target Market	• Low Income Homeowners and Renters (as defined by Hawaii low income guidelines)
Impacts	Demand 751 kW Energy 3,183,240 kWh Incentive Budget $290,750
Technologies	• RLI Solar Inspections (ARRA WAP) $85 / unit • RLI Solar Inspections (DHHL) $85 / unit • RLI Energy Hero Gift Packs $40 / unit o CFLs o Low-flow shower heads o Smart strips • RLI CFL Exchange $1.50 / unit • RLI Hawaii Energy Hero Audits $90 / unit
Market Barriers	• Customer lack of access to capital for energy improvements • Lack of understanding of energy efficiency benefits • Renter and Lessee reluctance to invest in property
Description & Implementation Strategies	• Work through state and local agencies serving the needs of low income families to identify qualified customers who will receive energy efficiency goods and services at no cost (“direct install”) • Continue to work with community action organizations to develop and deliver program services for low-income customers to include direct install and delivery of appropriate energy saving technologies • Continue to provide solar hot water inspections for RLI solar grant recipients
Key Changes	• Increased focus and penetration of direct install and educational outreach
Marketing Strategies	• Continue to target low-income and hard-to-reach customers through existing state and local agencies who service the needs of low income families • Develop working relationships with more community action and similar local groups to increase market penetration

5.0 BUSINESS PROGRAM DETAILS FOR PY2010

5.1 Business Energy Efficiency Measures (BEEM)

5.1.1 High Efficiency Lighting

5.1.2 High Efficiency HVAC

5.1.3 High Efficiency Water Heating

5.1.4 High Efficiency Water Pumping

5.1.5 High Efficiency Motors

5.1.6 Building Envelope Improvements

5.1.7 Energy Star Business Equipment

5.1.8 Energy Awareness, Measurement and Control Systems

5.2 Custom Business Energy Efficiency Measures (CBEEM)

5.2.1 Custom Project Measures

5.3 New Business Programs (NEW)

5.3.1 Business Service & Maintenance

5.3.2 Business Direct Installation

5.3.3 Business Design, Audits and Commissioning

5.4 Business Renewable Energy Promotion

5.4.1 Non-Profit & Government PV Review

Program Category	**5.1 Business Energy Efficiency Measures** **High Efficiency Lighting** **High Efficiency HVAC** **High Efficiency Water Heating** **High Efficiency Water Pumping** **High Efficiency Motors** **Building Envelope Improvements** **Energy Star Business Equipment** **Energy Awareness, Measurement and Control Systems**
Target Market	**Competitive Commercial** o Office Buildings o Retail **Governmental** o State o City o Federal **Industrial Sector** o Warehousing o Cold Storage o Water Pumping **Multi-Site** o Convenience Stores o Restaurants **High Load Factor Customers** o Hospitals o Hotels o Super Markets o Data Centers
Impacts	Demand 9,444 kW Energy 46,328,448 kWh Incentive Budget $5,138,670

Business Energy Efficiency Measures Cont.

Technologies	Incentives	Incentive Forecast
	• *High Efficiency Lighting* o CFL, T8, T5. LED, HID, HPS, o Delamping, Reflectors o Occupancy Sensors o Day lighting	$1,850,070
	• *High Efficiency Air Conditioning* o Chillers o VFDs on Chilled Water Pumps o VFDs on Air Handling Units o Package Units o Split Systems	$2,273,000
	• *High Efficiency Water Heating* o Commercial Solar Water Heaters o Heat Pumps	$153,000
	• *High Efficiency Water Pumping* o VFD Domestic Water Booster Packages	$35,000
	• *High Efficiency Motors* o NEMA Premium Efficiency Motors	$350,100
	• *Building Envelope Improvements* o Window Tinting	$205,000
	• *Energy Star Business Equipment* o Energy Star Refrigerators	$12,500
	Under Review & Pilot Process • *Building Envelope Improvements* o Cool Roof Technologies	
	• *Energy Awareness, Measurement, and Control Systems* o Condominium Submetering o Small Business Submetering	$260,000

Business Energy Efficiency Measures Cont.

Market Barriers	**General** • Lack of familiarity with availability of energy efficient technology • Trust and creditability of technology providers • Unaware of business benefits of reducing exposure to cost of energy changes • High initial up-front cost • Life Cycle Cost vs. Simple Payback decision analysis • Need for a cash positive investment • Access to and/or understanding of financial options • Lack of knowledge of operation and maintenance of technologies **Landlords and Property Managers** • May not pay for electricity cost • Reluctance to invest without a financial return • Short term investment **Renters and Lessees** • Do not have the authority or responsibility for the systems • Renter lease term shorter than simple payback

Program Description & Implementation Strategies

Technology Based Categories

High Efficiency Lighting, HVAC Water Heating Water Pumping Motors Building Envelope Improvements, Energy Star Business Equipment

The technology based incentives are provided for energy efficiency products that provide reliable energy savings for a wide array of customers. These incentives are developed to be based on fixed amounts per technology with performance adjustments to reflect the savings potential to ensure program cost-effectiveness set based on expected savings.

Measures are selected and reviewed to determine that the energy savings can be reliably deemed, or calculated using simple threshold criteria.

The implementation process includes:

- Program performs outreach and promotions to inform customers of incentive opportunities.
- Customer selects and approves purchase and installation of energy efficiency measures
- Customer sends in completed application forms with scheduling and supporting documentation
- Customer provides evidence of installation and/or program will verify the installation
- Hawaii Energy processes the incentive on approved applications on an as-funds available basis

Energy Awareness, Measurement, and Control Systems

- Provide peer groups with Customized Hawaii specific Energy Use Intensity reports. These comparisons show their usage in comparison to their peers currently on an entire facility basis and as the program progresses we will disaggregate the comparisons down to the technologies "categories."
- Provide self-assessment forms that the customer can complete on their own to identify potential savings.
- Increase the use of incentives such as the Condominium Submetering that combine cash incentives with the requirement for educational components and the execution of audits to promote further energy savings activity in the facilities.

Program Description & Implementation Strategies Cont.

Condominium Submetering Pilot

- Association of Apartment Owners (AOAO) ongoing efforts to reduce energy consumption and support the current submetering proposal as one that will insure both fairness in allocating energy costs as well as encouraging energy conservation through direct feedback of personal energy use to the tenants.
- Combining the submetering program with education and audits as proposed will complete developing the tenant's newfound desire for energy conservation with the how to achieve it.
- $150 per unit metered, payable to the AOAO for distribution to owners on a percentage of ownership basis to comply with condo regulations.
- The payment of the incentive will be based on AOAO securing the approval, installing and utilizing the submeters for billing purposes as well as participating in the actions proposed below.
- It is expected there will be at least 10% reduction in energy use, however, there is no minimum reduction in electrical use to be required by AOAO to retain the incentive.
- We do require that the system remain in place and billing to occur for a period of at least five years or a pro-rated portion of the incentive will be recovered by Hawaii Energy.
- A joint educational and monitoring program will be undertaken with AOAO to assist in the verification of savings and development of an ongoing energy incentive offering for other condominiums in Hawaii.
- Components of the Pilot Program:
  - Physical verification review of meters serving the building.
  - AOAO to provide two months of individual data collection after meter installation when providing tenants with mock billing data prior to actual billing.
  - Tenant participation in paper Energy Audit survey.
  - Identification of top and bottom 5 energy users. Hawaii Energy will perform on-site energy audits that may include metering of AC and Appliances.
  - AOAO to host Tenant Energy Education meetings presented by Hawaii Energy (Second month of mock billing).
  - CFL Special Purchase program in second month of mock billings (details to be determined).
  - Smart Strip Special Purchase program in second month of mock billings (details to be determined).
  - Energy Star Appliance Special Purchase program (details to be determined).
  - AOAO to provide building and/or unit domestic water usage information.
  - Building to perform solicitation of Common area lighting audit/proposal with Hawaii energy assistance.
  - Building to perform solicitation of Central Air Conditioning / Condenser water system audit/proposal with Hawaii energy assistance.
  - Building to perform solicitation for Domestic Water Pumping review audit/proposal with Hawaii Energy assistance.
  - Building to perform solicitation for Domestic Water Heating review audit/proposal with Hawaii Energy assistance.

Business Energy Efficiency Measures Cont.

Key Changes	• The format of a single Business Energy Efficiency Measures "BEEM" that provides program technology or activity categories that is easier to understand • Program baseline efficiency thresholds will be adjusted for new IEER AC ratings and review of efficency levels as necessary to coincide with the adoption of IECC 2006 and IECC 2009 energy codes • Modify savings for different CFL sizes with higher incentives for pin-mount CFLs due to the greater persistence • Eliminate the standard 32W T8 in favor of low-wattage 25/28W T8s • Start prescriptive for LED items that achieve ENERGY STAR status. • Move items that were previously handled in a prescriptive manner under the "Customized" program to prescriptive measures
Marketing Strategies	• Web-based application forms will be advertised and made available to customers and their channel allies (lighting, cooling, motors, controls). • Train and recruit program allies from various channels as program partners to enhance sales of their energy efficiency equipment • Maintain direct contact with key market players to understand the markets and decision points and to leverage their marketing resources to inform members • Email informational campaigns • Award and publish success of customer and ally partners to demonstrate highest level leadership in an effort to pull the market.

Program Category	**5.2 Custom Business Energy Efficiency Measures** **Custom Project Measures**
Target Market	**Competitive Commercial** o Office Buildings o Retail **Governmental** o State o City o Federal **Industrial Sector** o Warehousing o Cold Storage o Water Pumping **Multi-Site** o Convenience Stores o Restaurants **High Load Factor Customers** o Hospitals o Hotels o Super Markets o Data Centers
Impacts	Demand 1,296 kW Energy 8,107,710 kWh Incentive Budget $1,115,390
Technologies	This program provides for incentives for all energy-savings actions that are not already covered by the prescribed incentives. Custom incentives will not be limited to a certain list of measures. Common custom technologies include, but are not limited to: **Customized Measures** • Automatic Lighting Controls • LED Lighting Retrofits • System Process Conversions • Waste Heat Recovery • Peak Demand Reduction such as Thermal Storage • Heat Pump Water Heaters • Cooling Tower Forced Draft to Induced Draft replacements. • Compressed Air System Components • Building Automation Components • Guest Room Energy Management • Refrigeration Systems

Custom Business Energy Efficiency Measures Cont.

Market Barriers	• Risk Avoidance • Market acceptance of new technologies • Lack of familiarity with availability of energy efficient technology • High initial up-front cost • Life Cycle Cost vs. Simple Payback decision analysis • Need for a cash positive investment • Access to and/or understanding of financial options • Lack of knowledge of operation and maintenance of technologies
Program Description & Implementation Strategies	**Customized Application Process** This program will provide a custom application and granting process for participants to receive incentives for installing non-standard energy efficiency technologies. The intent of this structure is to enable customers to invest in energy efficiency processes and technology measures that may require calculations of energy savings for specific, unique applications. Incentive awards will be based on calculated savings that ensure program cost-effectiveness. The process includes: • Program performs outreach and promotions to inform customers of incentive opportunities • Customer learns about the program offerings through various channels • Customer may call the program to request assistance. • Customer or his agent must submit a brief proposal that describes the project and includes estimates of energy savings and payback • Engineering calculations are required and may be reviewed either internally or with a third-party engineering firm • Program provide feedback on the project to clairify if needed • Program provides pre-inspection and/or arranges for pre-metering of existing equipment if required • Customers select and approve purchase and installation of energy efficiency measures **Customized Project Criteria** • Payback of greater than one year • Pass the utility benefit-cost test, Total Resource Cost Ratio (TRC) based on the value of the Utility avoided demand (kW) and avoided energy (kWh) that the project produces • Incentive rate will not exceed the 50 percent of incremental cost of the energy efficiency improvement

Custom Business Energy Efficiency Measures Cont.

Program Description & Implementation Strategies	**Customized Worksheet of Decision Criteria** We listened to feedback that the prior customized application process was mysterious and subjective. A customized worksheet was developed and implemented in PY2009 that incorporates all the information required to screen the project: • Base case and enhanced case scenarios • Project savings • Project costs The worksheet calculates and we are able to screen based on the following: • Simple Payback (>1 year) • Incentive Amount (<=50% of incremental cost) • Total Resource Cost Ratio(>=1)
Key Changes	**Tiered Incentives by Payback** • Projects that have longer life measures often have longer paybacks that businesses have a harder time winning approval for. These projects can be pushed into reality by offering increases in the incentive levels in order to enhance feasibility and get them to a point where the customers will implement them. **Day Peak Demand Reduction Incentive** • Office buildings often have the ability to reduce their day time peak demand through energy projects however the existing Customized programs did not recognize the value of this demand reduction. • This day peak demand is often met with the least efficient generational sources and if lowered could result in a higher system load factor and reduced fossil fuel consumption. • We propose that customized projects should be given the ability to claim demand credit during the Utility's day peaks between 12 p.m. and 2 p.m. • Reducing load and energy consumption at this daily peak period reduces the fuel consumption of the least efficient generators "peaker" units.

Custom Business Energy Efficiency Measures Cont.

Key Changes Cont.

Measure Life	*Reduction in Energy use Incentive*	*Evening Peak Demand Incentive*	*Day Peak Demand Incentive*
		5 to 9 p.m.	*12 to 2 p.m.*
<= 5 years	$0.05 /kWh	$125 / kW	$100 / kW
> 5 years	$0.08 /kWh	$125 / kW	$100 / kW

Marketing Strategies

- Offer program ally custom incentive training and workshops to ensure program allies are comfortable with utilizing all aspects of the custom incentive program to sell more energy-efficient options to their respective customers
- Maintain direct contact with key market players to understand the markets and decision points and to leverage their marketing resources to inform members
- Email informational campaigns
- Award and publish success of customer and ally partners to demonstrate highest level leadership in an effort to pull the market

Program Category	**5.3 New Business Programs** **5.3.1 Business Service & Maintenance**
Target Market	**Central Plant Optimization Competition** • Facilities with Central Cooling and Heating Plants • Mechanical Service Companies • Facilities Engineers • Equipment Manufacturers, Distributors, Dealers and Retailers • Architect and Engineers **Package & Split System Annual Tune-up** • Mechanical Service Companies • Property Management Companies
Impacts	Demand 150 kW Energy 600,000 kWh Incentive Budget $66,000
Technologies	• Central Plant Maintenance Competition • Package & Split System Annual Tune-up $100 / unit
Market Barriers	**Central Plant Performance Competition** • Few central plant operators know their kW/ton and/or track their performance/operations to optimize complete plant efficiency • Lack of metering and instrumentation to provide complete picture of the central plant performance • Need for local documented examples of the value of maintenance, service and optimization of existing equipment • Shortage of skill sets required to be a high performance central plant operator **Package & Split System Annual Tune-Up** • Need for local documented examples of the value of maintenance, service and optimization of existing equipment • Systems are often out of site and thus out of mind • Systems may not be owned by lessees

Description & Implementation Strategies	**Central Plant Optimization Competition**

- Develop criteria for plant efficiency measurement to determine Top 10 Central Plants in Hawaii Competition based on:
  - Requirement for permanent monitoring equipment installed and recorded.
  - Points for Retro-Commissioning Report in Hawaii Energy Format
  - Points for Lowest kW/Ton Chilled Water delivered.
  - Points for allowing Hawaii Energy access to EMCS data.
  - Points for allowing Public Web Access to Central Plant EMCS data.
  - Completeness and equipment level detail of Input Data (Flows, approach temperatures, pump curve etc.)
- Work with ASHRAE and PAMCA Hawaii to develop training seminars and promote program with their members
- Determine cost of critical performance metering such as plant BTU, Delta T across AHUs, air and water distribution pressures, power metering
- Develop worksheets for the typical costs to install
- Work with mechanical contractors to provide package deals to participants
- Customized incentives to get metering and other equipment installed.
- Incentive payments will be made actual savings resulting from the on the pre and post actions.
- Provide peer groups with Customized Hawaii specific Energy Use Intensity reports based on the data collected; these comparisons show their usage in comparison to their peers currently on an entire facility basis, Central Plant and as the program progresses we will disaggregate the comparisons down to the individual technologies
- Big Prizes for encouragement (Big screen ENERGY STAR TVs)
- Promotion of Property Management Companies, Chief Engineers, Consultants, and Service Contractors.

New Business Programs Cont.

Description & Implementation Strategies Cont.	**Package & Split System Annual Tune-up** • Demonstrate the benefits of tune-ups • Educate customer on savings potential • Utilize the Participating Contractors to contact the customers and have them arrange for the service work. • Participating Contractors will use the Hawaii Energy PTAC / Split AC Maintenance Checklist to inspect and perform the pre and post conditions of their maintenance work • Participating Contractor's invoice must show that checklist requirements have been met and signed by the servicing technician • Customers can have 2 incentives per location annually
Key Changes	New
Marketing Strategies	• Direct contact with Mechanical Services companies, chief engineers, property managers and manufacturers representatives, • Collaborate with Service and Industry Trade Organizations • Award and publish success of customer and ally partners to demonstrate highest level leadership

Program Category

5.3 New Business Programs
5.3.2 Business Direct Installation

Target Market

Small Business Customers receiving electric power under a Schedule “G” rate are eligible under this program. Small customers similar to Schedule “G” customers that are under master-metered accounts would also be eligible.

The program will target the 50,000 customers within the small business market that have limited time and expertise within their organizations to research lighting technology options, obtain financing and contract with lighting contractors to replace their older less efficient lighting tehnologies.

Schedule "G" Customers	
Oahu	29,117
Big Island	12,614
Maui	8,503
Lanai	194
Molokai	498
Totals	50,926

Impacts

Demand	580	kW
Energy	6,164,000	kWh
Incentive Budget	$691,000	

Technologies

- Small Business Lighting Retrofit providing a “Turnkey” program consisting of audits, fixed pricing, installation by participating contractors and 4 month financing of lighting retrofits.
- The following lighting technology changes will be allowed under this measure.

Existing Technology		New Technology	
8 foot	1 lamp F96	4 foot	2 lamp F25/28 N
8 foot	2 lamp F96	4 foot	2 lamp F25/28 H
8 foot	2 lamp F96 HO	4 foot	2 lamp F25/28 N, Reflct.
8 foot	2 lamp F96 HO	4 foot	4 lamp F25/28 N
4 foot	4 lamp F40 / F32	4 foot	2 lamp F25/28 N, Reflct.
4 foot	3 lamp F40 / F32	4 foot	2 lamp F25/28 N, Reflct.
4 foot	2 lamp F40 / F32	4 foot	2 lamp F25/28 N
4 foot	1 lamp F40 / F32	4 foot	1 lamp F25/28 N
4 foot U-Bend	2 lamp FB40	2 foot	2 lamp F17 N
4 foot U-Bend	2 lamp FB40	2 foot	2 lamp F17 L, Reflector
100 Watt Incandescent		23 Watt	CFL
75 Watt Incandescent		19 Watt	CFL
60 Watt Incandescent		13 Watt	CFL
MR16		10 Watt	LED
40W Incandescent Exit Signs		2 Watt	LED Exit Signs
4 foot	1 F40 lamp	4 foot	LED

New Business Programs Cont.

Market Barriers	• Lack of familiarity with energy efficient lighting technologies • Inability to obtain project financing • Lack of time and expertise to seek and select lighting contractors • Life Cycle Cost vs. Simple Payback decision analysis
Program Description & Implementation Strategies	• Provide complete process to provide direct installation of lighting retrofits for small business customers. • Participating contractors will offer four month payment plans for the lighting retrofits • Use of workforce development groups and grass roots volunteer organizations to generate leads and perform initial audits to lower cost of sales for Lighting Contractors • Quick Inventory worksheet to ID potential targeting for future mechanical measures (AC/Water heating) • Incentive measures included: o 4 foot T12 to Low Wattage T8 o 4 foot T12 delamping o 8 foot T12 to 4 foot Low Wattage T8 o LED Case Lighting o CFLs o Exit Signs • 25% bonus over standard lighting incentives.
Key Changes	• Implemented measure in late PY2009, no changes for PY2010
Marketing Strategies	• Direct contact with participating lighting contractors • Direct contact with Small Business Administration • Direct contact and printed materials to Property Management groups • Door-to-Door contact through Grassroots Action Groups • Utility Bill Newsletter Article • Website listing of participating lighting contractors

Program Category	**5.3 New Business Programs** **5.3.3 Business Design, Audits & Commissioning**
Target Market	• Manufacturers, Distributors, Dealers and Retailers • Wholesalers and General Contractors • Architect and Engineers
Impacts	Demand 50 kW Energy 200,000 kWh Incentive Budget $550,000
Technologies	• Energy Study Assistance $200,000 • Energy Project Catalyst $300,000 • Design Assistance $50,000
Market Barriers	• None Identified

Description & Implementation Strategies

Energy Study Assistance

- 50% match up to $10,000
- Load / Existing Performance Measurements
- Modeling new systems
- Actionable recommendations

Energy Project Catalyst

The objective of the catalyst program is to accelerate stalled high impact energy efficiency projects from an idea to reality as follows:

- *Full Cost Incentives* - Provide a 100% cost incentive to proposals that fulfill program needs
- *Commitment to Implement* - Recipients must commit to implementing all projects with less than a 1 year payback including incentives.
- *Desired Project Profiles*
    - High potential for energy savings (>30% reduction in consumption).
    - Commitment and high probability of owner taking action on Site Audit / Commissioning / Energy Study report
    - Typical site that can be repeated, such as chain convenience stores
    - Sites with Energy Usage Density over 2.5 kWh/Sq. ft./month
    - Site with Peak Demand Density over 6.0 kW/ Sq. ft.
    - Control System Recommissioning - Sequence of operation documentation, review, testing.
    - Demonstrate usefulness of the addition of critical system efficiency metering such as total central plant kW/ton.

	• *Encouraged technology categories* o Fresh Water Pumping o Waste Water Pumping o Data Centers - Airflow Optimization o Data Centers - Server Virtualization and Related Technologies o Parking Garages - Perimeter Dimming o Parking Ventilation Control o Demand Control Ventilation (CO2 Sensors in return airstream) o LED Refrigeration Case Lighting o LED Interior Lights o LED Traffic Lights and Exterior Lighting o Advanced Energy Management Controls o Variable Volume Refrigerant Air Conditioning o High Performance Commercial Lighting o Bi-Level Stairwell and Parking Garage Lighting EC Motors and Controllers
Description & Implementation Strategies Cont.	**Design Assistance** • 50% matching up to $10,000 for projects exceeding code requirements • Meet targeted energy efficiency levels • Actionable recommendations
Key Changes	• New measures that encourage creativity and promote energy audits, recommissioning, and energy audits
Marketing Strategies	• Direct interaction with potential customers, mechanical engineers and contractors • Promote measure information on the website • Promote successful projects in the media and events

Program Category	**5.4 Business Renewable Energy Promotion** **5.4.1 Non-Profit & Government PV Review**
Target Market	Market conditions are poor for • Lower income residential customers lacking tax liabilities and lacking capital • Rental property owners lacking tax liabilities and lacking capital • Non profit and governmental customers It is recommended that a new incentive program target 1 kW to 10 kW systems owned by nonprofit organizations and governmental entities. Given that the average size of net metering systems is 8.7 kW this should include the majority of the market.
Impacts	Demand n/a kW Energy n/a kWh Incentive Budget n/a
Technologies	• Photovoltaic Power Generation Systems
Market Barriers	• Customer lack of access to capital for energy improvements • Lack of understanding of PV economics • Renter and Lessee reluctance to invest in non-owned property
Description & Implementation Strategies	An assessment was made for a Ratepayer Funded Solar Electric Program for Hawaii. The summary points from the report are as follows: • Based on the avoided utility cost used for the EE program the TRC ratio of the PV systems is about 0.80. It should be noted that the avoided utility costs are being studied by HCEI and results of this study may increase the TRC significantly. The description of implementation strategies included for the program to: • Educate business owners, including single-family rental owners, regarding the economics of solar electric system ownership o Provide an un-biased expert to assist prospective solar electric system owners through their decision and installation process

Business Renewable Energy Promotion Cont.

Description & Implementation Strategies Cont.	• Support residential solar-electric leasing firms to enter the Hawaiian market by: o Targeted outreach to the firms o Developing a business case for residential leasing o Supporting lease company's marketing efforts o Offering incentives for systems at lower income customer's homes o Cooperating as a true ally • Provide financing with an interest-rate buy down to lower-income home owners • Offer a first-cost incentive to non-tax paying system owners (Non-Profits and Government) • Encourage the state legislature to remove the $350/unit state tax credit cap for solar electric systems at multifamily residential property
Key Changes	• The current program budget and impact goals does not allow this measure to be implemented as it cannot be supported with the current budget as the program does not have enough other measures to offset the low cost effectiveness of this measure.
Marketing Strategies	• n/a

6.0 CONCLUSIONS

During PY2010, the Program will continue to place significant reliance on traditional energy efficiency measures to meet performance incentive goals.

At the same time, HECEP will be actively exploring new and more effective efficiency measures, individual behavior change and energy awareness strategies, and better ways to measure, track and report actual Program demand and energy savings.

Furthermore, HECEP will continue to work collaboratively with the PUC team to push the envelope on expanding its program efforts and contributions to the entire HCEI.

7.0 APPENDIX

Appendix A – Program Budget

Appendix B – Program Organization Transition Plan

Appendix C – Summary Presentation of Programs

Appendix D – Summary Presentation of Program Feedback

Appendix E – TRB Calculations

Appendix A – Program Budget

Hawaii Energy Efficiency Program Annual Budget Progression - October 4, 2010
July 1, 2010 through June 30, 2011

		PY10 Contract	PY10 Revision 1 (R1)	Variance (Contract to R1)	PY10 Revision R1 New Format (R1a)	Variance (R1 to R1a)	PY10 Revision 2 PY10 Annual Plan (R2)	Variance (R1a to R2)	PY10 Revision 2 Tax at Bottom (R2a)	Variance (R2 to R2a)
	Residential Programs									
1	Residential Program Ops and Management									
2	REEM	-	1,173,521	1,173,521	2,133,674	960,153	1,744,085	(389,589)	1,665,602	(78,483)
2	~~RNC~~	-	-	-	-	-	-	-		-
2	~~ESH~~	-	960,153	960,153	-	(960,153)	-	-		-
	RLI	-	10,411	10,411	10,411	-	60,000	49,589	57,300	(2,700)
3	New	-	-	-	-	-	340,000	340,000	324,700	(15,300)
	Total Residential Programs	1,369,381	2,144,085	774,704	2,144,085	-	2,144,085	-	2,047,602	(96,483)
4	~~Education & Training (E&T)~~	67,837	67,837	-	-	(67,837)	-	-		-
	Market Evaluation	101,755	101,755	-	101,755	-	101,755	-	97,176	(4,579)
4	~~Advertising/Marketing~~	211,990	81,761	(130,229)	-	(81,761)	-	-		-
4	Outreach			-	149,598	149,598	149,598	-	142,866	(6,732)
	Total Residential Non-Incentive	1,750,963	2,395,438	644,475	2,395,438	-	2,395,438	-	2,287,644	(107,794)
9	Less Performance Incentives			-		-	(350,000)	(350,000)		350,000
	Subtotal Residential Non-Incentive Less P I		2,395,438	2,395,438	2,395,438	-	2,045,438	(350,000)	NA	
9	Residential Customer Incentives					-				
2	REEM	-	3,458,832	3,458,832	5,933,360	2,474,528	5,008,370	(924,990)	5,008,370	-
2	~~RNC~~	-	-	-	-	-	-	-	0	-
2	~~ESH~~	-	2,474,528	2,474,528	-	(2,474,528)	-	-	0	-
	RLI	-	252,960	252,960	252,960	-	290,750	37,790	290,750	-
3	New	-				-	887,200	887,200	887,200	-
	Total Residential Customer Incentives	*6,186,320*	*6,186,320*	-	*6,186,320*	-	6,186,320	-	6,186,320	-
9	Performance Pool Award			-	-	-	350,000	350,000	0	(350,000)
	Total Residential Programs	**7,937,283**	**8,581,758**	**644,475**	**8,581,758**	-	**8,581,758**	-	**8,473,964**	**(107,794)**
	Business (C&I) Programs									
1	Business Programs Ops and Management									
5	BEEM	-	272,439	272,439	513,341	240,902	504,021	(9,320)	481,340	(22,681)
5	~~CINC~~	-	240,902	240,902	-	(240,902)	-	-	0	-
6	CBEEM	-	349,459	349,459	349,459	-	197,182	(152,277)	188,309	(8,873)
	~~PV~~	-	36,183	36,183	36,183	-	-	(36,183)	0	-
	New	-	-	-	-	-	197,780	197,780	188,880	(8,900)
	Total Business Programs	1,673,687	898,983	(774,704)	898,983	-	898,983	-	858,529	(40,454)
4	~~Education & Training (E&T)~~	82,911	82,911	-	-	(82,911)		-		-
	Market Evaluation	124,367	124,367	-	124,367	-	124,367	-	118,771	(5,596)
4	~~Advertising/Marketing~~	259,098	99,929	(159,169)	-	(99,929)		-		-
4	Outreach			-	182,840	182,840	182,840	-	174,612	(8,228)
	Total Business Non-Incentive	2,140,063	1,206,190	(933,873)	1,206,190	-	1,206,190	-	1,151,912	(54,278)
9	Less Performance Incentives	-	-	-	-	-	(350,000)	(350,000)	0	350,000
	Subtotal Business Non-Incentive Less P I	-	1,206,190	1,206,190	1,206,190	-	856,190	(350,000)	NA	
	Business Customer Incentives									
5	BEEM	-	2,022,841	2,022,841	3,811,514	1,788,673	5,138,670	1,327,156	5,138,670	-
5	~~CINC~~	-	1,788,673	1,788,673		(1,788,673)	-	-	0	-
6	CBEEM	-	2,594,710	2,594,710	2,594,710	-	1,115,390	(1,479,320)	1,115,390	-
	~~PV~~	-	-	-	-	-		-	0	-
7	New	-	1,154,836	1,154,836	1,154,836	-	1,307,000	152,164	1,307,000	-
	Total Business Customer Incentives	*7,561,060*	*7,561,060*	-	*7,561,060*	-	7,561,060	-	7,561,060	-
9	Performance Pool Award			-	-	-	350,000	350,000	0	(350,000)
	Total Business Programs	**9,701,123**	**8,767,250**	**(933,873)**	**8,767,250**	-	**8,767,250**	-	**8,712,972**	**(54,278)**
	Ramp Up Program Costs	-	-	-	-	-	-	-	0	-
	Total Services and Initiatives	**17,638,406**	**17,349,008**	**(289,398)**	**17,349,008**	-	**17,349,008**	-	**17,186,936**	**(162,072)**
	Supporting Services									
8	~~GA~~	1,131,088	1,131,088	-	-	(1,131,088)	-	-	0	-
8	~~IT~~	74,038	74,038	-	-	(74,038)	-	-	0	-
8	Supporting Services	-	-	-	1,205,126	1,205,126	1,205,126	-	1,150,896	(54,230)
	Ramp up GA	-	-	-	-	-	-	-	0	-
	Ramp Up IT	-	-	-	-	-	-	-	0	-
	Less Contractor Contribution	-	-	-	-	-	-	-	0	-
	Total Supporting Services	**1,205,126**	**1,205,126**	-	**1,205,126**	-	**1,205,126**	-	**1,150,896**	**(54,230)**
	Subtotal Non-Incentive (Prior to Tax)	-	**4,806,754**	-	4,806,754	-	4,806,754	-	4,590,452	(216,302)
9	Less Performance Incentives (Prior to Tax)	-	-	-	-	-	(700,000)	(700,000)	(668,500)	31,500
	Subtotal Non-Incentive Less PI					-	4,106,754	NA	3,921,952	(184,802)
10	Tax on Non-Incentive w/o performance incentives	-	-	-	-	-		-	216,302	216,302
11	Funding Set Aside for Tax on Performance Incentive						-		(31,500)	(31,500)
10	Tax on Non-Incentive Less PI that will appear on invoices								184,802	184,802
9	Performance Incentive Award (Prior to Tax)	-	-	-	-	-	700,000	700,000	668,500	(31,500)
11	Tax on Performance Incentive Award	-	-	-	-	-	-	-	31,500	31,500
11	Subtotal Performace Incentive Award						700,000		700,000	0
	Subtotal Non-Incentive Billed	-	*4,806,754*	-	*4,806,754*	-	*4,806,754*	-	*4,806,754*	0
	Subtotal Residential and Business Customer Incentives	-	*13,747,380*	-	*13,747,380*	-	*13,747,380*	-	*13,747,380*	0
	Sub-Total Estimated Contractor Costs	*18,843,532*	*18,554,134*	*(289,398)*	*18,554,134*	-	*18,554,134*	-	*18,554,134*	*0*
	Performance Awards in Excess of Target Levels	133,000	133,000	-	133,000	-	133,000	-	133,000	-
	Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels	**18,976,532**	**18,687,134**	**(289,398)**	**18,687,134**	-	**18,687,134**	-	**18,687,134**	-

NOTES FOR R1

Streamlined to create Program Ops and Management which includes Program Management, Program Operations, Call Center, and Data Tracking; Program Management will consume approximately 30%; Divided Program Ops and Management into the individual programs for residential and business.

NOTES FOR R1a

Shows how the allocations from Revision 1 would be reallocated based on the new program design proposed in the PY2010 Annual Plan, without shifting any funds for increased or decreased resource needs.

NOTES FOR R1a to R2

1 Program Ops and Management includes Program Management, Program Operations, Call Center, and Data Tracking; Program Management will consume approximately 30%.
2 REEM budget includes the new improved REWH and ESH programs; RNC is now included as a part of the REWH program.
3 New Residential Programs include RSAM and RDA.
4 Education & Training and Advertising & Marketing will now be tracked to one budget called "Outreach."
5 BEEM is the new improved CIEE and CINC programs.
6 CBEEM is the new improved CICR.
7 New Business Programs include BSAM, BDI, and BDA.
8 GA and IT will now be tracked as one budget called "Supporting Services."
Reallocation of funds based on experience from PY2009 as well as changes in initiatives for PY2010 (reallocations are in the variance column)

NOTES FOR R2a

9 Moved Performance Incentive Deductions and Awards to the bottom to increase accuracy in reporting in comparison to invoices.
10 Removed tax from each line item at a rate of 4.712% and made into one line item at the bottom of the budget. This is to increase accuracy when comparing reporting to invoices.
11 Tax on Performance Incentives will not be seen on invoices due to tax being applied after deductions and therefore we have set aside a line item to make sure it does not get spent inadvertently. Award will be tax inclusive, not to exceed $700,000 although it may appear that only $668,500.27 was withheld, this is only the effort due to tax cannot be applied until effort is billed.

Appendix B – Program Organization Transition Plan

Hawaii Energy - PY2010 ANNUAL PLAN - Program Organization Transition Plan

This proposed program organization plan makes a transition from the PY2009 program organization, through a PY2010 Transition year that condenses the budget categories and then to a final PY2011 organization that would provide an organization that is clear with categories of measures that clearly reflects to the public the activities and offerings within each progam.

RESIDENTIAL PROGRAMS		
PY2009	Program	
	ESH	Energy Solutions for the Home
	REWH	Residential Efficient Water Heating
	RNC	Residential New Construction
	NEW	New
	RLI	*Residential Low Income*

RESIDENTIAL PROGRAMS		
PY2010	Program	Category
	REEM	***Residential Energy Efficiency Measures***
		High Efficiency Water Heating
		High Efficiency Lighting
		High Efficiency Air Conditioning
		High Efficiency Appliances
		Energy Awareness, Measurement and Control Systems
	NEW	***New Residential Programs Incubator***
		Residential Service & Maintenance
		Residential Design & Audits
	RLI	***Residential Low Income***

RESIDENTIAL PROGRAMS		
PY2011	Program	Category
	ESH	***Energy Solutions for the Home***
		High Efficiency Water Heating
		High Efficiency Lighting
		High Efficiency Air Conditioning
		High Efficiency Appliances
		Energy Awareness, Measurement and Control Systems
	CESH	***Custom Energy Solutions for the Home***
	RESAM	***Residential Energy Services & Maintenance***
		Residential Direct Installation
		Residential Design & Audits
	NEW	***New Residential Programs Incubator***
	RLI	***Residential Low Income***
	RREP	***Residential Renewable Energy Promotion***
		Financial Analysis
		Renewable Energy Curtailment Avoidance
		Technology Education
		Standards & Specifications

BUSINESS PROGRAMS		
PY2009	Program	Category
	CIEE	Commercial & Industrial Energy Efficiency
	CINC	Commercial & Industrial New Construction
	CICR	Commercial & Industrial Custom Rebate
	NEW	New
	PV	Photo-Voltaic

BUSINESS PROGRAMS		
PY2010	Program	Category
	BEEM	***Business Energy Efficiency Measures***
		High Efficiency Lighting
		High Efficiency Air Conditioning
		High Efficiency Water Heating
		High Efficiency Water Pumping
		High Efficiency Motors
		Building Envelope Improvements
		Energy Star Business Equipment
		Energy Awareness, Measurement and Control Systems
	CBEEM	***Custom Business Energy Efficiency Measures***
	NEW	***New Programs***
		Business Service & Maintenance
		Business Direct Installation
		Business Design, Audits & Commissioning
	BREP	***Business Renewable Energy Promotion***
		Non-Profit & Government PV

BUSINESS PROGRAMS		
PY2011	Program	Category
	BEEM	***Business Energy Efficiency Measures***
		High Efficiency Lighting
		High Efficiency Air Conditioning
		High Efficiency Water Heating
		High Efficiency Water Pumping
		High Efficiency Motors
		Building Envelope Improvements
		Energy Star Business Equipment
		Energy Awareness, Measurement and Control Systems
	CBEEM	***Custom Business Energy Efficiency Measures***
	BESAM	***Business Energy Services & Maintenance***
		Business Service & Maintenance
		Business Direct Installation
		Business Design, Audits & Commissioning
	BREP	***Business Renewable Energy Promotion***
		Financial Analysis
		Non-Profit & Government PV Incentives
		Renewable Energy Curtailment Avoidance
		Technology Education
		Standards & Specifications
	NEW	***New Business Programs Incubator***

Appendix C – Summary Presentation of Programs - Part 1 of 4

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS

Combined Programs	Estimated Budget	kW	kWh	$/kWh	TRB
Targets	$ 13,747,380	23,126	132,615,000	$ 0.104	$ 155,592,610
Plan Goals	$ 13,747,380	22,703	119,181,826	$ 0.115	$ 144,583,492

Residential Programs

Residential Target	$ 6,186,320		71,245,000	$ 0.087	
Difference	$ -		(13,463,332)		
Residential Plan	$ 6,186,320	11,184	57,781,668	$ 0.107	$ 58,856,745

Program	Category	Measures	Units	Incentive	Estimated Budget	% Total Program	kW	% Total Program	kWh	% Total Program	TRB	% Total Program
REEM	**Residential Energy Efficiency Measures**				$ 5,008,370	36%	9,222	41%	50,239,184	42%	$ 47,037,920	33%
	High Efficiency Water Heating				**$ 1,590,100**	**12%**	**1,004**	**4%**	**3,610,051**	**3%**	**$ 6,295,037**	**4%**
		Solar Water Heater (SWH) Incentive	1,400	$ 750	$ 1,050,000	8%	571	3%	2,520,000	2%	$ 4,981,744	3%
		Solar Water Heater Interest Buydown	1,355	$ 250	$ 338,750	2%	35	0%	152,438	0%	$ 301,351	0%
		Solar Water Heater (SWH) Incentive ARRA SEP Leveraged	1,355									
		Solar Water Heater Energy Hero Gift Packs	4,110	$ 35	$ 143,850	1%	265	1%	689,494	1%	$ 703,160	0%
		Heat Pumps	250	$ 125	$ 31,250	0%	37	0%	123,000	0%	$ 110,525	0%
		High Efficiency Water Heaters	650	$ 25	$ 16,250	0%	18	0%	83,200	0%	$ 64,796	0%
	(pilot)	High Efficiency Water Heaters w/Timer	200	$ 50	$ 10,000	0%	78	0%	41,920	0%	$ 133,462	0%
	(pilot)	Instantaneous Water Heaters				0%		0%		0%	$ -	0%
	High Efficiency Lighting				$ 1,582,230	12%	6,244	28%	40,566,948	34%	$ 28,271,342	20%
		CFLs	1,500,000	$ 0.92	$ 1,379,022	10%	6,000	26%	39,240,000	33%	$ 26,788,643	19%
	(pilot)	LED	25,401	$ 8	$ 203,208	1%	244	1%	1,326,948	1%	$ 1,482,699	1%
	High Efficiency Air Conditioning				$ 237,040	2%	429	2%	1,720,016	1%	$ 2,882,473	2%
		Window AC	1,100	$ 50	$ 55,000	0%	163	1%	573,760	0%	$ 1,070,556	1%
		Split System AC	600	$ 110	$ 66,000	0%	91	0%	179,040	0%	$ 517,700	0%
		Ceiling Fans	2,276	$ 40	$ 91,040	1%	18	0%	719,216	1%	$ 653,566	0%
	(new)	Solar Attic and Whole House Fans	500	$ 50	$ 25,000	0%	157	1%	248,000	0%	$ 640,652	0%
	High Efficiency Appliances				$ 1,347,500	10%	1,542	7%	4,167,197	3%	$ 9,419,944	7%
		Refrigerator	6,400	$ 50	$ 320,000	2%	205	1%	675,840	1%	$ 1,457,446	1%
		Refrigerator with Recycling	2,001	$ 125	$ 250,125	2%	192	1%	633,917	1%	$ 1,367,038	1%
	(pilot)	Garage Refrigerator / Freezer Bounty	1,665	$ 75	$ 124,875	1%	53	0%	1,598,400	1%	$ 1,911,410	1%
		Clothes Washer	6,200	$ 75	$ 465,000	3%	992	4%	1,111,040	1%	$ 4,223,575	3%
		Dishwasher	2,500	$ 75	$ 187,500	1%	100	0%	148,000	0%	$ 460,475	0%
	Energy Awareness, Measurement and Control Systems				$ 251,500	2%	3	0%	174,971	0%	$ 169,124	0%
	(pilot)	Room Occupancy Sensors	300	$ 5	$ 1,500	0%	2	0%	10,800	0%	$ 13,013	0%
	(pilot)	Residential Energy Awareness and Action	5	$ 20,000	$ 100,000	1%	1	0%	28,571	0%	$ 2,986	0%
	(pilot)	Whole House Energy Metering	1,500	$ 100	$ 150,000	1%	-	0%	135,600	0%	$ 153,126	0%

Appendix C – Summary Presentation of Programs Cont. - Part 2 of 4

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS

Residential Programs Cont.

Program	Category	Measures			Estimated Budget	% Total Program	kW	% Total Program	kWh	% Total Program	TRB	% Total Program
NEW	**New Residential Programs Incubator**			$ 887,200	6%	1,379	6%	5,141,644	4%	$ 10,066,310	7%
	Residential Energy Services & Maintenance			$ 57,200	0%	176	1%	329,144	0%	$ 132,641	0%
		AC Annual Tune Up	500 $ 50	$ 25,000	0%	157	1%	248,000	0%	$ 68,509	0%
	(pilot)	Solar Water Heater Tune Up	644 $ 50	$ 32,200	0%	18	0%	81,144	0%	$ 64,132	0%
	Residential Design and Audits			$ 830,000	6%	1,203	5%	4,812,500	4%	$ 9,933,669	7%
	(new)	Efficiency Inside Home Design	1,100 $ 700	$ 770,000	6%	1,203	5%	4,812,500	4%	$ 9,933,669	7%
	(new)	Hawaii Energy Hero Audits	600 $ 100	$ 60,000	0%	-	0%	-	0%	$ -	0%
RLI	**Residential Low Income**			$ 290,750	2%	583	3%	2,400,840	2%	$ 1,752,514	1%
		RLI Solar Inspections (ARRA WAP)	450 $ 85	$ 38,250	0%	138	1%	607,500	1%	$ 480,137	0%
		RLI Solar Inspections (DHHL)			0%		0%		0%	$ -	0%
		RLI Energy Hero Gift Packs	4,000 $ 35	$ 140,000	1%	258	1%	671,040	1%	$ 684,341	0%
		RLI CFL Exchange	30,000 $ 1.50	$ 45,000	0%	120	1%	784,800	1%	$ 535,773	0%
	(new)	RLI Hawaii Energy Hero Audits	750 $ 90	$ 67,500	0%	68	0%	337,500	0%	$ 52,263	0%

Appendix C – Summary Presentation of Programs Cont. - Part 3 of 4

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS

Business Programs												
		Business Target		$ 7,561,060				61,370,000	$ 0.123			
		Difference		$ -				30,158				
		Business Plan		$ 7,561,060		11,520		61,400,158	$ 0.123	$ 85,726,748		
Program	Category	Measures	Applications	Incentive	Estimated Budget	% Total Program	kW	% Total Program	kWh	% Total Program	TRB	% Total Program
BEEM	**Business Energy Efficiency Measures**				$ 5,138,670	37%	9,444	42%	46,328,448	39%	$ 70,240,485	49%
	High Efficiency Lighting				$ 1,850,070	13%	5,433	24%	29,927,932	25%	$ 34,898,084	24%
		CFL	135	$ 1,090	$ 147,150	1%	1,653	7%	8,506,121	7%	$ 6,320,950	4%
		T8	330	$ 3,500	$ 1,155,000	8%	2,143	9%	12,642,877	11%	$ 16,504,443	11%
		T5	50	$ 2,130	$ 106,500	1%	986	4%	5,060,692	4%	$ 6,959,700	5%
		Delamp	25	$ 1,160	$ 29,000	0%	115	1%	758,799	1%	$ 954,092	1%
		Delamp/Reflector	30	$ 4,900	$ 147,000	1%	353	2%	1,526,687	1%	$ 2,251,688	2%
	(new)	LED	150	$ 460	$ 69,000	1%	68	0%	594,019	0%	$ 684,766	0%
		HID	8	$ 740	$ 5,920	0%	15	0%	80,952	0%	$ 147,717	0%
		HPS	1	$ 46,000	$ 46,000	0%	22	0%	465,195	0%	$ 607,001	0%
		Induction	10	$ 1,700	$ 17,000	0%	6	0%	27,016	0%	$ 63,172	0%
		Sensors	100	$ 1,200	$ 120,000	1%	55	0%	197,393	0%	$ 263,817	0%
	(new)	Daylighting	5	$ 1,500	$ 7,500	0%	17	0%	68,182	0%	$ 140,737	0%
	High Efficiency HVAC				$ 2,273,000	17%	3,024	13%	10,746,771	9%	$ 25,328,103	18%
		Chillers	20	$ 19,000	$ 380,000	3%	1,267	6%	3,966,792	3%	$ 11,100,401	8%
		VFD - Chilled Water	10	$ 2,400	$ 24,000	0%	65	0%	241,204	0%	$ 517,189	0%
		VFD - AHU	45	$ 1,500	$ 67,500	0%	249	1%	949,029	1%	$ 2,004,520	1%
		Package Units	205	$ 4,300	$ 881,500	6%	802	4%	2,837,746	2%	$ 6,204,981	4%
		Split Systems	200	$ 4,600	$ 920,000	7%	640	3%	2,752,000	2%	$ 5,501,011	4%
	High Efficiency Water Heating				$ 153,000	1%	185	1%	740,909	1%	$ 1,529,339	1%
	(new)	Commercial Solar Water Heating	6	$ 18,000	$ 108,000	1%	123	1%	490,909	0%	$ 1,013,305	1%
	(new)	Heat Pump	3	$ 15,000	$ 45,000	0%	63	0%	250,000	0%	$ 516,035	0%
	High Efficiency Water Pumping				$ 35,000	0%	53	0%	479,665	0%	$ 738,757	1%
	(new)	VFD Domestic Water Booster Packages	10	$ 3,500	$ 35,000	0%	53	0%	479,665	0%	$ 738,757	1%
	High Efficiency Motors				$ 350,100	3%	25	0%	141,579	0%	$ 252,300	0%
		NEMA Premium Efficiency Motors	100	$ 3,501	$ 350,100	3%	25	0%	141,579	0%	$ 252,300	0%
	Building Envelope Improvements				$ 205,000	1%	296	1%	2,586,591	2%	$ 4,843,754	3%
		Window Tinting	45	$ 4,000	$ 180,000	1%	278	1%	2,447,703	2%	$ 4,576,923	3%
		Cool Roof Technologies	5	$ 5,000	$ 25,000	0%	17	0%	138,889	0%	$ 266,831	0%
	Energy Star Business Equipment				$ 12,500	0%	23	0%	80,000	0%	$ 168,806	0%
	(new)	Refridgerators	250	$ 50	$ 12,500	0%	23	0%	80,000	0%	$ 168,806	0%
	Energy Awareness, Measurement and Control Systems				$ 260,000	2%	406	2%	1,625,000	1%	$ 2,481,342	2%
	(pilot)	Condominum Submetering Pilot	3	$ 70,000	$ 210,000	2%	328	1%	1,312,500	1%	$ 2,004,160	1%
	(pilot)	Small Business Submetering Pilot	2	$ 25,000	$ 50,000	0%	78	0%	312,500	0%	$ 477,181	0%

Appendix C – Summary Presentation of Programs Cont. - Part 4 of 4

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS

Business Programs Cont.

Program	Category	Measures	Applications	Incentive	Estimated Budget	% Total Program	kW	% Total Program	kWh	% Total Program	TRB	% Total Program
CBEEM	**Custom Business Energy Efficiency Measures**				$ 1,115,390	8%	1,296	6%	8,107,710	7%	$ 8,617,029	6%
	Customized Project Measures				$ 1,115,390		1,296		8,107,710		$ 8,617,029	
		Customized Project Measures	40	$ 27,885	$ 1,115,390	8%	1,296	6%	8,107,710	7%	$ 8,617,029	6%
NEW	**New Business Programs Incubator**				$ 1,307,000	10%	780	3%	6,964,000	6%	$ 6,869,233	5%
	Business Service and Maintenance				$ 66,000	0%	150	1%	600,000	1%	$ 101,306	0%
	(new)	Central Plant Performance Competition	6	$ 10,000	$ 60,000	0%	136	1%	545,455	0%	$ 92,097	0%
	(new)	Package & Split Annual tune-up	30	$ 200	$ 6,000	0%	14	0%	54,545	0%	$ 9,210	0%
	Business Direct Installation				$ 691,000	5%	580	3%	6,164,000	5%	$ 6,767,927	5%
	(new)	Small Business Direct Lighting Retrofits	1,000	$ 691	$ 691,000	5%	580	3%	6,164,000	5%	$ 6,767,927	5%
	Business Design, Audits and Commissioning				$ 550,000	4%	50	0%	200,000	0%	$ -	0%
		Energy Study Assistance	20	$ 10,000	$ 200,000	1%		0%		0%	$ -	0%
	(pilot)	Energy Project Catalyst	15	$ 20,000	$ 300,000	2%	50	0%	200,000	0%	$ -	0%
		Design Assistance	5	$ 10,000	$ 50,000	0%		0%		0%	$ -	0%
BREP	**Business Renewable Energy Promotion**				$ -	0%	-	0%	-	0%	$ -	0%
	(TBD)	Non-Profit & Government PV Incentive				0%		0%		0%	$ -	0%

Appendix D – Summary Presentation of Program Feedback - Part 1 of 6

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAM FEEDBACK

Residential Programs

Program	Category	Measures	Market Intervention	Feedback/Lessons	Changes
REEM	**Residential Energy Efficiency Measures**				
	High Efficiency Water Heating				
		Solar Water Heater (SWH) Incentive	- Contractor Incentives - First Cost - Standard & Specs - Inspections provides confidence in quality installation - Consumer Awareness - discussion of Benefits / Show participating Contractors	- Budget for all units install - 45% Rental Market (would be addressed greatly by PACE program) - Request for program media presence - Solar power pumps (mixed reliability comments)	- Sample & Simplify Inspections - Provide Gift Pack - Home Energy Educational Materials - Develop tier for energy only on shaded homes - Utility bill stuffer by islands
		Solar Water Heater Interest Buydown			- Leverage ARRA SEP Funding - 6% up to $1,000 (1/4 PBF Contribution) - Provide Gift Pack
		Solar Water Heater (SWH) Incentive ARRA SEP Leveraged			- Leverage ARRA SEP Funding - In inspection sample pool - Provide Gift Pack - Home Energy Educational Materials
		Solar Water Heater Energy Hero Gift Packs	- Education - Positive feedback of appreciation		- Energy Hero Gift Pack - 3 CFLs - Branded w Hawaii Energy - 1 Smart Strip - 1 Shower head - Educational Material
		Heat Pumps	- Incentives	- Savings could be higher then SWH - May be more cost effective - Longer recovery rates - Maintenance needs	- New integrated tanks in market - Add-on units being promoted - Modify savings amounts
		High Efficiency Water Heaters		- Good ENERGY STAR market saturation - Retrofit - Replace on burnout - New - Developer participation / low first cost	- Modify incentive ($50 - $25)
(pilot)		High Efficiency Water Heaters w/Timer			- Investigate Tank Timer Incentive (w/load control?)
(pilot)		Instantaneous Water Heaters	- Education of Technology - Benefits/Shortfalls	- New - Instantaneous water heaters (gas/electric) increasingly choosen	- Investigate market - load characteristics

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAM FEEDBACK

Residential Programs Cont.

Program	Category	Measures	Market Intervention	Feedback/Lessons	Changes
	High Efficiency Lighting				
		CFLs	- Offer point-of-purchase rebates - Work with manufacturers and retailers to: - learn about CFL technology - Product use - product placements in store - Media Placement - Radio, Print, TV, Social Media - Limited time "promotions" for neighbor islands and end-of-year push to match media	- Public concerns about Mercury content - Limited ways to properly dispose - Do not last as long as advertised	- Educate on proper locations - Improve Point-of-Purchase education
		LED	- Offer point-of-purchase rebates - Work with manufacturers and retailers to: - learn about LED technology - Product use - product placements in store - Media Placement - Social Media	- More education about benefits - Product quality concerns - Fake UL listings	- Prescriptive for ENERGY STAR labeled
	High Efficiency Air Conditioning				
		Window AC	- Mail-In Rebate	- Majority of small AC units are under $100 lending them to become impulse purchases where they would not be bought if over $100. - 12.0 EER in enhanced case may be high for actual units sold that are in the 10.8 EER range for small units.	- Eliminate < 12,000 BTU incentives - Reduce Incentive ($75 to $50)
		Split System AC		- Inverter drive systems can save from 25% to 35% over single and two speed units	- Use IEER Ratings versus EER/SEER - Add Inverter Drive category with new savings value if IEER does not address.
		Ceiling Fans	- Mail-In Rebate		
		Solar Attic and Whole House Fans	- Mail-In Rebate	- No rebates	- Implement Point-of-Purchase in capable stores
	(new)		- Contractor Direct Incentives	- Need to bring awareness and credibility to technologies	- Add Prescriptive Incentives - Develop Savings Values (using $0.10/kWh proxy)

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAM FEEDBACK

Residential Programs Cont.

Program	Category	Measures	Market Intervention	Feedback/Lessons	Changes
	High Efficiency Appliances				
		Refrigerator	- Mail-In Rebate - Media Placement - Radio PSAs	- Extra cost for recycling haul away - Often old unit is turned put on curb for City pickup or put in garage	- Implement Point-of-Purchase in capable stores - Unbundle savings from Dishwasher/Clotheswasher incentives
		Refrigerator with Recycling	- Mail-In Rebate - Media Placement - Radio PSAs	- Extra cost for recycling haul away - Often old unit is turned put on curb for City pickup or put in garage	- Implement Point-of-Purchase in capable stores - Bonus for recycling - Unbundle savings from Dishwasher/Clotheswasher incentives - Modify savings for recycled unit - Modify incentive ($50 to $125)
	(pilot)	Garage Refrigerator / Freezer Bounty	- Mail-In Rebate - Media Placement - Radio PSAs		- Direct Uninstall Program for removal of working Refrigerator/Freezer - Work with Recycler to pick up at home. -"Green for Garage Fridge"
	(pilot)	Residential Energy Awareness and Action Competitions			
		Clothes Washer	- Mail Rebate		- Implement Point-of-Purchase in capable stores - Unbundle savings / incentives from Refrigerator / Dishwashers
		Dishwasher	- Mail Rebate		- Implement Point-of-Purchase in capable stores Unbundle savings / incentives from Refrigerator / Clotheswashers
	Energy Awareness, Measurement and Control Systems				
	(pilot)	Room Occupancy Sensors	- Mail Rebate - Point-of-Purchase in capable stores	- Incentive asked for by customers - Promoted as low-cost tips in many audit tools	- Implement Point-of-Purchase in capable stores - Add Prescriptive Incentives - Develop Savings Values (using $0.14/kWh proxy)
	(pilot)	Whole House Energy Metering			
NEW	**New Residential Programs Incubator**				
	Residential Energy Services & Maintenance				
		AC Annual Tune Up	- Direct offer through Mechanical Contractors - Worksheet for before and after measurement - Payment directly to Mechanical Contractors	- Not much promotion by Contractors	- Add Split Systems
	(pilot)	Solar Water Heater Tune Up	- Direct offer through Solar Contractors - Worksheet for before and after measurement - Payment directly to Solar Contractors	- 7% of 3-year old systems may not be functioning properly due to timer settings or system controllers issues. - Few customers perform 5 year anode rod maintenance, tank blow down, leak inspections, mixing valve checks, tank setpoint adjustments.	- Add incentive for Customers, Solar Contractors to have systems inspected and maintained.
	Residential Design and Audits				
	(new)	Efficiency Inside Home Design	- Direct to Home Developers	- Prescriptive program was never partcipated in due to restrictive bundling of measures. - Developers may make equipment changes to homes midstream - Some items are customer driven options and it is cumbersome to participate on a piecemeal basis	- Replace Existing prescriptive program with energy model based program
	(new)	Hawaii Energy Hero Audits	- Workforce Development Classes (MCC/WCC etc.) - Grass Roots Organizations - Kanu Hawaii, Blue Planet, etc. - Direct customer contact	- Need for residential education.	- Use Kanu Hawaii/ EPA Customized Home Audit - Incentive paid to third-party service provider

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAM FEEDBACK

Residential Programs Cont.

Program	Category	Measures	Market Intervention	Feedback/Lessons	Changes
RLI	**Residential Low Income**				
		RLI Solar Inspections (ARRA WAP)	- Direct contract with customers through Office Community Services (OCS) and their subcontractors Honolulu Community Action Program (HCAP), Maui Economic Opportunity (MEO), Hawaii County Economic Opportunity Council (HCEOC) '- Give away Showerheads and Smart Strips	- Customers did not want to give much information about themselves or homes. Provided simplified forms.	- Change to Energy Hero Gift Packs
		RLI Solar Inspections (DHHL)	- Direct contract with Council for Native Hawaiian Advancement (CNHA) - Will start implementation PY10 - RLI Energy Hero Gift Packs		
		RLI Energy Hero Gift Packs	- Direct contract with customers through Office Community Services (OCS) and their subcontractors Honolulu Community Action Program (HCAP), Maui Economic Opportunity (MEO), Hawaii County Economic Opportunity Council (HCEOC)		- Energy Hero Gift Pack - Add 3 CFLs - Branded w Hawaii Energy - 1 Smart Strip - 1 Shower head - Educational Material
		RLI CFL Exchange	- Blue Planet exchange program to perform community group bulb exchanges.	- Blue Planet has proven effective in the distribution of energy savings devices through their grass root volunteer network.	- Provide CFL lamps to Blue Planet
		RLI Hawaii Energy Hero Audits (new)	- Kanu Hawaii volunteer network	- Kanu Hawaii is performing a study for the EPA to develop Hawaii-home based energy audits forms with educational materials with low-no cost measures.	- Develop delivery network and processes - Develop database to capture/analyse data

Appendix D – Summary Presentation of Program Feedback Cont. - Part 5 of 6

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAM FEEDBACK

Business Programs

Program	Category	Measures	Market Intervention	Feedback/Lessons	Changes
BEEM	**Business Energy Efficiency Measures**				
	High Efficiency Lighting				
		CFL	- Incentives and Education - Direct give aways to small business	- Pin based CFL fixture should be given a higher rebate compared to screw-in CFL. - Resorts are moving to install CCFL because of the greater dimming performance.	- Modify Incentive levels for the lamp size as single incentive and savings is currently provided to all sizes. - Higher incentives for pin-mount CFLs.
		T8	"		- Eliminate 32W T8 Incentive
		T5	"		
		Delamp	"		
		Delamp/Reflector	"		
	(new)	LED	"	- Performance/longevity issues	- Prescriptive for ENERGY STAR labled
		HID	"	- Ceramic Metal Halide under 400 watts applications for high bay lighting provide good options for consumers.	- Review project feasibilities and revise incentive levels.
		HPS	"	- Industry is moving away from this lamps color rendition issues for security camera reasons	
		Induction	"	- Poor equipment life by some manufacturers	
		Sensors	"		- Tier incentives by load controlled
	(new)	Daylighting	"		
	High Efficiency HVAC				
		Chillers	- Incentives and Education - Reviews for weather coorelation to customers usage patterns to help make buying decisions or review savings from this weather sensitive technology.	- Review use of IPLV value for savings preditions as many machine do not operate in part load conditions. - Use of VFD chillers needs to come with education on the need to provide condenser water relief to allow energy savings to occur.	- Energy Competition
		VFD - Chilled Water	"		
		VFD - AHU	"		
		Package Units	"		- Adjust for IEER values
	High Efficiency A	Split Systems	- Incentives and Education '- Case-studies with pre-measurement of future inverter drive retrofits.		- Adjust for IEER values - Review additional promotion of Inverter drive VRF machines as they are showing 20-30% savings potential.
	High Efficiency Water Heating				
	(new)	Commercial Solar Water Heating			- Prescriptive from Customized
	(new)	Heat Pump			- Create Prescriptive Measures
	High Efficiency Water Pumping				
	(new)	VFD Domestic Water Booster Packages			- Prescriptive from Customized
	High Efficiency Motors				
		NEMA Premium Efficiency Motors			
	Building Envelope Improvements				
		Window Tinting			
		Cool Roof Technologies			
	Energy Star Business Equipment				
	(new)	Refridgerators			- Allow same as Residential ESH - Must pickup/recycle
	Energy Awareness, Measurement and Control Systems				
	(pilot)	Condominum Submetering Pilot	- Provide awareness of energy use and use compared to similar users - Education on ways to reduce energy use - Impact behavior		- Incentives per unit installed - Educational Meetings - Unit Audits top 5 / bottom 5 - ENERGY STAR Appliance deals
	(pilot)	Small Business Submetering Pilot			

Appendix D – Summary Presentation of Program Feedback Cont. - Part 6 of 6

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAM FEEDBACK

Business Programs Cont.

Program	Category	Measures	Market Intervention	Feedback/Lessons	Changes
CBEEM	**Custom Business Energy Efficiency Measures**				
	Customized Project Measures				
		Customized Project Measures	- Direct contact with consulting and construction firms.	- Need to get in earlier in decision process and be flexible as to project financials to get incentives effective in moving projects that are stuck	- Tiered incentives by payback - Kicker incentive for project sizes - Daypeak demand reduction incentive - Renewable curtailment avoidance incentive
NEW	**New Business Programs Incubator**				
	Business Service and Maintenance				
	(new)	Central Plant Performance Competition		- Few central plant operators know their kW/ton and track their performance/operations to optimize complete plant efficiency.	- Develop critera for plant efficency measurement. - Work with ASHRAE and PAMCAH to develop training seminars and promote program with their members.
	(new)	Package & Split Annual tune-up	- Demonstrate the benefits of tune-ups - Educate customer on savings		
	Business Direct Installation				
	(new)	Small Business Direct Lighting Retrofits	- Direct installation with no cost to customer - Overcome time, risk and cost barriers - Serve underserved market		- 4 month repayments - Bonus Incentives - Self Audit Tool - Grass Roots / Workforce Allies
	Business Design, Audits and Commissioning				
		Energy Study Assistance	- Project indentification - System opportunity energy assessment - Savings estimates		- change to $/sq. ft. Incentive - tiered incentive to technologies to be reviewed
	(pilot)	Energy Project Catalyst			- Full cost reimbursment - Must implement projects with <2 yr. paybacks
		Design Assistance	- Awareness - Project clarification for decision - Firm up savings estimates		
BREP	**Business Renewable Energy Promotion**				
		Non-Profit & Government PV Incentive	- Education - Financial Analysis - Incentive for businesses that do not get tax credits		
	(TBD)				

*** * * PAGE NOT USED * * ***

Appendix E – TRB Calculations

Hawaii Energy - PY2010 ANNUAL PLAN - TRB Calculations

The Total Resource Benefit (TRB) is a projection of the Utility cost savings as a result of demand (kW) and energy (kWh) reductions provided by the Hawaii Energy Conservation and Efficiency Programs.

The avoided cost for future years is discounted to a Net Present Value (NPV) and accumulated for each year that the energy or demand measure is projected to produce savings.

		Discount Rate						
		6%	HECO IRP4 Avoided Cost		NPV for each Year		NPV Cumulative from Final Year	
Year	Period	NPV Multiplier	$/kW/yr.	$/kWh/yr.	$/kW/yr.	$/kWh/yr.	$/kW/yr.	$/kWh/yr.
2010	1	1.00	$ 280	$ 0.099	$ 280	$ 0.0989	$ 280	$ 0.0989
2011	2	0.94	$ 306	$ 0.100	$ 288	$ 0.0947	$ 568	$ 0.1936
2012	3	0.89	$ 339	$ 0.104	$ 301	$ 0.0926	$ 870	$ 0.2862
2013	4	0.84	$ 353	$ 0.104	$ 297	$ 0.0871	$ 1,166	$ 0.3733
2014	5	0.79	$ 371	$ 0.109	$ 294	$ 0.0862	$ 1,460	$ 0.4595
2015	6	0.75	$ 383	$ 0.112	$ 286	$ 0.0840	$ 1,745	$ 0.5435
2016	7	0.70	$ 386	$ 0.113	$ 272	$ 0.0800	$ 2,018	$ 0.6235
2017	8	0.67	$ 388	$ 0.114	$ 258	$ 0.0757	$ 2,276	$ 0.6992
2018	9	0.63	$ 389	$ 0.114	$ 244	$ 0.0717	$ 2,520	$ 0.7709
2019	10	0.59	$ 392	$ 0.115	$ 232	$ 0.0681	$ 2,752	$ 0.8391
2020	11	0.56	$ 391	$ 0.115	$ 218	$ 0.0641	$ 2,970	$ 0.9031
2021	12	0.53	$ 395	$ 0.116	$ 208	$ 0.0611	$ 3,178	$ 0.9642
2022	13	0.50	$ 398	$ 0.117	$ 198	$ 0.0582	$ 3,376	$ 1.0224
2023	14	0.47	$ 397	$ 0.117	$ 186	$ 0.0547	$ 3,562	$ 1.0771
2024	15	0.44	$ 401	$ 0.118	$ 178	$ 0.0522	$ 3,740	$ 1.1292
2025	16	0.42	$ 406	$ 0.119	$ 169	$ 0.0497	$ 3,909	$ 1.1790
2026	17	0.39	$ 409	$ 0.120	$ 161	$ 0.0473	$ 4,070	$ 1.2263
2027	18	0.37	$ 416	$ 0.122	$ 154	$ 0.0454	$ 4,224	$ 1.2717
2028	19	0.35	$ 423	$ 0.124	$ 148	$ 0.0436	$ 4,373	$ 1.3152
2029	20	0.33	$ 429	$ 0.126	$ 142	$ 0.0416	$ 4,514	$ 1.3569

Measure		Demand			Energy		Totals
							Plan TRB
Plan TRB		$ 63,101,916			$ 93,678,775		$ 156,780,692
Plan Forecast Impacts	÷	26,560	kW	÷	132,652,010	kWh	
TRB $ / Impact		$ 2,375.87	/kW		$ 0.71	/kWh	
Program Targets		23,126	kW		132,615,000	kWh	
TRB $ / Impact	x	$ 2,375.87	/kW	x	$ 0.71	/kWh	Program Target TRB
Program Target TRB		$ 54,944,315			$ 93,652,639		$ 148,596,954
Average Life		8 to 9 years					

Attachment G

Technical Reference Manual

Hawaii Energy Efficiency Program

Program Year 2
July 2010 through June 2011

Technical Reference Manual (TRM)

No. 2010-1

Measure Savings Calculations and Cost Assumptions

Table of Contents

1.0 Introduction

METHODS AND ASSUMPTIONS
This reference manual provides methods, formulas and default assumptions for estimating energy and peak impacts from measures and projects that receive cash incentives from the Hawaii Energy Efficiency Program.

The reference manual is organized by program, end use and measure. Each section provides mathematical equations for determining savings (algorithms), as well as default assumptions for all equation parameters that are not based on site-specific information. In addition, any descriptions of calculation methods or baselines are provided, as appropriate.

The parameters for calculating savings are listed in the same order for each measure. Algorithms are provided for estimating annual energy and demand impacts.

Data assumptions are based on Hawaii specific data, where available. Where Hawaii data was not available, data from neighboring regions is used where available and in some cases, engineering judgment is used.

Data sources used, in the general order of preference, included, but were not necessarily limited to the following:

- Energy and Peak Demand Impact Evaluation Report of the 2005-2007 Demand Management Programs – KEMA
- HECO IRP-4: Energy Efficiency Potential Study (HECO DSM Docket)
- 2004-2005 Database for Energy Efficiency Resources (CA DEER database)
- 2007-2008 Database for Energy Efficiency Resources (CA DEER database) Update
- Other EE Program Design Information (e.g. Efficiency Maine, Focus on Energy, etc.)
- SAIC Staff expertise

2.0 Gross Customer-to-Net Program Savings Calculation

The algorithms shown with each measure calculate gross customer electric savings without counting the effects of line losses from the generator to the customer or free ridership.

The formulae for converting gross customer-level savings to net generation-level savings are as follows:

$$\text{Net Program kWh} = \text{Gross Customer Level } \Delta\text{kWh} \times (1 + \text{SLF}) \times \text{RR}$$

$$\text{Net Program kW} = \text{Gross Customer Level } \Delta\text{kW} \times (1 + \text{SLF}) \times \text{RR}$$

Where:

Net kWh = kWh energy savings at generation-level, net of free riders and system losses
Net kW = kWh energy savings at generation-level, net of free riders and system losses

Gross Cust. ΔkWh = Gross customer level annual kWh savings for the measure
Gross Cust. ΔkW = Gross customer level connected load kW savings for the measure

SLF = System Loss Factor
RR = Realization Rate that includes Free Riders and Engineering Verification

Hawaii Energy PY2009 Portfolio Energy (kWh) Reduction Impacts by Level					
	Gross Customer Level Savings	System Loss Factor (SLF)	Gross System Level Savings	Realization Rate (RR)	Net Program Level Savings (Net kWh)
Oahu	110,545,694	11.17%	122,893,648	73%	89,712,363
Hawaii	12,590,195	9.00%	13,723,313	73%	10,018,018
Maui	9,182,496	9.96%	10,097,072	73%	7,370,863
Lanai	61,712	9.96%	67,858	73%	49,537
Molokai	85,269	9.96%	93,762	73%	68,447
Total	132,465,366		146,875,654		107,219,227
% of Customer Level Savings			111%		81%

SLF – System Loss Factor

The system loss factors were provided by HECO, MECO and HELCO. The do not vary by measure, but by island, and are in the following Table 1.1:

Table 1.1

County Customer to System Loss Factor		
Oahu	Maui	Hawaii
11.17%	9.96%	9.00%

RR - Realization Rate

The Realization Rate used was estimated using the following information from the HECO 2008 A&S report:

Table 1.2

Program	Realization Rate			
	Energy	Demand	Net System Level Energy Savings 2008	Gross System Level Energy Savings 2008
1. CIEE	0.6530	0.6640	45,798,527	70,135,569
2. CINC	0.5960	0.6100	17,469,147	29,310,648
3. CICR	0.7590	0.7550	28,749,233	37,877,777
4. ESH	0.8500	0.8500	32,203,749	37,886,763
5. REWH	0.7290	0.7310	8,237,872	11,300,236
6. RNC	0.8410	0.8850	8,267,217	9,830,222
7. RLI	1.0000	1.0000	7,899,869	7,899,869
TOTAL			148,625,614	204,241,087

The total Net Energy Savings divided by the total Gross Energy Savings for 2008 is 73%.

Therefore, the overall realization rate for HECO was 0.73 and Table 1.3 reflects the use of this for the other islands.

Table 1.3

County Customer Realization Rate		
Oahu	Maui	Hawaii
73%	73%	73%

3.0 Interactive Effects

The TRM provides specific savings algorithms for many prescriptive measures. When a customer installs a prescriptive measure, the savings are determined according to these algorithms. In some cases these algorithms include the effects of interactions with other measures or end.

For "custom" measures, Hawaii Energy performs site-specific customized calculations. In this case, Hawaii Energy takes into account interactions between measures (e.g., individual savings from installation of window film and replacement of a chiller are not additive because the first measure reduces the cooling load met by the second measure).

Hawaii Energy will calculate total savings for the package of custom measures being installed, considering interactive effects, either as a single package or in rank order of measures as described below.

If a project includes both prescriptive and custom measures, the prescriptive measures will be calculated in the normal manner. However, the prescriptive measures will be assumed to be installed prior to determining the impacts for the custom measures.

4.0 Persistence

Persistence factors may be used to reduce lifetime measure savings in recognition that initial engineering estimates of annual savings may not persist long term.

This might be because a measure is removed or stops functioning prior to the end of its normal engineering lifetime, because it is not properly maintained, it is overridden, it goes out of calibration (controls only), or for some other reason.

Some of the measure algorithm may contain an entry for persistence factor. The default value if none is indicated is 1.00 (100%). A value lower than 1.00 will result in a downward adjustment of lifetime savings and total resource benefits.

For any measure with a persistence value less than 1.00, the normal measure life ("Engineering Measure Life") will be reduced to arrive at an "Effective Useful Life" for the purposes of estimating the TRB of a measure or program.

5.0 Glossary

The following glossary provides definitions for necessary assumptions needed to calculate measure savings.

Attribution Factor (AF): The Attribution Factor is the amount of savings attributable to the program impact. It is calculated by subtracting from one the % free ridership.

Baseline Efficiency (η_{base}): The assumed standard efficiency of equipment, absent an Hawaii Energy program.

Coincidence Factor (CF): Coincidence factors represent the fraction of connected load expected to be "on" and using electricity coincident with the system peak period.

Connected Load: The maximum wattage of the equipment, under normal operating conditions, when the equipment is "on".

Freeridership (FR): A program's ***free ridership rate*** is the percentage of program participants deemed to be free riders. A ***free rider*** refers to a customer who received an incentive through an energy efficiency program who would have installed the same or a smaller quantity of the same high efficiency measure on their own within one year if the program had not been offered.

Full Load Hours (FLH): The equivalent hours that equipment would need to operate at its peak capacity in order to consume its estimated annual kWh consumption (annual kWh/connected kW).

High Efficiency (η_{effic}): The efficiency of the energy-saving equipment installed as a result of an efficiency program.

Incremental Cost: The cost difference between the installed cost of the high efficiency measure and the standard efficiency measure.

Lifetimes: The number of years (or hours) that the new high efficiency equipment is expected to function. These are generally based on engineering lives, but sometimes adjusted based on expectations about frequency of remodeling or demolition.

System Loss Factor (SLF): The marginal electricity losses from the generator to the customer meter – expressed as a percent of meter-level savings. The Energy Line Loss Factors vary by period. The Peak Line Loss Factors reflect losses at the time of system peak, and are shown for two seasons of the year (winter and summer). Line loss factors are the same for all measures.

Load Factor (LF): The fraction of full load (wattage) for which the equipment is typically run.

Operating Hours (HOURS): The annual hours that equipment is expected to operate.

Persistence (PF): The fraction of gross measure savings obtained over the measure life.

Realization Rate (RR): The fraction of gross measure savings realized by the program impact. It includes the gross verification adjustment and free ridership or attribution adjustment.

Spillover (SPL): Spillover refers to energy-efficient equipment installed in any facility in the program service area due to program influences, but without any financial or technical assistance from the Program. It is expressed as a percent or fraction of the gross savings attributable to program participation.

Total Resource Benefits (TRB): The present value of benefits from the program savings resulting from avoided energy and capacity costs for the utility and their ratepayers.

6.0 Load shapes and Demand Coincidence Factors

Load shapes for different types of equipment or systems were not needed because the savings values estimated in the KEMA 2008 impact evaluation already accounted for these load shapes. The coincidence factors were developed based on the calculated full load demand reduction and the KEMA values for each building type. The resulting coincidence factors were evaluated for reasonableness depending on the system type and the building type.

7.0 Total Resource Benefits – Avoided Costs and Measure Life

HECO provided avoided energy and capacity costs for future years shown in the table below:

Table 7.1

Year	$/MWh	$/kW
2006	$109.62	$180.20
2007	$107.16	$181.14
2008	$102.19	$181.14
2009	$106.89	$181.14
2010	$98.90	$0.00
2011	$100.41	$0.00
2012	$104.04	$0.00
2013	$103.69	$0.00
2014	$108.86	$0.00
2015	($139.65)	$1,530.33
2016	($132.67)	$1,704.00
2017	($118.95)	$1,537.80
2018	($115.35)	$1,412.69
2019	($109.01)	$1,304.38
2020	($104.57)	$1,207.27
2021	($100.02)	$1,149.38
2022	($109.30)	$1,112.04
2023	($111.41)	$1,076.56
2024	$137.80	($411.76)
2025	$144.46	($744.16)

The avoided cost values for energy and capacity that was originally provided by HECO was deemed inappropriate to use for reasons that included a negative avoided cost value for energy in the year 2015 to 2023 and no capacity costs for years 2010 to 2014. Therefore, the avoided cost used for the program was estimated using an extrapolation of the HECO provided avoided energy in the first few years of data for energy and the capacity costs leveled over 20 years. The following table was developed from this extrapolation.

Table 7.2

Year	$/MWh	$/kW
2006	109.62	180.20
2007	107.16	181.14
2008	102.19	181.14
2009	106.89	181.14
2010	98.90	279.79
2011	100.41	305.64
2012	104.04	338.65
2013	103.69	353.19
2014	108.86	370.59
2015	112.36	382.51
2016	113.45	386.22
2017	113.90	387.74
2018	114.30	389.12
2019	115.13	391.92
2020	114.76	390.68
2021	115.92	394.63
2022	117.01	398.34
2023	116.75	397.44
2024	117.91	401.41
2025	119.18	405.71

This table was deemed a good estimate of actual avoided energy and capacity costs as it was more in line with the avoided costs used in many other programs. Therefore, these avoided costs were used to calculate the Total Resource Benefits.

Effective Useful Life (EUL): Table 7.3

Version Date & Revision History
Draft date: February 24, 2010
Effective date: July 1, 2010
End date: TBD

Referenced Documents: Econorthwest TRM Review – 6/23/10
DEER The Database for Energy Efficient Resources

TRM Review Actions:

- 6/23/10 Rec. – Adopt DEER values in those cases where there is a greter than 20 percent difference between DEER and current TRM. – Adopted

Major Changes:

- Hawaii Energy will adopt DEER EUI values across the board and will follow DEER changes as they are updated unless obvious differences for Hawaii applications are identified.

The measure Effective Useful Life estimated for each measure is shown in the following table:

Table 7.3

Measure Type	Measure ID	Equipment Description	DEER Effective Useful Life (EUL)
Appliances	a0730000005Jvi3	Ceiling Fan	5
	a0730000005JvjB	Central AC Maint	1
	a0730000005JvhQ	Clothes Washer	11
	a0730000004zRqn	COMPACT FLUORESCENT LIGHT	6.4
	a0730000005K0Xc	compact fluorescent light	2.8
	a0730000005Jvi8	Dishwasher	11
	a0730000005JviI	Ductless Split AC	15
	a0730000004zRqo	ENERGY STAR CEILING FAN	5
	a0730000004zRqp	ENERGY STAR CLOTHES WASHER	11
	a0730000004zRqv	ENERGY STAR DISHWASHER	11
	a0730000004zRqw	ENERGY STAR REFRIGERATOR	14
	a0730000005Jvht	Refrigerator	14
	a0730000004zRr5	refrigerator replacement (not E*)	14
Water Items	a0730000004zRr1	low flow showerhead	10
	a0730000004zRqx	faucet aerator	10
	a0730000004zRr2	LOW FLOW SHOWERHEAD – ELECTRIC WATER HEATER	10
	a0730000004zRr3	LOW FLOW SHOWERHEAD – HEAT PUMP WATER HEATER	10
	a0730000004zRr4	LOW FLOW SHOWERHEAD – SOLAR WATER HEATER	10
Water Heating	a0730000004zRr0	HIGH EFFICIENCY ELECTRIC RESISTANCE WATER HEATER	13
	a0730000004zRqy	HEAT PUMP WATER HEATER – ADD ON	10
	a0730000004zRrP	HEAT PUMP WATER HEATER – INTEGRAL	10
	a0730000005Jvim	HEWH 35 Gal or less HEWH .94 EFF	10
	a0730000005JviS	HEWH 36-45 Gal or less HEWH .93 EFF	10
	a0730000005Jvic	HEWH 46-64 Gal or less HEWH .92 EFF	10
	a0730000005Jviw	HEWH 66+ Gal HEWH .88 EFF	10
	a0730000004zRrT	SOLAR WATER HEATER	15
	a0730000005Jvhf	Solar Hot Water Heater	15

Measure Type	Measure ID	Equipment Description	DEER Effective Useful Life (EUL)
Air Conditioning	a0730000004zRqz	HIGH EFFICIENCY AIR CONDITIONER	15
	a0730000004adko	HVAC – Chiller	20
	a0730000004adl4	HVAC – Fan Variable Frequency Drive	15
	a0730000004adl9	HVAC – Packaged/Split	15
	a0730000004adkx	HVAC – Pump Variable Frequency Drive	15
	a0730000004adkq	HVAC – Window AC	9
	a0730000004zRr6	SPLIT SYSTEM AIR CONDITIONER	15
	a0730000005Jvhe	Window AC	9
	a0730000004adlC	Window Film	10
	a0730000004zRr7	WINDOW ROOM AIR CONDITIONER	9
Motors	a0730000004adlD	Motors	15
Lighting	a0730000004adkf	L01 Comm CFL 15W 40W	2.8
	a0730000004adlB	L010 High Pressure Sodium indoor >200 W	14
	a0730000004adjq	L011 Pulse St MH <100 W	14
	a0730000004adkY	L012 Pulse St MH 100 W-200 W	14
	a0730000004adkc	L013 Pulse St MH >200 W	14
	a0730000004adjs	L014 Induction <100 W	2
	a0730000004adl1	L015 Induction >100W	2
	a0730000004adkV	L016 2' T8 or T8 w/EB T12, 28W/25W/high lumen 32W	14
	a0730000004adky	L017 3' T8 or T8 w/EB T12, 28W/25W/high lumen 32W	14
	a0730000004adl7	L018 4' T8 or T8 w/EB T12, 28W/25W/high lumen 32W	14
	a0730000004adkp	L019 8' T8 or T8 w/EB T12, 28W/25W/high lumen 32W	14
	a0730000004adki	L02 Comm CFL 20W 60W	14
	a0730000004adkT	L020 4' Super T8 w/HEEB T12, 28W/25W/high lumen 32W	14
	a0730000004adjt	L021 4' Super T8 w/HEEB T8, 28W/25W/high lumen 32W	14
	a0730000004adkz	L022 4' Super T8 w/HEEB New, 28W/25W/high lumen 32W	14
	a0730000004adkU	L023 2' T8/T12 delamp w/reflectors	14
	a0730000004adks	L024 4' T8/T12 delamp w/reflectors	14
	a0730000004adke	L025 8' T8/T12 delamp w/reflectors	14
	a0730000004adkv	L026 2' T8/T12 delamp no reflectors	14
	a0730000004adkZ	L027 4' T8/T12 delamp no reflectors	14
	a0730000004adjr	L028 8' T8/T12 delamp no reflectors	14
	a0730000004adl3	L029 2' T8 w/EB, replacement w/delamp	14

Measure Type	Measure ID	Equipment Description	DEER Effective Useful Life (EUL)
Lighting	a0730000004adkg	L03 Reflectored CFL	2.8
	a0730000004adkh	L030 2' T8 w/EB, delamp w/reflector	14
	a0730000004adku	L031 4' T8 w/EB, replacement w/delamp	14
	a0730000004adka	L032 4' T8 w/EB, delamp w/reflector	14
	a0730000004adkX	L033 8' T8 w/EB, replacement w/delamp	14
	a0730000004adl6	L034 8' T8 w/EB, delamp w/reflector	14
	a0730000004adkm	L035 2' T5 w/EB	14
	a0730000004adkt	L036 3' T5 w/EB	14
	a0730000004adkr	L037 4' T5 w/EB	14
	a0730000004adkn	L038 2' T5HO w/EB	14
	a0730000004adlA	L039 3' T5HO w/EB	14
	a0730000004adkw	L04 Cold Cathode CFL	2.8
	a0730000004adl2	L040 4' T5HO w/EB	14
	a0730000004adl8	L041 Metal Halide indoor <100 W	14
	a0730000004adkW	L042 Metal Halide indoor 100 W-200 W	14
	a0730000004adkj	L043 Metal Halide indoor >200 W	14
	a0730000004adkk	L05 Dimmable CFL	2.8
	a0730000004adkl	L06 Pin mount CFL	16
	a0730000004adl5	L07 LED Exit	16
	a0730000004adkb	L08 High Pressure Sodium indoor <100 W	14
	a0730000004adl0	L09 High Pressure Sodium indoor 100 W-200 W	14
	a0730000004adkd	Lighting – Sensor	8
Maintenance	a0730000004zRqm	AIR CONDITIONING SERVICES	1

8.0 (REEM) Residential Energy Efficiency Measures

High Efficiency Water Heating

Solar Water Heater

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 24, 2010
Effective date: July 1, 2010
End date: TBD

Referenced Documents: Energy and Peak Demand Impact Evaluation Report of the 2005-2007 Demand Management Programs – (KEMA 2005-07)

Econorthwest TRM Review – 6/23/10

TRM Review Actions:

- 6/23/10 Rec. # 6 – For PY 2010, adjust claimed demand savings based on participant data from all service territories covered. Adjust Demand Savings based on participant data weighted average of KEMA results across all counties. Change from 0.50 to 0.46 kW. non-military – Adopted and incorporated into PY2010-1 TRM.
- 6/23/10 Rec. # 7 - For PY 2010, include a discussion of shell losses in the savings analysis and supporting documentation. Discussion included in PY2010-1 TRM.

Major Changes:

- Eliminated Military figure as no foreseeable military retrofit applications will be received.
- Demand change to weighted average from KEMA 2008. 0.46 kW

Measure Description:
Replacement of Electric Resistance Water Heater with a Solar Water Heater designed for a 90% Solar Fraction. The new Solar Water Heating systems most often include an upgrade of the hot water storage tank sized at 80 or 120 gallons.

Systems must comply with Hawaii Energy Solar Standards and Specifications which call out:

- Panel Ratings
- System Sizing
- Installation orientation de-rating factors
- Hardware and mounting systems

Shell Losses:
The increase in size from a 40 or 60 gallon to an 80 or 120 gallon standard electric resistance water heater would in and of itself increase the “shell” losses of the system. These shell losses are the result of a larger surface area exposing the warm water to the cooler environment and thus more heat lost to the environment through conduction through the tank. Engineering calculations by Econorthwest puts this at a 1% increase in losses. This is further reduced by 90% as the solar water system provides that fraction of the annual water heating requirements.

Baseline Efficiencies:
Baseline usage is a 0.9 COP Electric Resistance Water Heater. The baseline water heater energy consumption is by a single 4.5 kW electric resistance element that is controlled thermostatically on/off controller based of tank finish temperature set point. The tank standby loss differences between baseline and high efficiency case are assumed to be negligible.

Demand Baseline has been determined by field measurements by KEMA 2005-07 report. The energy baseline also comes from the KEMA 2005-07 report and is supported by engineering calculations shown in this TRM.

Building Types	Demand Baseline(kW)	Energy Baseline (kWh)
Residential	0.57	2,733

High Efficiency:
Solar Water Heater designed for a 90% Solar Fraction. The Solar Systems use solar thermal energy to heat the water 90% of the time and continue to utilize electricity to operate the circulation pump and provide heating through a 4.0 kW electric resistance element when needed.

Solar Contractors do not favor Photo-Voltaic powered DC circulation pumps as they have proven less reliable in the field than an AC powered circulation pump.

The electric resistance elements in the high efficiency case do not have load control timers on them.

The energy is the design energy of a 90% solar fraction system with circulation pump usage as metered by KEMA 2008.

The on peak demand is the metered demand found by KEMA 2008.

Building Types	Demand High Efficiency (kW)	Energy High Efficiency (kWh)	Circ. Pump %
Residential	0.07	379	28%

Energy Savings:

Solar Water Heater Gross Savings before operational adjustments:

Building Types	Demand Savings (kW)	Energy Savings (kWh)
Residential	0.46	2,354

Operational Factor	Adjustment Factor
Solar Fraction Performance (sfp)	0.94
Persistence Factor (pf)	0.93
Demand Coincidence Factor (cf)	1.0

Solar Water Heater Net Savings after operational adjustments:

Building Types	Demand Savings (kW)	Energy Savings (kWh)
Residential	0.46	2,066

Savings Algorithms

Solar Water Heater - Non-Military Single Family Home

Energy per Day (BTU) = (Gallons per Day) x (lbs. per Gal.) x (Temp Rise) x (Energy to Raise Water Temp)

Hot Water needed per Person		13.3	Gallons per Day per Person	
Average Occupants	x	3.77	Persons	KEMA 2008
Household Hot Water Usage		50.2	Gallons per Day	
Mass of Water Conversion		8.34	lbs/gal	
Finish Temperature of Water		130	deg. F Finish Temp	
Initial Temperature of Water	-	75	deg. F Initial Temp	
Temperature Rise		55	deg. F Temperature Rise	
Energy to Raise Water Temp		1.0	BTU / deg. F / lbs.	
Energy per Day (BTU) Needed in Tank		23,006	BTU/Day	

Energy per Day (BTU) Needed in Tank		23,006	BTU/Day	
BTU to kWh Energy Conversion	÷	3,412	kWh / BTU	
Energy per Day (kWh)		6.7	kWh / Day	
Days per Month	x	30.4	Days per Month	
Energy (kWh) per Month		205	kWh / Month	
Days per Year	x	365	Days per Year	
Energy (kWh) Needed in Tank to Heat Water per Year		2,460	kWh / Year	
Elec. Res. Water Heater Efficiency	÷	0.90	COP	
Base SERWH Energy Usage per Year at the Meter		2,733	kWh / Year	KEMA 2008 - HECO
Design Annual Solar Fraction		90%	Water Heated by Solar System	
		10%	Water Heated by Remaining Backup Element	
Energy Usage per Year at the Meter		2,733	kWh / Year	
	x	10%	Water Heated by Remaining Backup Element	
Back Up Element Energy Used at Meter		273	kWh / Year	
Circulation Pump Energy		0.082	kW	KEMA 2008
Pump Hours of Operation	x	1,292	Hours per Year	KEMA 2008
Pump Energy used per Year		106	kWh / Year	
Back Up Element Energy Used at Meter		273	kWh / Year	72%
Pump Energy used per Year	+	106	kWh / Year	28%
Design Solar System Energy Usage		379	kWh / Year	
Base SERWH Energy Usage per Year at the Meter		2,733	kWh / Year	
Design Solar System Energy Usage	-	379	kWh / Year	
Design Solar System Energy Savings		2,354	kWh / Year	
Design Solar System Energy Savings		2,354	kWh / Year	
Performance Factor		0.94	pf	
Persistance Factor	x	0.93	pf	KEMA 2008
		2,066	kWh / Year	KEMA 2008

Residential Solar Water Heater Energy Savings **2,066 kWh / Year Savings**

Base SERWH Element Power Consumption		4.0	kW	
Coincidence Factor	x	0.143	cf	8.6 Minutes per hour
Base SERWH On Peak Demand		0.57	kW On Peak	KEMA 2008
Base SERWH On Peak Demand		0.57	kW On Peak	
Solar System Metered on Peak Demand	-	0.11	kW On Peak	KEMA 2008
		0.46	kW On Peak	(weighted average)

Residential Solar Water Heater Demand Savings **0.46 kW Savings**

Operating Hours
See Table above.

Loadshape
TBD

Freeridership/Spillover Factors
TBD

Persistence
The persistence factor has been found to be 0.93 based in the KEMA 2005-07 report that found 7% of the systems not operational.

Lifetime
15 years

Measure Costs and Incentive Levels

Table 1 – SWH Measure Costs and Incentive Levels

Description	Unit Incentive	Incremental Cost
Non-Military	$ 750	$6,600

Component Costs and Lifetimes Used in Computing O&M Savings
TBD

Reference Tables
None

Solar Water Heating Loan Interest Buydown (LIB)

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: May 22, 2011
Effective date: November 1, 2011
End date: TBD

Referenced Documents: Energy and Peak Demand Impact Evaluation Report of the 2005-2007 Demand Management Programs – (KEMA 2005-07)

Econorthwest TRM Review – 6/23/10

TRM Review Actions:

- 6/23/10 Rec. # 6 – For PY 2010, adjust claimed demand savings based on participant data from all service territories covered. Adjust Demand Savings based on participant data weighted average of KEMA results across all counties. Change from 0.50 to 0.46 kW. non-military – Adopted and incorporated into PY2010-1 TRM.
- 6/23/10 Rec. # 7 - For PY 2010, include a discussion of shell losses in the savings analysis and supporting documentation. Discussion included in PY2010-1 TRM.

Major Changes:

- Eliminated Military figure as no foreseeable military retrofit applications will be received.
- Demand change to weighted average from KEMA 2008. 0.46 kW

Measure Description:
The Solar Water Heating Loan Interest Buydown Program offers eligible borrowers an interest buy down of $1,000 (with a minimum loan of $5,000) toward the financing of a solar water heating system from a participating lender – see www.hawaiienergy.com for a list of participating lenders.

Replacement of Electric Resistance Water Heater with a Solar Water Heater designed for a 90% Solar Fraction. The new Solar Water Heating systems most often include an upgrade of the hot water storage tank sized at 80 or 120 gallons.

Systems must comply with Hawaii Energy Solar Standards and Specifications which call out:

- Panel Ratings
- System Sizing
- Installation orientation de-rating factors
- Hardware and mounting systems

Shell Losses:
The increase in size from a 40 or 60 gallon to an 80 or 120 gallon standard electric resistance water heater would in and of itself increase the “shell” losses of the system. These shell losses are the result of a larger surface area exposing the warm water to the cooler environment and thus more heat lost to the environment through conduction through the tank. Engineering calculations by Econorthwest puts this at a 1% increase in losses. This is further reduced by 90% as the solar water system provides that fraction of the annual water heating requirements.

Baseline Efficiencies:
Baseline usage is a 0.9 COP Electric Resistance Water Heater. The baseline water heater energy consumption is by a single 4.5 kW electric resistance element that is controlled thermostatically on/off controller based of tank finish temperature set point. The tank standby loss differences between baseline and high efficiency case are assumed to be negligible.

Demand Baseline has been determined by field measurements by KEMA 2005-07 report. The energy baseline also comes from the KEMA 2005-07 report and is supported by engineering calculations shown in this TRM.

Building Types	Demand Baseline(kW)	Energy Baseline (kWh)
Residential	0.57	2,733

High Efficiency:
Solar Water Heater designed for a 90% Solar Fraction. The Solar Systems use solar thermal energy to heat the water 90% of the time and continue to utilize electricity to operate the circulation pump and provide heating through a 4.0 kW electric resistance element when needed.

Solar Contractors do not favor Photo-Voltaic powered DC circulation pumps as they have proven less reliable in the field than an AC powered circulation pump.

The electric resistance elements in the high efficiency case do not have load control timers on them.

The energy is the design energy of a 90% solar fraction system with circulation pump usage as metered by KEMA 2008.

The on peak demand is the metered demand found by KEMA 2008.

Building Types	Demand High Efficiency (kW)	Energy High Efficiency (kWh)	Circ. Pump %
Residential	0.07	379	28%

Energy Savings:

Solar Water Heater Gross Savings before operational adjustments:

Building Types	Demand Savings (kW)	Energy Savings (kWh)
Residential	0.46	2,354

Operational Factor	Adjustment Factor
Solar Fraction Performance (sfp)	0.94
Persistence Factor (pf)	0.93
Demand Coincidence Factor (cf)	1.0

Solar Water Heater Net Savings after operational adjustments:

Building Types	Demand Savings (kW)	Energy Savings (kWh)
Residential	0.46	2,066

Savings Algorithms

Solar Water Heater - Non-Military Single Family Home

Energy per Day (BTU) = (Gallons per Day) x (lbs. per Gal.) x (Temp Rise) x (Energy to Raise Water Temp)

Hot Water needed per Person		13.3	Gallons per Day per Person	
Average Occupants	x	3.77	Persons	KEMA 2008
Household Hot Water Usage		50.2	Gallons per Day	
Mass of Water Conversion		8.34	lbs/gal	
Finish Temperature of Water		130	deg. F Finish Temp	
Initial Temperature of Water	-	75	deg. F Initial Temp	
Temperature Rise		55	deg. F Temperature Rise	
Energy to Raise Water Temp		1.0	BTU / deg. F / lbs.	
Energy per Day (BTU) Needed in Tank		23,006	BTU/Day	
Energy per Day (BTU) Needed in Tank		23,006	BTU/Day	
BTU to kWh Energy Conversion	÷	3,412	kWh / BTU	
Energy per Day (kWh)		6.7	kWh / Day	
Days per Month	x	30.4	Days per Month	
Energy (kWh) per Month		205	kWh / Month	
Days per Year	x	365	Days per Year	
Energy (kWh) Needed in Tank to Heat Water per Year		2,460	kWh / Year	
Elec. Res. Water Heater Efficiency	÷	0.90	COP	
Base SERWH Energy Usage per Year at the Meter		2,733	kWh / Year	KEMA 2008 - HECO
Design Annual Solar Fraction		90%	Water Heated by Solar System	
		10%	Water Heated by Remaining Backup Element	
Energy Usage per Year at the Meter		2,733	kWh / Year	
	x	10%	Water Heated by Remaining Backup Element	
Back Up Element Energy Used at Meter		273	kWh / Year	
Circulation Pump Energy		0.082	kW	KEMA 2008
Pump Hours of Operation	x	1,292	Hours per Year	KEMA 2008
Pump Energy used per Year		106	kWh / Year	
Back Up Element Energy Used at Meter		273	kWh / Year	72%
Pump Energy used per Year	+	106	kWh / Year	28%
Design Solar System Energy Usage		379	kWh / Year	
Base SERWH Energy Usage per Year at the Meter		2,733	kWh / Year	
Design Solar System Energy Usage	-	379	kWh / Year	
Design Solar System Energy Savings		2,354	kWh / Year	
Design Solar System Energy Savings		2,354	kWh / Year	
Performance Factor		0.94	pf	
Persistance Factor	x	0.93	pf	KEMA 2008
		2,066	kWh / Year	KEMA 2008

Residential Solar Water Heater Energy Savings **2,066 kWh / Year Savings**

Base SERWH Element Power Consumption		4.0	kW	
Coincidence Factor	x	0.143	cf	8.6 Minutes per hour
Base SERWH On Peak Demand		0.57	kW On Peak	KEMA 2008
Base SERWH On Peak Demand		0.57	kW On Peak	
Solar System Metered on Peak Demand	-	0.11	kW On Peak	KEMA 2008
		0.46	kW On Peak	(weighted average)

Residential Solar Water Heater Demand Savings **0.46 kW Savings**

Operating Hours
See Table above.

Loadshape
TBD

Freeridership/Spillover Factors
TBD

Persistence
The persistence factor has been found to be 0.93 based in the KEMA 2005-07 report that found 7% of the systems not operational.

Lifetime
15 years

Measure Costs and Incentive Levels
Hawaii Energy will be allowed to claim credit for the fraction of the energy and demand savings and total resource benefits that is proportional to the share of customer incentive cost paid with PBFA funds.

The following distribution is provided for energy and demand impacts:

PBFA (Public Benefit Fee Administrator)	25%
ARRA (American Recovery and Reinvestment Act)	75%

Energy Savings	2066 kWh/year
Demand Savings	0.46 kW

Pre-Bonus Period (11/1/10 - 3/21/11)			PBF				ARRA			
	Unit Incentive	Incremental Cost	Unit Incentive	% Contribution	Energy Savings (kWh/year)	Demand Savings (kW)	Unit Incentive	% Contribution	Energy Savings (kWh/year)	Demand Savings (kW)
Military	$ 1,000	$ 4,400	$ 250	25%	517	0.12	$ 750	75%	1550	0.35
Non-Military	$ 1,000	$ 6,600	$ 250	25%	517	0.12	$ 750	75%	1550	0.35

Bonus Period (3/22/11 - 6/30/11)			PBF				ARRA			
	Unit Incentive	Incremental Cost	Unit Incentive	% Contribution	Energy Savings (kWh/year)	Demand Savings (kW)	Unit Incentive	% Contribution	Energy Savings (kWh/year)	Demand Savings (kW)
Military	$ 1,750	$ 4,400	$ 250	14%	295	0.07	$ 1,500	86%	1771	0.39
Non-Military	$ 1,750	$ 6,600	$ 250	14%	295	0.07	$ 1,500	86%	1771	0.39

Component Costs and Lifetimes Used in Computing O&M Savings
TBD

Reference Tables
None

Heat Pump Water Heaters

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: March 2, 2011
Effective date: January 1, 2011
End date: TBD

Referenced Documents: From SalesForce Measures (Impact)
October 2004 (KEMA Report)

TRM Review Actions:

Major Changes:
Recognizing the growing product availability and sales efforts regarding residential heat pumps, increase educational efforts.

Measure Description:
Residential heat pump rebates are available at $175. Rebate applications for water heaters are provided by the retailers at the time of purchase or a customer can visit our website and download the form. Rebate applications must include an original purchase receipt showing brand and model number.

Baseline Efficiencies:

The base case is a standard electric resistance water heater (SERWH).

Measure	Demand Baseline (kW)	Energy Baseline (kWh/year)
SERWH	0.64	2,732

High Efficiency:

Measure	Demand Efficient Case (kW)	Efficient Case (kWh/year)
Heat Pump Water Heating	0.36	1,230

Energy Savings:

	Demand Savings (kW)	Energy Savings (kWh/year)
Savings	0.28	1,503

Savings Algorithms

Heat Pump Water Heater

Energy per Day (BTU) = (Gallons per Day) x (lbs. per Gal.) x (Temp Rise) x (Energy to Raise Water Temp)

Hot Water needed per Person		13.3	Gallons per Day per Person	HE
Average Occupants	x	3.77	Persons	KEMA 2008
Household Hot Water Usage		50.1	Gallons per Day	
Mass of Water Conversion		8.34	lbs/gal	
Finish Temperature of Water		130	deg. F Finish Temp	
Initial Temperature of Water	-	75	deg. F Initial Temp	
Temperature Rise		55	deg. F Temperature Rise	
Energy to Raise Water Temp		1.0	BTU / deg. F / lbs.	
Energy per Day (BTU) Needed in Tank		23,000	BTU/Day	

Energy per Day (BTU) Needed in Tank		23,000	BTU/Day	
BTU to kWh Energy Conversion	÷	3,412	kWh / BTU	
Energy per Day (kWh)		6.7	kWh / Day	
Days per Month	x	30.4	Days per Month	
Energy (kWh) per Month		205	kWh / Month	
Days per Year	x	365	Days per Year	
Energy (kWh) Needed in Tank to Heat Water per Year		2,459	kWh / Year	
Elec. Res. Water Heater Efficiency	÷	0.90	COP	
Base SERWH Energy Usage per Year at the Meter		2,732	kWh / Year	KEMA 2008 - HECO

Energy (kWh) Needed to Heat Water per Year		2,459	kWh / Year	
Heat Pump Water Heating Efficiency	÷	2.00	COP	
Heat Pump Water Heating Energy Usage		1,230	kWh / Year	
Base SERWH Energy Usage per Year at the Meter		2,732	kWh / Year	
Heat Pump Water Heating Energy Usage	-	1,230	kWh / Year	
Residential Heat Pump Water Heating Savings		1,503	kWh / Year	

Heat Pump Power Consumption		4.5	kW	
Coincedence Factor	x	0.08	cf	4.80 Minutes per hour
		0.36	kW On Peak	
Base SERWH Element Power Consumption		4.5	kW	
Coincidence Factor	x	0.143	cf	8.6 Minutes per hour
Base SERWH On Peak Demand		0.64	kW On Peak	KEMA 2008
Base SERWH On Peak Demand	-	0.64	kW On Peak	
Heat Pump Water Heater Demand	-	0.36	kW On Peak	KEMA 2008
		0.28	kW On Peak	

Residential Solar Water Heater Demand Savings **0.28 kW Savings**

Operating Hours
See Table above.

Loadshape
TBD

Freeridership/Spillover Factors
TBD

Persistence

Lifetime
10 years (DEER)

Measure Costs and Incentive Levels

Description	Unit Incentive	Incremental Cost
Heat Pump Water Heater	$ 175.00	$ 4,000.00

Component Costs and Lifetimes Used in Computing O&M Savings
TBD

Reference Tables

Hot Water – Low Flow Shower Heads (Standard Electric Resistance Water Heater)

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: May 21, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: Energy and Peak Demand Impact Evaluation Report of the 2005-2007 Demand Management Programs – (KEMA 2005-07)

Econorthwest TRM Review – 6/23/10

TRM Review Actions:

- 6/23/10 Rec. # 6 – For PY 2010, adjust claimed demand savings based on participant data from all service territories covered. Adjust Demand Savings based on participant data weighted average of KEMA results across all counties. Change from 0.50 to 0.46 kW. non-military – Adopted and incorporated into PY2010-1 TRM.
- 6/23/10 Rec. # 7 - For PY 2010, include a discussion of shell losses in the savings analysis and supporting documentation. Discussion included in PY2010-1 TRM.

Measure Description:
Installation of a low flow showerhead with a flow rate of 1.5 gmp or less in a multi family residential home with service to a home with a standard electric resistance water heater (SERWH).

Baseline Efficiency:

Baseline efficiency case is a 2.5 gpm showerhead

High Efficiency:

The high efficiency case is a 1.5 gpm showerhead.

Energy and Demand Savings

Savings is based on the high efficiency case vs base case = (1 – high efficiency/baseline efficiency)
= (1 – 1.5/2.5)
= 40%

Savings Algorithm

Low Flow Showerhead w/Standard Electric Resistance Water Heater (SERWH)

Energy per Day (BTU) = (Gallons per Day) x (lbs. per Gal.) x (Temp Rise) x (Energy to Raise Water Temp)

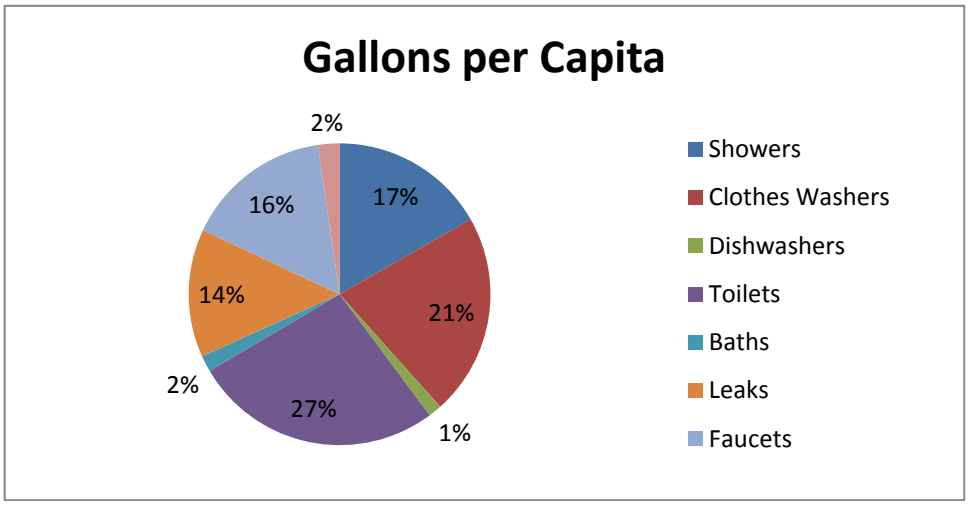
Hot Water needed per Person		13.3	Gallons per Day per Person	HE
Average Occupants	x	3.77	Persons	KEMA 2008
Household Hot Water Usage		50.2	Gallons per Day	
Mass of Water Conversion		8.34	lbs/gal	
Finish Temperature of Water		130	deg. F Finish Temp	
Initial Temperature of Water	-	75	deg. F Initial Temp	
Temperature Rise		55	deg. F Temperature Rise	
Energy to Raise Water Temp		1.0	BTU / deg. F / lbs.	
Energy per Day (BTU) Needed in Tank		23,006	BTU/Day	
Energy per Day (BTU) Needed in Tank		23,006	BTU/Day	
BTU to kWh Energy Conversion	÷	3,412	kWh / BTU	
Energy per Day (kWh)		6.7	kWh / Day	
Days per Month	x	30.4	Days per Month	
Energy (kWh) per Month		205	kWh / Month	
Days per Year	x	365	Days per Year	
Energy (kWh) Needed in Tank to Heat Water per Year		2,460	kWh / Year	
Elec. Res. Water Heater Efficiency	÷	0.90	COP	
Base SERWH Energy Usage per Year at the Meter		2,733	kWh / Year	KEMA 2008 - HECO
Utilization Factor		28%		Percentage of total water heating usage for showers
Base SERWH Energy Usage per Year at the Meter		765	kWh / Year	Energy Usage for showers
Percentage of Hot Water Vs. Cold Water from Shower		50%		
Hot Water Usage from Showers		383	kWh/ Year	
Base Case Showerhead		2.5	GPM	
High Efficiency Case Showerhead		1.5	GPM	
Savings = (1 - High Efficiency/Base)		40%		
Energy Savings		**153**	**kWh / Year**	
SERWH Element Power Consumption		4.0	kW	
Coincidence Factor	x	0.143	cf	8.6 Minutes per hour
SERWH On Peak Demand		0.57	kW On Peak	KEMA 2008
Demand Savings		40%		
Residential Low Flow Shower Head Demand Savings		**0.23**	**kW Savings**	

Daily indoor per capita water use is 69.3 gallons. Here is how it breaks down:

Source: American Water Works Association

Use	Gallons per Capita	Percentage of Total Daily Use	Percentage of Total Hot Water Usage
Showers	11.6	16.80%	28%
Clothes Washers	15	21.70%	36%
Dishwashers	1	1.40%	2%
Toilets	18.5	26.70%	
Baths	1.2	1.70%	3%
Leaks	9.5	13.70%	
Faucets	10.9	15.70%	26%
Other Domestic Uses	1.6	2.20%	4%

41.3



Hot Water – Low Flow Shower Heads (Solar Water Heater)

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: May 21, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: Energy and Peak Demand Impact Evaluation Report of the 2005-2007 Demand Management Programs – (KEMA 2005-07)

Econorthwest TRM Review – 6/23/10

TRM Review Actions:

- 6/23/10 Rec. # 6 – For PY 2010, adjust claimed demand savings based on participant data from all service territories covered. Adjust Demand Savings based on participant data weighted average of KEMA results across all counties. Change from 0.50 to 0.46 kW. non-military – Adopted and incorporated into PY2010-1 TRM.
- 6/23/10 Rec. # 7 - For PY 2010, include a discussion of shell losses in the savings analysis and supporting documentation. Discussion included in PY2010-1 TRM.

Measure Description:
Installation of a low flow showerhead with a flow rate of 1.5 gmp or less in a multi family residential home with service to a home with solar water heating under the ARRA co-funded Solar Loan Interest Buydown program.

Baseline Efficiency:

Baseline efficiency case is a 2.5 gpm showerhead

High Efficiency:

The high efficiency case is a 1.5 gpm showerhead.

Energy and Demand Savings

Savings is based on the high efficiency case vs base case = (1 – high efficiency/baseline efficiency)
= (1 – 1.5/2.5)
= 40%

Savings Algorithms

Low Flow Showerhead w/Solar Water Heating

Energy per Day (BTU) = (Gallons per Day) x (lbs. per Gal.) x (Temp Rise) x (Energy to Raise Water Temp)

Hot Water needed per Person		13.3	Gallons per Day per Person	HE
Average Occupants	x	3.77	Persons	KEMA 2008
Household Hot Water Usage		50.2	Gallons per Day	
Mass of Water Conversion		8.34	lbs/gal	
Finish Temperature of Water		130	deg. F Finish Temp	
Initial Temperature of Water	-	75	deg. F Initial Temp	
Temperature Rise		55	deg. F Temperature Rise	
Energy to Raise Water Temp		1.0	BTU / deg. F / lbs.	
Energy per Day (BTU) Needed in Tank		23,006	BTU/Day	
Energy per Day (BTU) Needed in Tank		23,006	BTU/Day	
BTU to kWh Energy Conversion	÷	3,412	kWh / BTU	
Energy per Day (kWh)		6.7	kWh / Day	
Days per Month	x	30.4	Days per Month	
Energy (kWh) per Month		205	kWh / Month	
Days per Year	x	365	Days per Year	
Energy (kWh) Needed in Tank to Heat Water per Year		2,460	kWh / Year	
Elec. Res. Water Heater Efficiency	÷	0.90	COP	
Base SERWH Energy Usage per Year at the Meter		2,733	kWh / Year	KEMA 2008 - HECO
Design Annual Solar Fraction		90%	Water Heated by Solar System	Program Design
		10%	Water Heated by Remaining Backup Element	
Energy Usage per Year at the Meter		2,733	kWh / Year	
	x	10%	Water Heated by Remaining Backup Element	
Back Up Element Energy Used at Meter		273	kWh / Year	
Circulation Pump Energy		0.082	kW	KEMA 2008
Pump Hours of Operation	x	1,292	Hours per Year	KEMA 2008
Pump Energy used per Year		106	kWh / Year	
Back Up Element Energy Used at Meter		273	kWh / Year	72%
Pump Energy used per Year	+	106	kWh / Year	28%
Design Solar System Energy Usage		379	kWh / Year	
Utilization Factor		28%		
Hot Water Usage from Showers		106		
Percentage of Hot Water vs. Cold Water from shower		50%		
Hot Water Usage from Showers		53.10		
Base Case Showerhead		2.5	GPM	
High Efficiency Case Showerhead		1.5	GPM	
Savings = (1 - High Efficiency/Base)		40%		
Energy Savings		**21**	**kWh / Year**	
SERWH Element Power Consumption		4.0	kW	
Coincidence Factor	x	0.143	cf	8.6 Minutes per hour
SERWH On Peak Demand		0.57	kW On Peak	KEMA 2008
Solar System Metered on Peak Demand		0.11	kW On Peak	KEMA 2008
Demand Savings		40%		
Residential Low Flow Shower Head Demand Savings		**0.044**	**kW Savings**	

Unit Incentive/Incremental Cost

Description	Unit Incentive	Incremental Cost
Low Flow Showerhead (1.5 gpm)	-	$ 20.00

Measure Life
10 years

Hot Water – Faucet Aerator

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: May 21, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: US DOE: Federal Energy Management Program (2010). *Cost Calculator for Faucets & Shower Heads*. http://www1.eere.energy.gov/femp/technologies/eep_faucets_showerheads_calc.html#output

TRM Review Actions:

Major Changes:

Measure Description:

Installation of a faucet aerator with a flow rate of 1.5 gpm or less on an existing faucet with high flow in a mult family residential home with service water heated by a standard electric resistance water heater.

Baseline Efficiency:

Baseline efficiency case is a 2.2 gpm faucet aerator

High Efficiency:

The high efficiency case is a 1.5 gpm or less faucet aerator

Hours

The savings estimates for this measure are determined empirically in terms of units installed and so the equivalent heating full load hours are not directly used, however, the calculator used to determine the deemed savings uses a default operation of 30 minutes a day, 260 days a year. However, we will use 10 minutes a day, 260 days a year.

Savings Algorithms

Hot Water - faucet aerator			
Base Case 2.2 gpm aerator		2.2	Gallons per Minute
Enhanced Case 1.5 gpm aerator		1.5	Gallons per Minute
Average time per day		10	Minutes per Day
Reduced water usage		1	Gallon per Minute
Hot Water Usage Reduction		10.0	Gallons per Day
Mass of Water Conversion		8.34	lbs/gal
Finish Temperature of Water		120	deg. F Finish Temp
Initial Temperature of Water	-	75	deg. F Initial Temp
Temperature Rise		45	deg. F Temperature Rise
Energy to Raise Water Temp		1.0	BTU / deg. F / lbs.
Energy per Day (BTU) Needed in Tank		3,753	BTU/Day
Energy per Day (BTU) Needed in Tank		3,753	BTU/Day
BTU to kWh Energy Conversion	÷	3,412	kWh / BTU
Energy per Day (kWh)		1.1	kWh / Day
Days per Month	x	30.4	Days per Month
Energy (kWh) per Month		33	kWh / Month
Days per Year	x	260	Days per Year
Energy (kWh) Needed in Tank to Heat Water per Year		401	kWh / Year
Elec. Res. Water Heater Efficiency	÷	0.90	COP
Energy Savings		**446**	**kWh / Year**
HECO Average Energy Cost		$ 0.25	per kWh
Annual Energy Cost Savings per household		**$ 111**	

Unit Incentive/Incremental Cost

Description	Unit Incentive	Incremental Cost
Aerator (1.5 GPM)	-	$ 10.00

Measure Life

10 years

High Efficiency Lighting

Compact Fluorescent Lamp (CFL)

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 24, 2010
Effective date: July 1, 2010
End date: TBD

Referenced Documents:

- Energy and Peak Demand Impact Evaluation Report of the 2005-2007
- Demand Management Programs – KEMA (KEMA 2005-07)
- Econorthwest TRM Review – 6/23/10

TRM Review Actions:

- 6/23/10 Rec. # 8 – Starting with PY2010, adjust the hours used per day for CFLs from 4.98 to 2.3 in order to be consistent with other literature. Conduct additional research to verify the most appropriate hours of operation for the Hawaii customer base, which can be incorporated into future years. – Adopted.
- 6/23/10 Rec. # 9 - Starting with PY 2010, adjust the peak coincidence factor from 0.334 to 0.12 to be consistent with the literature. Conduct additional research to verify the most appropriate coincidence factor for the Hawaii customer base, which can be incorporated into future years.- Adopted.

Major Changes:

- Hours used per day for CFLs from 4.98 to 2.3 hrs.
- Peak coincidence factor from 0.334 to 0.12

Measure Description:
The replacement of incandescent screw-in lamps to standard spiral compact fluorescent lamps in Residential Single Family and Multi-family homes.

Lamps must comply with:

- Energy Star
- UL

Baseline Efficiencies:
Baseline usage is a 60W A-Shaped incandescent lamp with the energy consumption as follows:

Building Types	Demand Baseline(kW)	Energy Baseline (kWh)
Single Family	0.060	109.0
Multi Family	0.060	109.0

High Efficiency:
The high efficiency case is a 15W Spiral CFL with the energy consumption as follows:

Building Types	Demand High Efficiency (kW)	Energy High Efficiency (kWh)
Single Family	0.015	27.3
Multi Family	0.015	27.3

Energy Savings:
CFL Gross Savings before operational adjustments:

Building Types	Demand Savings (kW)	Energy Savings (kWh)
Single Family	0.045	81.7
Multi Family	0.045	81.7

CFL Net Savings after operational adjustments:

Operational Factor	Adjustment Factor
Persistence Factor (pf)	0.800
Demand Coincidence Factor (cf)	0.12

Building Types	Demand Savings (kW)	Energy Savings (kWh)
Single Family	0.005	32.6
Multi Family	0.005	32.6

Savings Algorithms

CFL - Single and Multi Family Residential Home

60W Incandescent Lamp Demand		0.060	kW		
		2.30	Hours per Day		
	x	365	Days	839.5	Hours per Year
60W Incandescent Lamp Energy Usage		50.4	kWh per Year		
15W Compact Fluorescent Lamp Demand		0.015	kW		
		2.30	Hours per Day		
	x	365	Days	839.5	Hours per Year
15W Compact Fluorescent Lamp Energy Usage		12.6	kWh per Year		
60W Incandescent Lamp Energy Usage		50.4	kWh per Year		
15W Compact Fluorescent Lamp Energy Usage	-	12.6	kWh per Year		
CFL Savings Before Adjustments		37.8	kWh per Year		
		37.8	kWh per Year		
Persistance Factor	x	0.800	pf	20.0%	Lamps not installed or replaced back
		30.2	kWh per Year		
Adjustment for Mix of CFL sizes found in CA Study		30.2	kWh per Year		
	x	1.08	factor		
		32.6	kWh per Year		

CFL Energy Savings **32.6 kWh / Year Savings**

60W Incandescent Lamp Demand		0.060	kW		
15W Compact Fluorescent Lamp Demand	-	0.015	kW		
CFL Demand Reduction Before Adjustments		0.045	kW		
CFL Demand Reduction Before Adjustments		0.045	kW		
Coincidence Factor		0.120	cf	12.0%	Lamps on between 5 and 9 p.m.
Persistance Factor	x	0.800	pf	20.0%	Lamps not installed or replaced back
		0.004	kW		
Adjustment for Mix of CFL sizes found in CA Study		0.004	kW		
	x	1.080	factor		
		0.005	kWh per Year		

CFL Demand Savings **0.005 kW Savings**

Operating Hours
2.3 hours per day, 839.5 hours per year

Loadshape
TBD

Freeridership/Spillover Factors
TBD

Demand Coincidence Factor
Estimated coincidence factor of 0.12 cf assumes that 12% of the lamps purchased would be operating during the winter 5 p.m. to 9 p.m. weekday peak period.

Persistence
Estimated persistence factor of 0.80 pf which assumes 20% of the lamps purchased not installed or returned back to incandescent.

Lifetime
5 years

Measure Costs and Incentive Levels

Table 1 – Residential CFL Measure Costs and Incentive Levels

Description	Unit Incentive	Incremental Cost
Standard CFL - Res	$ 1.00	$ 2.50

Component Costs and Lifetimes Used in Computing O&M Savings
TBD

Reference Tables
None

High Efficiency Air Conditioning

Window AC

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 24, 2010
Effective date: July 1, 2010
End date: TBD

Referenced Documents: HECO DSM Docket – Backup Worksheets - Global Energy (07-14-06)
Econorthwest TRM Review – 6/23/10
Energy Star Calculator

TRM Review Actions:
- No changes recommended

Major Changes:
- Eliminated Incentives for units under 12,000 BTU

Measure Description:
The selection of a new 12.0 EER Room Air Conditioner versus or replacing a standard 9.8 EER Room Air Conditioner in Residential Single Family and Multi-family homes.

Appliances must comply with:
- Energy Star

Energy Star Air Conditioners – use at least 10% less energy than conventional models and often include timers for better temperature control, allowing you to use the minimum amount of energy you need to cool your room.

Baseline Efficiencies:
Baseline energy usage based on 2009 Energy Star Information for the Room ACs are as follows:

	Demand Baseline (kW)	Energy Baseline (kWh)	Notes
Non ES Qualifying Room AC	1.2	6,142	9.8 EER, 12,000 BTUh

High Efficiency:
The high efficiency case Energy Star energy usage based on 2009 Energy Star Information for the Room AC is as follows:

Energy Star Criteria is 10.8 EER. HECO DSM Docket 2006 by Global Energy Partners used 12.0 EER

	Demand High Efficiency (kW)	Energy High Efficiency (kWh)	Notes
ES Qualifying Room AC	1.0	5,016	12.0 EER, 12,000 BTUh

Energy Savings:
Energy Star Room AC Gross Savings before operational adjustments:

	Demand Savings (kW)	Energy Savings (kWh)	Notes
ES Qualifying Room AC	0.224	1,126	9.8 to12.0 EER, 12,000 BTUh

Energy Star Appliance Net Savings after operational adjustments:

Single Family versus Multi Family Factored Energy Savings	Adjustment Factor*	Energy Savings (kWh)
Single Family Home AC Energy Savings	46%	518
Multi Family Home AC Energy Savings	25%	276

*The gross Room AC energy savings was adjusted to match Energy Savings from HECO DSM Docket 2006 Backup Calculations – Global Energy Partners.

Contribution Factored Measure Savings	Contribution	Net Energy Savings (kWh)
Single Family Contribution Energy Savings	40%	207
Multi Family Contribution Energy Savings	60%	166
Energy Star Room AC Measure Energy Savings	100%	373

*The net Room AC energy savings was adjusted to match Energy Savings from HECO DSM Docket 2006 Backup Calculations – Global Energy Partners.

	Operational Factor	Adjustment Factor	Gross Unit Demand Savings	Adjusted for Home Unit Demand Savings

			(kW)	(kW)
Single Family	Demand Coincidence Factor (cf)	1.00	0.224	0.224
Multi Family	Demand Coincidence Factor (cf)	0.74	0.224	0.167
Single & Multi Family	Persistence Factor (pf)	1.00		

*The Demand savings per Home Room AC energy savings was adjusted to match Energy Savings from HECO DSM Docket 2006 Backup Calculations – Global Energy Partners.

Contribution Factored Demand Savings	Per Home Factored Demand Savings (kW)	Contribution	Measure Demand Savings (kW)
Single Family Contribution Demand Savings	0.224	40%	0.09
Multi Family Contribution Demand Savings	0.167	60%	0.10
Energy Star Room AC Measure Energy Savings		100%	0.19

*The Net Measure Demand savings per Home Room AC from HECO DSM Docket 2006 Backup Calculations – Global Energy Partners.

Savings Algorithms

Room Air Conditioner - Single and Multi Family Residential Home

Conventional Room AC Built After 1994

Average Unit Cooling Capacity		12,000	BTU / Hr	(Equals 1 Ton Cooling Capacity)
Energy Efficiency Ratio	÷	9.8	EER	DOE Federal Test Procedure 10CFR 430, Appendix F
Full Load Demand		1,224.5	Watts	
Conversion	÷	1,000.0	Watts / kW	
Full Load Demand		1.2	kW	

Conventional Room AC Full Load Demand		1.2	kW	
Honolulu Full Load Equivalent Cooling Hours	x	5,016.0	Hours per Year	EPA 2002
Conventional Room AC Annual Energy Consumption		6,142.0	kWh per Year	

Energy Star Qualified Room AC

Average Unit Cooling Capacity		12,000	BTU / Hr	(Equals 1 Ton Cooling Capacity)
Energy Efficiency Ratio	÷	12.0	EER	HECO DSM Docket 2006 - Global Energy Partners
Full Load Demand		1,000.0	Watts	(Energy Star Criteria = 10.8 EER)
Conversion	÷	1,000.0	Watts / kW	
Full Load Demand		1.0	kW	

Energy Star Room AC Full Load Demand		1.0	kW	
Honolulu Full Load Equivalent Cooling Hours	x	5,016.0	Hours per Year	EPA 2002
Energy Star Room AC Annual Energy Consumption		5,016.0	kWh per Year	
Conventional Room AC Annual Energy Consumption		6,142.0	kWh per Year	
Energy Star Room AC Annual Energy Consumption	-	5,016.0	kWh per Year	
Energy Star Room AC Annual Energy Savings		1,126.0	kWh per Year	Energy Star Consumer Room AC Calculator Cadmus 4/2009
Energy Star Room AC Annual Energy Savings		1,126	kWh per Year	
Single Family Use Factor	x	0.46		2,307 Single Family Full Load Operating Hours (inferred)
Single Family ES Room AC Annual Energy Savings		518	kWh per Year	HECO DSM Docket 2006 - Global Energy Partners
Energy Star Room AC Annual Energy Savings		1,126	kWh per Year	
Multi Family Use Factor	x	0.25		1,229 Multi Family Full Load Operating Hours (inferred)
Multi Family ES Room AC Annual Energy Savings		276	kWh per Year	HECO DSM Docket 2006 - Global Energy Partners
Single Family Use Weighting		40%		HECO DSM Docket 2006 - Global Energy Partners
Multi Family Use Weighting		60%		HECO DSM Docket 2006 - Global Energy Partners
Single Family ES Room AC Annual Energy Savings		518	kWh per Year	
Single Family Use Weighting	x	40%		
Single Family Savings Contribution to Measure		207	kWh per Year	HECO DSM Docket 2006 - Global Energy Partners
Multi Family ES Room AC Annual Energy Savings		276	kWh per Year	
Multi Family Use Weighting	x	60%		
Multi Family Savings Contribution to Measure		166	kWh per Year	HECO DSM Docket 2006 - Global Energy Partners
Single Family Savings Contribution to Measure		207	kWh per Year	
Multi Family Savings Contribution to Measure	+	166	kWh per Year	
		373	kWh per Year	HECO DSM Docket 2006 - Global Energy Partners
		373		
Persistance Factor	x	1	pf	100.0%
		373	kWh per Year	

Room Air Conditioner Energy Savings	**373**	**kWh / Year Savings**	
Conventional Room AC Full Load Demand	1.224	kW	0.225
Energy Star Room AC Full Load Demand	- 1.000	kW	0.167
Room AC Demand Reduction Before Adjustments	0.224	kW	
Single Family			
Room AC Demand Reduction Before Adjustments	0.224	kW	
On Peak Demand Coincidence Factor	x 1.00	cf	100.0% Single Family ACs on between 5 and 9 p.m.
Single Family Demand Savings	0.224	kW	HECO DSM Docket 2006 - Global Energy Partners
Single Family Use Weighting	x 40%		
Single Family Savings Contribution to Measure	0.090	kW	
Multi Family			
Room AC Demand Reduction Before Adjustments	0.224	kW	
On Peak Demand Coincidence Factor	x 0.74	cf	74.4% Multi Family ACs on between 5 and 9 p.m.
Multi Family Demand Savings	0.167	kW	HECO DSM Docket 2006 - Global Energy Partners
Multi Family Use Weighting	+ 60%		
Multi Family Savings Contribution to Measure	0.100	kW	
Single Family Savings Contribution to Measure	0.09	kW	
Multi Family Savings Contribution to Measure	x 0.10	kW	
Room AC Measure Demand Savings	0.19	kW	
Room AC Measure Demand Savings	0.190	kW	
Persistance Factor	x 1.0	pf	100.0% ACs installed and operational at EER Efficency
	0.19	kW	

Single & Multi Family Room AC Demand Savings	**0.19**	**kW Savings**

Operating Hours

Room AC = 5,016 hours per year EPA 2002

Inferred from HECO DSM Docket 2006 Backup Calculations – GEP
Single Family Room AC = 2,307 hours per year.
Multi Family Room AC = 1,229 hours per year

Loadshape
TBD

Freeridership/Spillover Factors
TBD

Demand Coincidence Factor
NA

Persistence
NA

Lifetime
12 years

Measure Costs and Incentive Levels

Table 1 –Measure Costs and Incentive Levels

Description	Unit Incentive	Incremental Cost
ES Room AC	$50	$ 171

Component Costs and Lifetimes Used in Computing O&M Savings
TBD

Reference Tables
None

Ductless Split AC

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 24, 2010
Effective date: July 1, 2010
End date: TBD

Referenced Documents: HECO DSM Docket – Backup Worksheets - Global Energy (07-14-06)
Econorthwest TRM Review – 6/23/10
Energy Star Calculator

TRM Review Actions:

- No changes recommended

Major Changes:

Measure Description:
The selection of a new 12.0 EEER Ductless Split Air Conditioner versus or replacing a standard 9.8 EER Room Air Conditioner in Residential Single Family and Multi-family homes.

Appliances must comply with:

- Energy Star

Energy Star Air Conditioners – use at least 10% less energy than conventional models and often include timers for better temperature control, allowing you to use the minimum amount of energy you need to cool your room.

Baseline Efficiencies:

Base efficiency is a window a/c unit or central AC with 9.8 EER.

	Demand Baseline (kW)	Energy Baseline (kWh)	Notes
Non ES Qualifying Room AC	1.224	6,142	9.8 EER, 12,000 BTUh

High Efficiency:
The high efficiency case Energy Star energy usage based on 2009 Energy Star Information for Ductless Split AC is as follows:

Energy Star Criteria is 12 EER

	Demand High Efficiency (kW)	Energy High Efficiency (kWh)	Notes
ES Qualifying Room AC	1.0	5,016	12.0 EER, 12,000 BTUh

Energy Savings:
Energy Star Ductless Split AC Gross Savings before operational adjustments:

	Demand Savings (kW)	Energy Savings (kWh)	Notes
ES Qualifying Room AC	0.224	1,126	9.8 to12.0 EER, 12,000 BTUh

Energy Star Appliance Net Savings after operational adjustments:

Single Family versus Multi Family Factored Energy Savings	Adjustment Factor*	Energy Savings (kWh)
Single Family Home AC Energy Savings	46%	518
Multi Family Home AC Energy Savings	25%	276

Contribution Factored Measure Savings	Contribution	Net Energy Savings (kWh)
Single Family Contribution Energy Savings	40%	207
Multi Family Contribution Energy Savings	60%	166
Energy Star Room AC Measure Energy Savings	100%	373

	Operational Factor	Adjustment Factor	Gross Unit Demand Savings (kW)	Adjusted for Home Unit Demand Savings (kW)
Single Family	Demand Coincidence Factor (cf)	1.00	0.224	0.224
Multi Family	Demand Coincidence Factor (cf)	0.74	0.224	0.167
Single & Multi Family	Persistence Factor (pf)	1.00		

Contribution Factored Demand Savings	Per Home Factored Demand Savings (kW)	Contribution	Measure Demand Savings (kW)
Single Family Contribution Demand Savings	0.224	40%	0.09
Multi Family Contribution Demand Savings	0.167	60%	0.10
Energy Star Ductless Split AC Measure Energy Savings		100%	0.19

Savings Algorithms

Residential Ductless Split AC			
Average Unit Cooling Capacity		12000 BTU/Hr	Equals 1 Ton Cooling Capacity
Energy Efficiency Ratio	÷	9.8 EER	DOE Federal Test Procedure 10CFR 430, Appendix F
Full Load Demand		1224.5 Watts	
Conversion	÷	1000 Watts/kW	
Full Load Demand		1.22 kW	
Conventional Full Load Demand		1.22 kW	
Honolulu Full Load Equivalent Cooling Hours	x	5016 Hours per Year	EPA 2002
Conventional AC Annual Energy Consumption		6142.0 kWh per Year	
Energy Star Ductless Split		12000 BTU/hr	Equals 1 Ton Cooling Capacity
Energy Efficiency Ratio	÷	12 EER	Minimum Energy Star Rated Ductles Split
Full Load Demand		1000.0 Watts	
Conversion	÷	1000 Watts/kW	
Full Load Demand		1.00 kW	
ENERGY STAR Full Load Demand		1.00 kW	
Honolulu Full Load Equivalent Cooling Hours	x	5016 Hours per Year	
ENERGY STAR AC Annual Energy Consumption		5016.0 kWh per Year	
Annual Energy Savings		1126.0 kWh per Year	
Demand Savings		0.224 kW	

Ductless Split - Single and Multi Family Residential Home

Base Case
Conventional Room AC Built After 1994

Average Unit Cooling Capacity		12,000	BTU / Hr	(Equals 1 Ton Cooling Capacity)
Energy Efficiency Ratio	÷	9.8	EER	DOE Federal Test Procedure 10CFR 430, Appendix F
Full Load Demand		1,224.5	Watts	
Conversion	÷	1,000.0	Watts / kW	
Full Load Demand		1.2	kW	

Conventional Room AC Full Load Demand		1.2	kW	
Honolulu Full Load Equivalent Cooling Hours	x	5,016.0	Hours per Year	EPA 2002
Conventional Room AC Annual Energy Consumption		6,142.0	kWh per Year	

Energy Star Qualified Ductless Split AC

Average Unit Cooling Capacity		12,000	BTU / Hr	(Equals 1 Ton Cooling Capacity)
Energy Efficiency Ratio	÷	12.0	EER	HECO DSM Docket 2006 - Global Energy Partners
Full Load Demand		1,000.0	Watts	(Energy Star Criteria = 10.8 EER)
Conversion	÷	1,000.0	Watts / kW	
Full Load Demand		1.0	kW	

Energy Star Ductless Split AC Full Load Demand		1.0	kW	
Honolulu Full Load Equivalent Cooling Hours	x	5,016.0	Hours per Year	EPA 2002
Energy Star Ductless Split Annual Energy Consumption		5,016.0	kWh per Year	

Conventional Room AC Annual Energy Consumption		6,142.0	kWh per Year	
Energy Star Ductless Split Annual Energy Consumption	-	5,016.0	kWh per Year	
Energy Star Ductless Split Annual Energy Savings		1,126.0	kWh per Year	Energy Star Consumer Room AC Calculator Cadmus 4/2009

Energy Star Ductless Split Annual Energy Savings		1,126	kWh per Year	
Single Family Use Factor	x	0.46		2,307 Single Family Full Load Operating Hours (inferred)
Single Family ES Ductless Split AC Annual Energy Savings		518	kWh per Year	

Energy Star Ductless Split Annual Energy Savings		1,126	kWh per Year	
Multi Family Use Factor	x	0.25		1,229 Multi Family Full Load Operating Hours (inferred)
Multi Family ES Ductless Split AC Annual Energy Savings		276	kWh per Year	

Single Family Use Weighting		40%		HECO DSM Docket 2006 - Global Energy Partners
Multi Family Use Weighting		60%		HECO DSM Docket 2006 - Global Energy Partners

Single Family ES Ductless Split AC Annual Energy Savings		518	kWh per Year	
Single Family Use Weighting	x	40%		
Single Family Savings Contribution to Measure		207	kWh per Year	

Multi Family ES Ductless Split AC Annual Energy Savings		276	kWh per Year	
Multi Family Use Weighting	x	60%		
Multi Family Savings Contribution to Measure		166	kWh per Year	

Single Family Savings Contribution to Measure		207	kWh per Year	
Multi Family Savings Contribution to Measure	+	166	kWh per Year	
		373	kWh per Year	

		373		
Persistance Factor	x	1	pf	100.0%
		373	kWh per Year	

Ductless Split AC Energy Savings **373 kWh / Year Savings**

Conventional Room AC Full Load Demand		1.224	kW	0.225
Energy Star Ductless Split AC Full Load Demand	-	1.000	kW	0.167
Ductless Split AC Demand Reduction Before Adjustments		0.224	kW	

Single Family

Ductless Split AC Demand Reduction Before Adjustments		0.224	kW	
On Peak Demand Coincidence Factor	x	1.00	cf	100.0% Single Family ACs on between 5 and 9 p.m.
Single Family Demand Savings		0.224	kW	
Single Family Use Weighting	x	40%		
Single Family Savings Contribution to Measure		0.090	kW	

Multi Family

Ductless Split AC Demand Reduction Before Adjustments		0.224	kW	
On Peak Demand Coincidence Factor	x	0.74	cf	74.4% Multi Family ACs on between 5 and 9 p.m.
Multi Family Demand Savings		0.167	kW	
Multi Family Use Weighting	+	60%		
Multi Family Savings Contribution to Measure		0.100	kW	

Single Family Savings Contribution to Measure		0.09	kW	
Multi Family Savings Contribution to Measure	x	0.10	kW	
Ductless Split AC Measure Demand Savings		0.19	kW	

Ductless Split AC Measure Demand Savings		0.190	kW	
Persistance Factor	x	1.0	pf	100.0% ACs installed and operational at EER Efficiency
		0.19	kW	

Single & Multi Family Ductless Split AC Demand Savings **0.19 kW Savings**

Operating Hours

Room AC = 5,016 hours per year EPA 2002
Single Family Room AC = 2,307 hours per year.
Multi Family Room AC = 1,229 hours per year

Loadshape
TBD

Freeridership/Spillover Factors
TBD

Demand Coincidence Factor
NA

Persistence
NA

Lifetime
12 years

Measure Costs and Incentive Levels

Table 1 – Residential CFL Measure Costs and Incentive Levels

Description	Unit Incentive	Incremental Cost
ES Ductless Split AC	$110	$ 1000 per ton

Component Costs and Lifetimes Used in Computing O&M Savings
TBD

Reference Tables
None

VRF Split System AC

Measure ID: See Table 7.3 (TBD)
Measure Code: Inverter VRF AC

Version Date & Revision History
Draft date: February 24, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: none

TRM Review Actions:
- n/a

Major Changes:
- n/a

Description: Inverter driven variable refrigerant flow (VRF) air conditioning systems are direct expansion AC systems that utilize variable speed evaporator/condenser fans, and a combination of fixed and variable speed compressors along with most often multiple individual zone evaporators to provide the ability to more closely match the AC system's output with the building's cooling requirements.
Savings comes from:
- *Part Load Efficiencies*: Increased part-load efficiency operation
- *High Efficiency Motors*: Many systems use ECM motors
- *Higher Room Temperatures*: The capacity matching allows for better humidity control through longer
- cooling operation.
- *Reduction of Distribution Losses*: Duct losses are reduced with DX systems. This may be offset by dedicated outside air distribution systems when needed.

Payback Qualifications: VRF products need a payback requirement of 1 year or greater. The TRB/TRC must be greater than 1.

Energy and Demand Savings: VRF systems have demonstrated a 20-30% reduction in energy consumption as compared to standard DX equipment. The energy savings and demand tables that follow provide the savings by building type and system size for VRF systems. These figures are conservatively determined to be 20% greater than provided by the "Standard" Package Unit AC measures that require EERs 15% greater than IECC 2006 requirements.

The VRF applications have been new construction projects with no ability to perform pre and post measurements. Hawaii Energy will perform field pre and post field measurements to determine the measure effectiveness in the local environment

Variable Refrigerant Flow AC

20% better than Non-VRF with efficiencies 15% over IECC 2006 - Energy Reduction

Building Type	< 65,000	65,001 to 135,000	135,001 to 240,000	240,001 to 760,000	> 760,000
All Commercial	515.1	663.0	704.9	704.9	727.9
Misc. Commercial	515.1	663.0	704.9	704.9	727.9
Cold Storage	884.6	1,138.6	1,210.5	1,210.5	1,250.0
Education	507.5	653.1	694.4	694.4	717.1
Grocery	884.6	1,138.6	1,210.5	1,210.5	1,250.0
Health	718.3	924.4	982.8	982.8	1,014.9
Hotel/Motel	515.0	662.8	704.6	704.6	727.6
Misc. Industrial	718.3	924.4	982.8	982.8	1,014.9
Office	857.4	1,103.5	1,173.3	1,173.3	1,211.5
Restaurant	575.3	740.5	787.3	787.3	812.9
Retail	451.5	581.1	617.9	617.9	638.0
Warehouse	884.6	1,138.6	1,210.5	1,210.5	1,250.0

Variable Refrigerant Flow AC

Same as Non-VRF with efficiencies 15% over IECC 2006 - Demand Reduction

Building Type	< 65,000	65,001 to 135,000	135,001 to 240,000	240,001 to 760,000	> 760,000
All Commercial	0.069	0.089	0.095	0.095	0.098
Misc. Commercial	0.042	0.053	0.057	0.057	0.059
Cold Storage	0.069	0.089	0.095	0.095	0.098
Education	0.028	0.036	0.038	0.038	0.039
Grocery	0.118	0.151	0.161	0.161	0.166
Health	0.090	0.116	0.123	0.123	0.127
Hotel/Motel	0.083	0.107	0.114	0.114	0.117
Misc. Industrial	0.069	0.089	0.095	0.095	0.098
Office	0.069	0.089	0.095	0.095	0.098
Restaurant	0.104	0.134	0.142	0.142	0.147
Retail	0.083	0.107	0.114	0.114	0.117
Warehouse	0.062	0.080	0.085	0.085	0.088

Measure Incentive/Incremental Cost

Ceiling Fans

Measure ID: See Table 7.3
Version Date & Revision History
Draft date: March 2, 2011
Effective date: January 1, 2011
End date: TBD

Referenced Documents: ENERGY STAR Ceiling Fan Savings Calculator

Measure Description:
This measure describes the instillation of an ENERGY STAR ceiling fan that uses a high efficiency motor and contains compact fluorescent bulbs in place of a standard fan with integral incandescent bulbs.

Baseline Efficiencies:
The baseline equipment is assumed to be a standard fan with integral incandescent bulbs.

High Efficiency:
The efficient equipment must be an ENERGY STAR certified ceiling fan with integral CFL bulbs.

Energy Savings:

	Average Annual kWh savings per unit	Average Coincident Peak kW savings per unit
2010 - 2013	167	0.019
2014 on	97	0.012

$$\Delta kWh = ((\%_{low} * (LowKW_{base} - LowKW_{ee}) + \%_{med} * (MedKW_{base} - MedKW_{ee}) + \%_{high} * (HighKW_{base} - HighKW_{ee})) * HOURS_{fan}) + ((IncKW - CFLKW) * HOURS_{light} * WHFe)$$

Where:

$\%_{low}$	= Percent of time on Low Speed	= 40%
$\%_{med}$	= Percent of time on Medium Speed	= 40%
$\%_{high}$	= Percent of time on High Speed	= 20%
$LowWatt_{base}$	= Low speed baseline ceiling fan wattage	= 0.0152 kW
$LowWatt_{ee}$	= Low speed ENERGY STAR ceiling fan wattage	= 0.0117 kW
$MedWatt_{base}$	= Medium speed baseline ceiling fan wattage	= 0.0348 kW
$MedWatt_{ee}$	= Medium speed ENERGY STAR ceiling fan wattage	= 0.0314 kW
$HighWatt_{base}$	= High speed baseline ceiling fan wattage	= 0.0725 kW
$HighWatt_{ee}$	= High speed ENERGY STAR ceiling fan wattage	= 0.0715 kW
$HOURS_{fan}$	= Typical fan operating hours (2.8/day, 365 days per year)	= 1022 hours
IncWatt	= Incandescent bulb kW (assumes 3 * 60W bulb)	= 0.180kW
CFLWatt	= CFL bulb kW (assumes 3 * 20W bulb)	= 0.060kW
$HOURS_{light}$	= Typical lighting operating hours (3.5/day, 365 days per year)	= 1277.5 hours
WHFe	= Waste Heat Factor for Energy to account for cooling savings from Efficient lighting.	= 1.07

$$\Delta kWh = ((0.4 * (0.0152 - 0.0117) + 0.4 * (0.0348 - 0.0314) + 0.2 * (0.0725 - 0.0715)) * 1022) + ((0.18 - 0.06) * 1277.5 * 1.07)$$

= 167 kWh

Baseline Adjustment

Federal legislation stemming from the Energy Independence and Security Act of 2007 will require all general-purpose light bulbs between 40 and 100W to be approximately 30% more energy efficient than current incandescent bulbs, in essence beginning the phase out of standard incandescent bulbs. In 2012 100W incandescents will no longer be manufactured, followed by restrictions on 75W in 2013 and 60W in 2014. The baseline for this measure will therefore become bulbs (improved incandescent or halogen) that meet the new standard. To account for these new standards, first year annual savings for this measure must be reduced beginning in 2014. This measure assumes 60W baseline bulbs, which in 2014 will become 43W and so the annual savings beginning in 2014 should therefore be:

ΔkWh = ((0.4 * (0.0152 – 0.0117) + 0.4 * (0.0348 – 0.0314) + 0.2 * (0.0725 – 0.0715)) * 1022) + ((0.129 – 0.06) * 1277.5 * 1.07)

= **97 kWh**

In addition, since during the lifetime of a CFL, the baseline incandescent bulb will be replaced multiple times, the annual savings claim must be reduced within the life of the measure. Therefore, for bulbs installed in 2010, the full savings (167kWh) should be claimed for the first four years, but the reduced annual savings (97kWh) claimed for the remainder of the measure life. The savings adjustment is therefore equal to 97/167 = 58%.

Coincident Peak Demand Savings

ΔkW = (%low * (LowKWbase - LowKWee) + %med * (MedKWbase - MedKWee) + %high * (HighKWbase - HighKWee)) + ((IncKW – CFLKW) * WHFd) * CF

Where:

WHFd = Waste Heat Factor for Demand to account for cooling savings from efficient lighting
= 1.21

CF = Peak Coincidence Factor for measure
= 0.11

ΔkW = ((0.4 * (0.0152 – 0.0117) + 0.4 * (0.0348 – 0.0314) + 0.2 * (0.0725 – 0.0715)) + ((0.18 – 0.06) * 1.21) * 0.11

ΔkW = **0.019kW**

After 2014, this will be reduced to:

ΔkW = ((0.4 * (0.0152 – 0.0117) + 0.4 * (0.0348 – 0.0314) + 0.2 * (0.0725 – 0.0715)) + ((0.129 – 0.06) * 1.21) * 0.11

ΔkW = **0.012kW**

Operating Hours

See Table above.

Loadshape

TBD

Freeridership/Spillover Factors

TBD

Lifetime
5 years (DEER)

Measure Costs and Incentive Levels

Description	Unit Incentive	Incremental Cost
Ceiling Fan	$ 40.00	$ 86.00

Component Costs and Lifetimes Used in Computing O&M Savings
TBD

Solar Attic Fans

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: March 2, 2011
Effective date: January 1, 2011
End date: TBD

Referenced Documents:

TRM Review Actions:

Major Changes:

Measure Description: Solar attic fan is assumed to reduce 10% of existing air conditioning load energy usage and no demand reduction from 5PM – 9PM.

Baseline Efficiencies:

The baseline case is no solar attic fan.

Base Case	Demand Baseline (kW)	Energy Baseline (kWh/year)
No Solar Attic Fan	1.00	5,016

High Efficiency:

High Efficiency Case	Efficient Case (kW)	Efficient Case (kWh/year)
Solar Attic Fan	1.00	4,514

Energy Savings:

Savings Type	Gross Customer Savings (kW)	Gross Customer Savings (kWh/year)
Gross Savings	0.00	502

Operational Factor	Adjustment Factor
Persistence Factor (pf)	0.00
Demand Coincidence Factor (cf)	0.00

Savings Type	Net Customer Savings (kW)	Net Customer Savings (kWh/year)
Net Savings	0.000	502

Savings Algorithms

Solar Attic Fan - Single Family Residential Home

Energy Star Room AC Full Load Demand		1.0	kW
Honolulu Full Load Equivalent Cooling Hours	x	5,016	Hours per Year
Energy Star Room AC Annual Energy Consumption		5,016	kWh per Year
Energy Reduction Percentage with Solar Attic Fan		10.0%	
Energy Usage with Solar Attic Fan		4,514	kWh / Year Savings
Energy Star Room AC Annual Energy Consumption		5,016	kWh / Year Savings
Energy Usage with Solar Attic Fan	-	4,514	kWh / Year Savings
Solar Attic Fan Annual Energy Savings		502	kWh / Year Savings
Solar Attic Fan Annual Energy Savings		502	kWh / Year Savings
Persistance Factor	x	1.0	
Net Customer Level Savings		502	kWh / Year Savings
Solar Attic Fan Energy Savings		502	kWh / Year Savings
Energy Star Room AC Full Load Demand		1.00	kW
Peak Demand Reduction		0%	
AC Demand with Solar Attic Fan		1.00	kW
Energy Star Room AC Full Load Demand		1.00	kW
AC Demand with Solar Attic Fan	-	1.00	kW
Gross Customer Demand Savings		-	kW
Solar Attic Fan Demand Savings		0.000	kW Savings

Operating Hours
See Table above.

Loadshape
TBD

Freeridership/Spillover Factors
TBD

Persistence
1.0

Lifetime
5 years

Measure Costs and Incentive Levels

Description	Incentive	Incremental Cost
Solar Attic Fan	$ 25.00	$ 500.00

Whole House Fans

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: March 2, 2011
Effective date: January 1, 2011
End date: TBD

Referenced Documents:

TRM Review Actions:

Major Changes:

Measure Description:

Baseline Efficiencies:

Base Case	Demand Baseline (kW)	Energy Baseline (kWh/year)
No Whole House Fan	1.00	5,016

High Efficiency:

High Efficiency Case	Efficient Case (kW)	Efficient Case (kWh/year)
Whole House Fan	0.15	3,762

Energy Savings:

Savings Type	Gross Customer Savings (kW)	Gross Customer Savings (kWh/year)
Gross Savings	0.85	1,254

Operational Factor	Adjustment Factor
Persistence Factor (pf)	1.00
Demand Coincidence Factor (cf)	0.59

Savings Type	Net Customer Savings (kW)	Net Customer Savings (kWh/year)
Net Savings	0.50	1,254

Savings Algorithms

Whole House Fan - Single Family Residential Home

Energy Star Room AC Full Load Demand		1.0	kW
Honolulu Full Load Equivalent Cooling Hours	x	5,016	Hours per Year
Energy Star Room AC Annual Energy Consumption		5,016	kWh per Year
Energy Reduction Percentage with Solar Attic Fan		25.0%	
Energy Usage with Solar Attic Fan		3,762	kWh / Year Savings
Energy Star Room AC Annual Energy Consumption		5,016	kWh / Year Savings
Energy Usage with Solar Attic Fan	-	3,762	kWh / Year Savings
Solar Attic Fan Annual Energy Savings		1,254	kWh / Year Savings
Solar Attic Fan Annual Energy Savings		1,254	kWh / Year Savings
Persistance Factor	x	1.0	
Net Customer Level Savings		1,254	kWh / Year Savings
Whole House Fan Energy Savings		1,254	kWh / Year Savings
Energy Star Room AC Full Load Demand		1.00	kW
Whole House Fan Demand	-	0.15	kW
Gross Customer Demand Reduction		0.85	kW
Gross Customer Demand Reduction		0.850	kW
Gross Customer Demand Reduction		0.850	kW
Persistence Factor		1.000	
Coincedence Factor	x	0.590	
Net Whole House Fan Demand Savings		0.50	kW Savings

Operating Hours
See Table above.

Loadshape
TBD

Freeridership/Spillover Factors
TBD

Persistence/Coincidence Factor

Operational Factor	Adjustment Factor
Persistence Factor (pf)	1.00
Demand Coincidence Factor (cf)	0.59

Lifetime
5 years

Measure Costs and Incentive Levels

Description	Incentive	Incremental Cost
Whole House Fans	$ 75.00	$ 1,000.00

High Efficiency Appliances

Energy Star Clothes Washer, Refrigerator, & Dishwasher

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 24, 2010
Effective date: July 1, 2010
End date: TBD

Referenced Documents: HECO DSM Docket – Backup Worksheets - Global Energy (07-14-06)
Econorthwest TRM Review – 6/23/10
Department of Energy Refrigerator Profile – Updated December 2009

TRM Review Actions:

- 6/23/10 Rec. # 11 – Revise savings to be consistent with ENERGY STAR estimates. – Adopted with modifications on refrigerator figures based on DOE Refrigerator profile and the addition of bounty, recycle with new figures.
- 6/23/10 Rec. # 12 – Split the claimed savings by appliance. – Adopted.
- 6/23/10 Rec. # 13 – Incorporate solar hot water heating into appliance savings values – Adopted.
- 6/23/10 Rec. # 14 – Revise demand savings values for ENERGY STAR appliances – Adopted.

Major Changes:

- Split between ESH appliances
- Incorporation of three refrigerator categories (new, new with turn in, and bounty (turn in only))
- All ESH 313 kWh and 0.12 kW changed to:
  - New ES Refrigerator Only – 105 kWh, .017 kW
  - New ES Refrigerator with Turn-In – 822 kWh, .034 kW
  - Bounty (Turn in only) – 859 kWh, .034 kW
  - Dishwasher – 67 kWh, .015 kW
  - Washing Machine – 206 kWh, .028 kW

Measure Description:
The replacement of standard Clothes Washers, Refrigerators, and Dishwashers in Residential Single Family and Multi-family homes.

Appliances must comply with:

- Energy Star

Refrigerators – ENERGY STAR refrigerators utilize improvements in insulation and compressors.

Clothes Washers – Clothes washers that meet ENERGY STAR criteria use next generation technology to cut energy and water consumption by over 40% compared to conventional washers. Clothes washers come in either front-load or redesigned top-load designs. Both configurations include technical innovations that help save substantial amounts of energy and water.

- **No Central Agitator** Front-loaders tumble clothes through a small amount of water instead of rubbing clothes against an agitator in a full tub. Advanced top loaders use sophisticated wash systems to flip or spin clothes through a reduced stream of water. Both designs dramatically reduce the amount of hot water used in the wash cycle, and the energy used to heat it.
- **High Spin Speeds** Efficient motors spin clothes two to three times faster during the spin cycle to extract more water. Less moisture in the clothes means less time and energy in the dryer.

Dishwashers - Dishwasher technology has improved dramatically over the last decade. New ENERGY STAR qualified models include several innovations that reduce energy and water consumption and improve performance.

- **Soil sensors** test how dirty dishes are throughout the wash and adjust the cycle to achieve optimum cleaning with minimum water and energy use.
- **Improved water filtration** removes food soils from the wash water allowing efficient use of detergent and water throughout the cycle. The final clean-water rinse assures your dishes come out sparkling.
- **More efficient jets** use less energy to spray detergent and water over the dishes when cleaning.
- **Innovative dish rack designs** maximize cleaning by strategically situating the dishes.

Baseline Efficiencies:
Baseline energy usage based on 2009 Energy Star Information for the appliances are as follows:

	Demand Baseline (kW)	Energy Baseline (kWh)	Notes
Non ES Qualifying Refrigerator		537	19.0-21.4 Top Freezer
Non ES Qualifying Dishwasher		377	215 Cycles per Year
Non ES Qualifying Clothes Washer		787	392 Loads per Year

High Efficiency:
The high efficiency case Energy Star energy usage based on 2009 Energy Star Calculator Information and DOE Refrigerator Market Profile for the appliances is as follows:

	Demand High Efficiency (kW)	Energy High Efficiency (kWh)	Notes
ES Qualifying Refrigerator		435	19.0-21.4 Top Freezer
ES Qualifying Dishwasher		303	215 Cycles per Year
ES Qualifying Clothes Washer		563	392 Loads per Year

Energy Savings:

Energy Star Appliance Gross Savings before operational adjustments:

	Demand Savings (kW)	Energy Savings (kWh)
ES Refrigerator	0.017	105
ES Refrigerator with Turn-In	0.034	822
Bounty (Turn in only)	0.034	859
ES Dishwasher	0.015	67
ES Washing Machine	0.028	206

Energy Star Appliance Net Savings operational adjustments:

Operational Factor	Adjustment Factor
Persistence Factor (pf)	1.0
Demand Coincidence Factor (cf)	1.0

Savings Algorithms

Energy Star Dishwasher & Clothes Washers - Single and Multi Family Residential Home

Based on DOE/EPA Energy Star Calculator and Econorthwest adjustment factor

	Standard Efficiency (kWh)	Energy Star Qualified (kWh)	Energy Savings (kWh)	Solar Water Heater Penetration Adjustment Factor	Claimed Energy Savings	Notes
ES Qualifying Dishwasher	377	303	74	91%	67	215 Cycles per Year
ES Qualifying Clothes Washer	787	563	224	92%	206	392 Loads per Year

Energy Star Refrigerator and Turn In Refrigerator - Single and Multi Family Residential Home

Opportunity		Energy Usage		
New Non-ENERGY STAR		540		Table 2
New ENERGY STAR Refrigerator	-	435		Table 2
		105	kWh/Year	Table 1
#1 - Purchase of ENERGY STAR Refrigerator		105		Table 1
#2 - Removal of Old Unit from Service (off the grid)	+	717		Table 1
#1 + #2 = Purchase ES and Recycle old unit		822	kWh/Year	

	Energy Usage	Ratio	Contribution		
Post-1993 Refrigerator	640	55%	354.54		Table 3
Pre-1993 Refrigerator	1,131	45%	504.46		Table 3
			859	kWh/Year	

Table 1

Energy Savings Opportunities for Program Sponsors

Opportunity	Annual Savings			
	Per Unit		Aggregate U.S. Potential	
	kWh	$	MWh	$ million
1. **Increase the number of buyers that purchase ENERGY STAR qualified refrigerators.** • 9.3 million units were sold in 2008. • 70 percent were not ENERGY STAR. • 6.5 million potential units per year could be upgraded.	105	11.64	675,928	75
2. **Decrease the number of units kept on the grid when new units are purchased.** • 8.7 million primary units were replaced in 2008. • 44 percent remained in use, whether they were converted to second units, sold, or given away. • 3.8 million units are candidates for retirement every year.	717	79.53	2,746,062	305
3. **Decrease the number of second units.** • 26 percent of households had a second refrigerator in 2008. • 29.6 million units are candidates for retirement.	859	95.28	25,442,156	2,822
4. **Replace pre-1993 units with new ENERGY STAR qualified models.** • 19 percent of all units in use in 2008 were manufactured before 1993. • 27.3 million total potential units are candidates for targeted replacement.	730	81	19,946,440	2,212

Sources: See endnote 10.

Table 2

Energy and Cost Comparison for Upgrading to ENERGY STAR

Purchase Decision	New Non-ENERGY STAR Qualified Refrigerator	New ENERGY STAR Qualified Refrigerator
Annual Consumption	540 kWh	435 kWh
	$60	$48
Annual Savings	–	105 kWh
	–	$12
Average Lifetime	12 years	12 years
Lifetime Savings	–	1,260 kWh
	–	$140
Price Premium	–	$30 - $100
Simple Payback Period	–	3-9 years

Note: Calculations based on shipment-weighted average annual energy consumption of 2008 models. An ENERGY STAR qualified model uses 20 percent less energy than a new non-qualified refrigerator of the same size and configuration.

Source: See endnote 10.

Table 3

Energy and Cost Comparison for Removing a Second Refrigerator from the Grid

Fate of Unit	Post-1993 Unit		Pre-1993 Unit	
	Remains on the Grid	Removed from the Grid	Remains on the Grid	Removed from the Grid
Annual Consumption	640 kWh	–	1,131 kWh	–
	$71	–	$125	–
Annual Savings	–	640 kWh	–	1,131 kWh
	–	$71	–	$125
Average Lifetime*	6	–	6	–
Lifetime Savings*	–	3,840 kWh	–	6,788 kWh
	–	$426	–	$753
Removal Cost	–	$50 - $100	–	$50 - $100
Simple Payback Period	–	1-2 years	–	<1 year

*Assumes unit has six years of functionality remaining.

Sources: See endnote 10.

Operating Hours

Refrigerators = 8,760 hours per year
Dishwashers = 215 Cycles per year
Clothes Washers = 392 Loads per Year

Loadshape
TBD

Freeridership/Spillover Factors
TBD

Demand Coincidence Factor
NA

Persistence
NA

Lifetime
(DEER) 11 years for dishwasher and clotheswasher
(DEER) 14 years for refrigerator

Measure Costs and Incentive Levels

Residential Measure Costs and Incentive Levels

Description	Unit Incentive	Incremental Cost HECO DSM Docket 2006	Incremental Cost Energy Star 2009
ES Refrigerator	$50	$ 60.36	$ 65
ES Dishwasher	$50	$ 60.36	$ 12
ES Clothes Washer	$50	$ 398.36	$ 258

Component Costs and Lifetimes Used in Computing O&M Savings
TBD

Water Descriptions

	Base Water Usage (Gallons)	High Efficiency Water Usage (Gallons)	Water Savings (Gallons)	Notes
Refrigerator	n/a	n/a		19.0-21.4 Top Freezer
Dishwasher	1,290	860	430	215 Cycles per Year
Clothes Washer	12,179	5,637	6,542	392 Loads per Year

Reference Tables
None

Pool VFD Controller Pumps

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 24, 2010
Effective date: July 1, 2010
End date: TBD

Referenced Documents:

(1) Davis Energy Group (2008). Proposal Information Template for Residential Pool Pump Measure Revisions. Prepared for Pacific Gas and Electric Company; Page 2.

Measure Description
A variable speed residential pool pump motor in place of a standard single speed motor of equivalent horsepower.

Definition of Efficient Equipment
The high efficiency equipment is a variable speed residential pool pump.

Definition of Baseline Equipment
The baseline efficiency equipment is assumed to be a single speed residential pool pump.

$$\Delta kWh = (kWBASE \times Hours) \times 55\% \text{ BASE}$$

Where:

Unit = 2-speed or variable speed pool pump
ΔkWh = Average annual kWh reduction: 400 kWh
Hours = Average annual operating hours of pump
kWBASE = connected kW of baseline pump
55% = average percent energy reduction from switch to 2-speed or variable speed pump (1)

Baseline Efficiency
The baseline efficiency case is a single speed pump.

Based Demand	0.70	kW
Base Energy Usage per day	4.20	kWh/day
Base Energy Usage per year	1532	kWh/year

High Efficiency
The high efficiency case is a 2-speed or variable speed pump.

Demand Reduction	10%	
High Efficiency Demand	0.63	kW
Energy Savings	55%	
High Efficiency Energy Usage	689	kWh/year

Energy and Demand Savings

Energy Savings per year	842	kWh/year
Demand Savings	0.070	kW

Savings Algorithm

Pool Pump

Average Pool Pump Horesepower	0.75	HP
Efficiency	0.8	
Hours of operation per day	6	hours
Number of days pool in use	100	days per year
1 HP Equals	0.746	kW

Based Demand	0.70	kW
Base Energy Usage per day	4.20	kWh/day
Base Energy Usage per year	1532	kWh/year

Demand Reduction	10%	
High Efficiency Demand	0.63	kW
Energy Savings	55%	
High Efficiency Energy Usage	689	kWh/year

Energy Savings per year	842	kWh/year
Demand Savings	0.070	kW

Lifetime of Efficient Equipment
The estimated useful life for a variable speed pool pump is 10 years.

Measure Cost
The incremental cost is estimated to be $175 for a two speed motor and $750 for a variable speed motor

Incentives
$150

Energy Awareness, Measurement and Control Systems

Room Occupancy Sensors

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: March 2, 2011
Effective date: January 1, 2011
End date: TBD

Referenced Documents:
Flex your Power – "Occupancy sensors can reduce lighting costs by up to 50% in rooms where lights are frequently left on when on one is around."

According to the Federal Energy Management Program (FEMP) of the US Department of Energy, in a small, private office, an occupancy sensor can reduce energy use by almost 30% shaving 100kWh off the annual energy use. In a large open office area, energy use can be reduced by approximately 10%.

TRM Review Actions:

Major Changes:

Measure Description:
This measure is for wall switch sensors that controls the use of lighting in areas around the home with variable use such as laundry, storage, garage, bedrooms or spare areas.

Occupancy sensors must comply with:
- Energy Star
- UL Listing

Baseline Efficiencies:
The base case is an even split between two (2) 60W A-Shaped incandescent lamp and 15W Compact Fluorescent Lamp with the energy consumption as follows:

Lamp Types	Demand Baseline (kW)	Hours per Day	Energy Baseline (kWh/year)	%	Totals
Incandescent	0.060	2.30	50.4	50%	25.2 kWh
CFL	0.015	2.30	12.6	50%	6.3 kWh
				Watts per Lamp	31.5 W
				Lamps	2
				Total Baseline Energy (kWh)	63.0 kWh

High Efficiency:
The high efficiency case is 33% run time reduced.

Lamp Types	Demand Baseline (kW)	Hours per Day	Energy Baseline (kWh/year)	%	Totals
Incandescent	0.060	1.54	33.7	50%	16.9 kWh
CFL	0.015	1.54	8.4	50%	4.2 kWh
				Watts per Lamp	21.1 W
				Lamps	2
				Total High Efficiency Energy (kWh)	42.2 kWh

Energy Savings:

Total Baseline Energy (kWh)	63.0 kWh
Total High Efficiency Energy (kWh)	42.2 kWh
	20.8 kWh

Savings Algorithms

Room Occupancy Sensors - Single and Multi Family Residential Home

Two (2) - Lamp Demand		0.075	kW	Even split between 60W Incand. and 15W CFL
		2.30	Hours per Day	
	x	365	Days	839.5 Hours per Year
Baseline Energy Usage		63.0	kWh per Year	
Run Time Reduced (RTR)		0.76	Hours per Day	33%
		63.0	kWh per Year	
	x	0.330		33% Run Time Reduced
		20.8	kWh per Year	

Energy Savings	**20.8**	**kWh / Year Savings**	
Two Lamp Demand Reduction Before Adjustments	0.075	kW	
Demand Reduction Before Adjustments	0.038	kW	
Coincidence Factor	0.120	cf	12.0% Lamps on between 5 and 9 p.m.
Persistance Factor	x 1.000	pf	100.0%
	0.0046	kW	
Demand Savings	**0.0046**	**kW Savings**	

Operating Hours
2.3 hours per day

Loadshape
TBD

Freeridership/Spillover Factors
TBD

Coincidence
CF = 0.12 (12% lamps on between 5PM – 9PM)

Persistence
PF =1.0

Lifetime
8 years (DEER)

Measure Costs and Incentive Levels

Measure	Incentive	Incremental Cost
Occupancy Sensor	$ 20.00	$ 30.00

Component Costs and Lifetimes Used in Computing O&M Savings
TBD

Reference Tables
None

Whole House Energy Metering

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: March 2, 2011
Effective date: January 1, 2011
End date: TBD

Referenced Documents: Hawaii Energy Historic Utility Billing Research – Residential Review 2010

TRM Review Actions:

Major Changes:

Measure Description:
Whole house metering systems allow the occupant to see in real time the energy usage in their home. This "dashboard" allows them to see what actions and equipment drive their energy usage and the associated costs of running them. These devices collect energy data for the whole house at the panel and transmit the information to a display unit "dashboard" which can be located anywhere in the house.

Baseline Efficiencies:

Base Case	Demand Baseline (kW)	Energy Baseline (kWh/year)
No Metering	1.50	12,000

High Efficiency:

High Efficiency Case	Efficient Case (kW)	Efficient Case (kWh/year)
Whole House Meter	1.47	11,760

Energy Savings:

Savings Type	Gross Customer Savings (kW)	Gross Customer Savings (kWh/year)
Gross Customer Savings	0.03	240

Operational Factor	Adjustment Factor
Persistence Factor (pf)	0.90
Demand Coincidence Factor (cf)	0.30

Savings Type	Net Customer Savings (kW)	Net Customer Savings (kWh/year)
Net Customer Savings	0.01	216

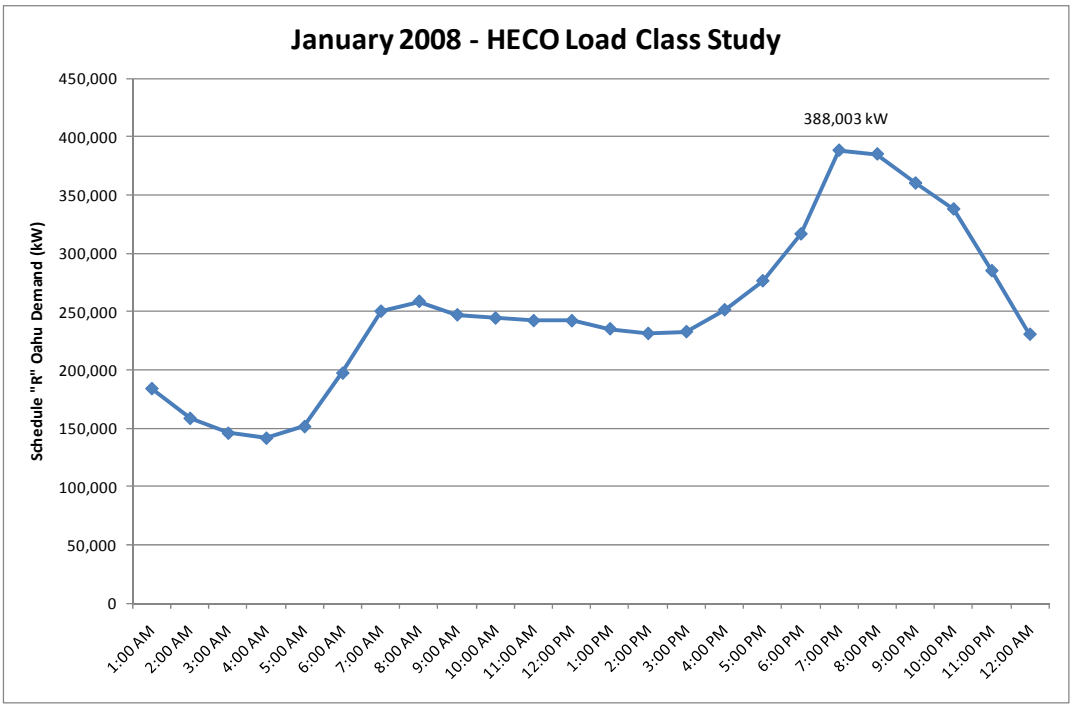
Savings Algorithms

Whole House Metering - Single Multi Family Residential Home

High Energy Usage Home (85th percentile)		1,000	kWh per home per month	Hawaii Energy review - HECO 2010 Data
	x	12		
Baseline Household Energy Usage		12,000	kWh per Year	
Energy Reduction		2.0%		
Actively Informed Household Energy Usage		11,760	kWh per Year	
Baseline Household Energy Usage		12,000	kWh per Year	
Actively Informed Household Energy Usage	-	11,760	kWh per Year	
Gross Customer Level Energy Savings		240	kwh per Year	
	x	1,000	Watts per kW	
	÷	8,760	Hours per Year	
Average 24/7 Demand Reduction		27	Watts	
Gross Customer Level Energy Savings		240	kwh per Year	
Persistance Factor	x	0.9		
Net Customer Level Savings		216	kwh per Year	
Whole House Metering Energy Savings		216	kWh / Year Savings	
Baseline Household Demand		1.50	kW	HECO 2008 Load Study
Peak Demand Reduction		1.75%		
Actively Informed Household Demand		1.47	kW	
Baseline Household Demand		1.50	kW	
Actively Informed Household Demand	-	1.47	kW	
Gross Customer Demand Savings		0.026	kW	
Gross Customer Demand Savings		0.026	kW	
Persistance Factor	x	0.90		
Coincidence Factor	x	0.30		
		0.007	kW	
Whole House Metering Demand Savings		0.007	kW Savings	

Operating Hours
8,760 hours per year

Loadshape



Freeridership/Spillover Factors
0.73

Persistence Factor
PF = 0.9

Coincedence Factor
CF= 0.3

Lifetime
5 years

Measure Costs and Incentive Levels

	Low	High
Measure Cost	$100	$450
Incremental Cost	$100	$450

Incentive Level	50% up to $100	
Incentive Level	$ 50.00	$100
First Year Cost per kWh	$ 0.21	$ 0.42
Measure Life (years)	5	
Operating Hours	8,760	
Demand Coincidence Factor	0.3 cf	

Residential Design and Audits

Efficiency Inside (New Home Construction Incentive)

Measure ID: See Table 7.3 (TBD)
Measure Code: Efficiency Inside

Version Date & Revision History
Draft date: February 24, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: none

TRM Review Actions:
- n/a

Major Changes:
- n/a

Description: This measure provides developers with financial, technical and other assistance to promote the construction of homes that require the least amount of air conditioning to meet customer demands.
It is assumed that all new homes will have Solar Water Heating, Energy Star Appliances, and CFLs.
The components are:
- *Energy Model Review* – Used to compare the projected home performance as compared to an IECC 2006 built home. At least 6 scenarios must be modeled (IECC 2006, Proposed Home, Proposed with Cool Roof, Proposed with 4.0 ACH @ 50Pa, Proposed other energy feature, Proposed home with all modeled features).
- *Construction Quality Control (CQC)* – Mandatory inspections of a sampling of units during construction to insure best construction practices are used to maximize design and to encourage field improvements. (Sampled)
- *Performance Testing (PT)* – A sampling of units tested to document the final result of the design and building practices.
- *Whole House Metering System* – Permanent devices to support home owner energy awareness and persistence of savings.

Savings comes from:

- *Lower Cooling Loads*: Through design and construction techniques.
- *Right Sizing of AC Systems*: Selection of smaller ACs match energy models load determination.
- *Energy Use Awareness*: Home equipped with metering will have greater user awareness that will drive energy use behavior.

Energy and Demand Savings: It is expected that the best built homes systems will provide a 20-30% reduction in energy consumption as compared to IECC 2006 code built homes. Net zero homes will provide 100% reductions.

- *Energy Modeling*: Energy savings will be determined through the cooling reductions modeled. This will be a combination of the construction and AC equipment selection.
- *Net Zero*: Net zero homes with PV are allowed and the predicted PV system output will be included in energy savings.

Hawaii Energy Hero Audits

Measure ID: See Table 7.3 (TBD)
Measure Code: Efficiency Inside

Version Date & Revision History
Draft date: February 24, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: none

TRM Review Actions:
- n/a

Major Changes:
- n/a

Description:
Provide three (3) pack Compact Fluorescent Lamps (15W) and one (1) Akamai Power Strip

Base Case
- Three (3) 60 W incandescent lamps
- Standard power strip or no power strip.

High Efficiency Case

- Replace three (3) 60 W incandescent lamps with three (3) CFLs rated at 15W.
- Replace existing standard power strip or no power strip.

Energy Savings

Measure	Energy Savings (kWh/year)	Demand Savings (kW)
CFL	119.7	0.017
Akamai Power Strip	67	0.0076
Total	**186.7**	**0.0246**

Measure Life

Measure	Measure Life
CFL	5 years
Akamai Power Strip	5 years

Savings Algorithm

CFL - Single and Multi Family Residential Home					
Quantity three (3) Pack		3			
60W Incandescent Lamp Demand		0.060	kW		
		2.30	Hours per Day		
	x	365	Days	839.5	Hours per Year
60W Incandescent Lamp Energy Usage		151.1	kWh per Year		
15W Compact Fluorescent Lamp Demand		0.015	kW		
		2.30	Hours per Day		
	x	365	Days	839.5	Hours per Year
15W Compact Fluorescent Lamp Energy Usage		12.6	kWh per Year		
60W Incandescent Lamp Energy Usage		151.1	kWh per Year		
15W Compact Fluorescent Lamp Energy Usage	-	12.6	kWh per Year		
CFL Savings Before Adjustments		138.5	kWh per Year		
		138.5	kWh per Year		
Persistance Factor	x	0.800	pf	20.0%	Lamps not installed or replaced back
		110.8	kWh per Year		
Adjustment for Mix of CFL sizes found in CA study		110.8	kWh per Year		
	x	1.08			
		119.7	kWh per Year		
CFL Energy Savings		**119.7**	**kWh / Year Savings**		
Three (3) 60W Incandescent Lamp Demand		0.180	kW		
15W Compact Fluorescent Lamp Demand	-	0.015	kW		
CFL Demand Reduction Before Adjustments		0.165	kW		
CFL Demand Reduction Before Adjustments		0.165	kW		
Coincidence Factor		0.120	cf	12.0%	Lamps on between 5 and 9 p.m.
Persistance Factor	x	0.800	pf	20.0%	Lamps not installed or replaced back
		0.016	kW		
Adjustment for Mix of CFL sizes found in CA study		0.016	kw		
	x	1.08	factor		
		0.017	kWh per Year		
CFL Demand Savings		**0.017**	**kWh per Year**		

Akamai Power Strips				
Savings per Unit	49 kWh		87.5 kWh	
Plugs per Unit	5 plugs		7 plugs	
Savings per Plug	9.8 kWh/plug		12.5 kWh/plug	
Average Savings per Plug			11.15 kWh	
		x	6 plugs/unit	
Akamai Power Strip Energy Savings			67 kWh per Unit first year	
Hours of Operation			8760 hours/year	
Demand Savings			0.0076 kW	
First Year Savings			67 kWh first year	
Measure Life		x	5 year measure life	
Lifetime Savings			334.5 kWh lifetime	
Total Resource Cost			$ 30.96	
Total Resource Benefit		÷	$ 46.15	
Total Resource Cost Ratio			1.5 TRB Ratio	
Potential Akamai Power Strip Incentive			$ 7.00	
First Year Savings		÷	66 kWh first year	
			$ 0.11 per kWh first year	
Standard Power Strip Cost			$ 14.49	
Akamai Power Strip Cost		-	$ 30.96	
Incremental Akamai Power Strip Cost			$ 16.47	
Incremental Akamai Power Strip Cost			$ 16.47	
Potential Akamai Power Strip Incentive		÷	$ 7.00	
Percentage of Incremental Cost			43%	
Akamai Power Strip Cost			$ 30.96	
Potential Akamai Power Strip Incentive		÷	$ 7.00	
Percentage of Customer Measure Cost			23%	

Residential System Tune-Ups

AC Annual Tune Up

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 21, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents:

TRM Review Actions:

Major Changes:
Split Systems addition to central systems for AC tune-up

Measure Description:

- Demonstrate the benefits of tune-ups
- Educate customer of potential savings and system longevity
- Utilize the participating contractors to contact the customers and have them arrange for the service work
- Participating contractors will use the Hawaii Energy Checklist to inspect and record the pre and post conditions
- Participating contractor's invoice must show that checklist requirements have been met and signed by the servicing technician
- Customers can have two incentives per location annually

Baseline Efficiencies:

Building Types	Demand Baseline (kW)	Energy Baseline (kWh/year)
Residential Household	2.77	4,852

High Efficiency:

With AC Annual Tune Up

Building Types	Efficient Case (kW)	Efficient Case (kWh/year)
Residential Household	2.63	4,043

Energy Savings:

Building Types	Gross Customer Savings (kW)	Gross Customer Savings (kWh/year)
Residential Household	0.14	809

Operational Factor	Adjustment Factor
Persistence Factor (pf)	1.00
Demand Coincidence Factor (cf)	0.20

Building Types	Net Customer Savings (kW)	Net Customer Savings (kWh/year)
Residential Household	0.000	809
On Peak Run Time Reduction Peak Demand Savings	0.14	

Savings Algorithms

Home AC Tune Up - Single Multi Family Residential Home					
Average AC unit Size		3	ton unit		
Average AC Unit EER		13.0	EER		
EER to kW Conversion		12			
	÷	13.0	EER		
Average AC Unit kW/Ton		0.92	kW/Ton		
Equivelant Full Load Run Hours (EFLRH)		1460	hrs./Year	4.0	hrs. per Day
Average AC unit Size		3	ton unit		
Average AC Unit kW/Ton		0.92	kW/Ton		
Equivelant Full Load Run Hours (EFLRH)	x	1,460	hrs./Year		
Post Tune Up - Average AC Unit Energy Consumption		4,043	kWh/Year		
Incorrect Refrigerant Charge		10%			
Clogged AHU Filter		5%			
Dirty Condenser Coil		5%			
Pre Tune Up AC Operational Problems EFLRH Adjustment Factor		20%			
Post Tune Up - Average AC Unit Energy Consumption		4,043	kWh/Year		
Pre Tune Up AC Operational Problems EFLRH Adjustment Factor	÷	120%			
Pre Tune Up - Average AC Unit Energy Consumption		4,852	kWh/Year	1,752	hrs. per year
				4.8	hrs. per Day
Pre Tune Up - Average AC Unit Energy Consumption		4,852			
Post Tune Up - Average AC Unit Energy Consumption		4,043			
Post Tune Up - Average AC Unit Energy Savings		809	kWh/Year		
Post Tune Up - Average AC Unit Energy Savings		809	kWh/Year		
Persistance Factor	x	1.0			
Net Customer Level Savings		809	kWh/Year		
AC Tune Up Energy Savings		809	kWh / Year Savings		
Average AC unit Size		3	ton unit		
Average AC Unit kW/Ton		0.92	kW/Ton		
Average AC Unit Demand		2.77	kW		
Average AC Unit Demand		2.77	kW		
Persistance Factor	x	1.00			
Pre Tune Up Coincidence Factor	x	0.25			
Pre Tune Up On Peak Demand		0.692	kW		
AC Unit Demand will not change. A reduction in operational hours will occur once tune up is completed. This lowers Coincidence Factor					
Pre Tune Up Coincidence Factor		0.25			
Post Tune Up Run Time Reduction Adjustment Factor	x	80%			
Post Tune Up Coincidence Factor		0.20			
Average AC Unit Demand		2.77			
Persistance Factor	x	1.00			
Post Tune Up Coincidence Factor	x	0.20			
Post Tune Up On Peak Demand		0.554	kW		
Pre Tune Up On Peak Demand		0.69			
Post Tune Up On Peak Demand	-	0.55			
AC Tune Up Demand Savings		0.138	kW		
AC Tune Up Demand Savings		0.138	kW Savings		

Operating Hours

Loadshape
TBD

Freeridership/Spillover Factors
TBD

Coincidence Factor
CF = 0.30

Persistence
PF = 0.90

Lifetime:
1 Year

Measure Costs and Incentive Levels

Description	Unit Incentive	Incremental Cost
Home AC Tune Up	$ 50.00	$ 300.00

Component Costs and Lifetimes Used in Computing O&M Savings
TBD

Reference Tables
None

Solar Water Heating Tune-up

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 21, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: KEMA "Impact Evaluation Report of the 2001-2003 Demand Side Management Programs" October 2004. Page 2-36 "Inoperable systems are those that use more than an average of 5 kWh per day, and problem systems use between 2-5 kWh per day.

TRM Review Actions:

Major Changes:
New

Measure Description:
- Demonstrate the benefits of tune-ups
- Educate customer of potential savings and system longevity
- Utilize the participating contractors to contact the customers and have them arrange for the service work
- Participating contractors will use the Hawaii Energy Checklist to inspect and record the pre and post conditions
- Participating contractor's invoice must show that checklist requirements have been met and signed by the servicing technician
- Customers can have two incentives per location annually

Baseline Efficiencies:

	Energy (kWh)	Demand (kW)
Baseline	577	0.079

High Efficiency:

	Energy (kWh)	Demand (kW)
High Efficiency	328	0.05

Energy/Demand Savings:

	Energy (kWh)	Demand (kW)
Energy Savings	249	0.029

KEMA 2005-2007 Energy and Peak Demand Impact Evaluation Report

Samples	Group	kWh per Unit	On Peak Demand	Total kWh	On Peak Demand
260	All	577	0.079	150,020	20.5
18	Failed	3,925	0.469	70,644	8.4
242	Operating	328	0.050	79,376	12.1

Operating Hours
10 hours

Loadshape
TBD

Freeridership/Spillover Factors
TBD

Demand Coincidence Factor

Persistence

Lifetime
5 years

Measure Costs and Incentive Levels

Description	Unit Incentive	Incremental Cost
Solar Water Heating Tune Up	$ 50.00	$ 300.00

Component Costs and Lifetimes Used in Computing O&M Savings
TBD

Reference Tables
None

9.0 (RHTR) Residential Hard to Reach

Solar Inspections (Weatherization Assistance Program)

Measure ID: See Table 7.3 (TBD)
Measure Code: Solar Inspections (WAP)

Version Date & Revision History
Draft date: February 24, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: none

TRM Review Actions:
- n/a

Major Changes:
- n/a

Description:

Energy and Demand Savings:

Based on the percentage (%) the Solar Inspection cost compared to incentives. For example, Solar Inspection Cost = $75 and the Solar Water Heater Incentive = $750. The energy savings = $75/$750 = 10%

Energy Savings = 10% x 2066 kWh/year
= 206.6 kWh/year

Demand Savings = 10% x 0.46 kW
= 0.046 kW

Example

Solar Inspection (WAP) Cost	$ 75.00
Solar Water Heating Incentive	$ 750.00

Percentage Savings = Cost/Incentive 10% Savings

Solar Inspection Energy Savings	**206.6**	**kWh / Year Savings**
Solar Inspection Demand Savings	**0.046**	**kW Savings**

Savings Algorithm

Solar Water Heater - Single Family Home

Energy per Day (BTU) = (Gallons per Day) x (lbs. per Gal.) x (Temp Rise) x (Energy to Raise Water Temp)

Hot Water needed per Person		13.3	Gallons per Day per Person	HE
Average Occupants	x	3.77	Persons	KEMA 2008
Household Hot Water Usage		50.2	Gallons per Day	
Mass of Water Conversion		8.34	lbs/gal	
Finish Temperature of Water		130	deg. F Finish Temp	
Initial Temperature of Water	-	75	deg. F Initial Temp	
Temperature Rise		55	deg. F Temperature Rise	
Energy to Raise Water Temp		1.0	BTU / deg. F / lbs.	
Energy per Day (BTU) Needed in Tank		23,006	BTU/Day	
Energy per Day (BTU) Needed in Tank		23,006	BTU/Day	
BTU to kWh Energy Conversion	÷	3,412	kWh / BTU	
Energy per Day (kWh)		6.7	kWh / Day	
Days per Month	x	30.4	Days per Month	
Energy (kWh) per Month		205	kWh / Month	
Days per Year	x	365	Days per Year	
Energy (kWh) Needed in Tank to Heat Water per Year		2,460	kWh / Year	
Elec. Res. Water Heater Efficiency	÷	0.90	COP	
Base SERWH Energy Usage per Year at the Meter		2,733	kWh / Year	KEMA 2008 - HECO
Design Annual Solar Fraction		90%	Water Heated by Solar System	Program Design
		10%	Water Heated by Remaining Backup Element	
Energy Usage per Year at the Meter		2,733	kWh / Year	
	x	10%	Water Heated by Remaining Backup Element	
Back Up Element Energy Used at Meter		273	kWh / Year	
Circulation Pump Energy		0.082	kW	KEMA 2008
Pump Hours of Operation	x	1,292	Hours per Year	KEMA 2008
Pump Energy used per Year		106	kWh / Year	
Back Up Element Energy Used at Meter		273	kWh / Year	72%
Pump Energy used per Year	+	106	kWh / Year	28%
Design Solar System Energy Usage		379	kWh / Year	
Base SERWH Energy Usage per Year at the Meter		2,733	kWh / Year	
Design Solar System Energy Usage	-	379	kWh / Year	
Design Solar System Energy Savings		2,354	kWh / Year	
Design Solar System Energy Savings		2,354	kWh / Year	
Performance Factor		0.94	pf	HE
Persistance Factor	x	0.93	pf	KEMA 2008
		2,066	kWh / Year	KEMA 2008
Residential Solar Water Heater Energy Savings		**2,066**	**kWh / Year Savings**	
Base SERWH Element Power Consumption		4.0	kW	
Coincidence Factor	x	0.143	cf	8.6 Minutes per hour
Base SERWH On Peak Demand		0.57	kW On Peak	KEMA 2008
Base SERWH On Peak Demand	-	0.57	kW On Peak	
Solar System Metered on Peak Demand	-	0.11	kW On Peak	KEMA 2008
		0.46	kW On Peak	
Residential Solar Water Heater Demand Savings		**0.46**	**kW Savings**	
Solar Inspection (WAP) Cost		$ 75.00		
Solar Water Heating Incentive		$ 750.00		
Percentage Savings = Cost/Incentive		10%	Savings	
Solar Inspection Energy Savings		**206.6**	**kWh / Year Savings**	
Solar Inspection Demand Savings		**0.046**	**kW Savings**	

Energy Hero Gift Packs

Measure ID: See Table 7.3 (TBD)
Measure Code: Energy Hero Gift Packs

Version Date & Revision History
Draft date: February 24, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: none

TRM Review Actions:
- n/a

Major Changes:
- n/a

Description:
Provide three (3) pack Compact Fluorescent Lamps (15W) and one (1) Akamai Power Strip

Base Case
- Three (3) 60 W incandescent lamps
- Standard power strip or no power strip.

High Efficiency Case

- Replace three (3) 60 W incandescent lamps with three (3) CFLs rated at 15W.
- Replace existing standard power strip or no power strip.

Energy Savings

Measure	Energy Savings (kWh/year)	Demand Savings (kW)
CFL	119.7	0.017
Akamai Power Strip	67	0.0076
Total	**186.7**	**0.0246**

Measure life

Measure	Measure Life
CFL	5 years
Akamai Power Strip	5 years

Savings Algorithm

CFL - Single and Multi Family Residential Home					
Quantity three (3) Pack		3			
60W Incandescent Lamp Demand		0.060	kW		
		2.30	Hours per Day		
	x	365	Days	839.5	Hours per Year
60W Incandescent Lamp Energy Usage		151.1	kWh per Year		
15W Compact Fluorescent Lamp Demand		0.015	kW		
		2.30	Hours per Day		
	x	365	Days	839.5	Hours per Year
15W Compact Fluorescent Lamp Energy Usage		12.6	kWh per Year		
60W Incandescent Lamp Energy Usage		151.1	kWh per Year		
15W Compact Fluorescent Lamp Energy Usage	-	12.6	kWh per Year		
CFL Savings Before Adjustments		138.5	kWh per Year		
		138.5	kWh per Year		
Persistance Factor	x	0.800	pf	20.0%	Lamps not installed or replaced back
		110.8	kWh per Year		
Adjustment for Mix of CFL sizes found in CA study		110.8	kWh per Year		
	x	1.08			
		119.7	kWh per Year		
CFL Energy Savings		**119.7**	**kWh / Year Savings**		
Three (3) 60W Incandescent Lamp Demand		0.180	kW		
15W Compact Fluorescent Lamp Demand	-	0.015	kW		
CFL Demand Reduction Before Adjustments		0.165	kW		
CFL Demand Reduction Before Adjustments		0.165	kW		
Coincidence Factor		0.120	cf	12.0%	Lamps on between 5 and 9 p.m.
Persistance Factor	x	0.800	pf	20.0%	Lamps not installed or replaced back
		0.016	kW		
Adjustment for Mix of CFL sizes found in CA study		0.016	kw		
	x	1.08	factor		
		0.017	kWh per Year		
CFL Demand Savings		**0.017**	**kWh per Year**		

Akamai Power Strips				
Savings per Unit	49 kWh		87.5 kWh	
Plugs per Unit	5 plugs		7 plugs	
Savings per Plug	9.8 kWh/plug		12.5 kWh/plug	
Average Savings per Plug			11.15 kWh	
		x	6 plugs/unit	
Akamai Power Strip Energy Savings			67 kWh per Unit first year	
Hours of Operation			8760 hours/year	
Demand Savings			0.0076 kW	
First Year Savings			67 kWh first year	
Measure Life		x	5 year measure life	
Lifetime Savings			334.5 kWh lifetime	
Total Resource Cost			$ 30.96	
Total Resource Benefit		÷	$ 46.15	
Total Resource Cost Ratio			1.5 TRB Ratio	
Potential Akamai Power Strip Incentive			$ 7.00	
First Year Savings		÷	66 kWh first year	
			$ 0.11 per kWh first year	
Standard Power Strip Cost			$ 14.49	
Akamai Power Strip Cost		-	$ 30.96	
Incremental Akamai Power Strip Cost			$ 16.47	
Incremental Akamai Power Strip Cost			$ 16.47	
Potential Akamai Power Strip Incentive		÷	$ 7.00	
Percentage of Incremental Cost			43%	
Akamai Power Strip Cost			$ 30.96	
Potential Akamai Power Strip Incentive		÷	$ 7.00	
Percentage of Customer Measure Cost			23%	

Unit Incentive/Incremental Cost

Description	Unit Incentive	Incremental Cost
CFL	$ 1.00	$ 2.50
Akamai Power Strip	$ 7.00	$ 16.47

CFL Exchange

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 24, 2010
Effective date: July 1, 2010
End date: TBD

Referenced Documents:

- Energy and Peak Demand Impact Evaluation Report of the 2005-2007
- Demand Management Programs – KEMA (KEMA 2005-07)
- Econorthwest TRM Review – 6/23/10

TRM Review Actions:

- 6/23/10 Rec. # 8 – Starting with PY2010, adjust the hours used per day for CFLs from 4.98 to 2.3 in order to be consistent with other literature. Conduct additional research to verify the most appropriate hours of operation for the Hawaii customer base, which can be incorporated into future years. – Adopted.
- 6/23/10 Rec. # 9 - Starting with PY 2010, adjust the peak coincidence factor from 0.334 to 0.12 to be consistent with the literature. Conduct additional research to verify the most appropriate coincidence factor for the Hawaii customer base, which can be incorporated into future years.- Adopted.

Major Changes:

- Hours used per day for CFLs from 4.98 to 2.3 hrs.
- Peak coincidence factor from 0.334 to 0.12

Measure Description:
The replacement of incandescent screw-in lamps to standard spiral compact fluorescent lamps in Residential Single Family and Multi-family homes.

Lamps must comply with:

- Energy Star
- UL

Baseline Efficiencies:
Baseline usage is a 60W A-Shaped incandescent lamp with the energy consumption as follows:

Building Types	Demand Baseline(kW)	Energy Baseline (kWh)
Single Family	0.060	109.0
Multi Family	0.060	109.0

High Efficiency:
The high efficiency case is a 15W Spiral CFL with the energy consumption as follows:

Building Types	Demand High Efficiency (kW)	Energy High Efficiency (kWh)
Single Family	0.015	27.3
Multi Family	0.015	27.3

Energy Savings:
CFL Gross Savings before operational adjustments:

Building Types	Demand Savings (kW)	Energy Savings (kWh)
Single Family	0.040	81.8
Multi Family	0.040	81.8

CFL Net Savings after operational adjustments:

Operational Factor	Adjustment Factor
Persistence Factor (pf)	0.800
Demand Coincidence Factor (cf)	0.12

Building Types	Demand Savings (kW)	Energy Savings (kWh)
Single Family	0.005	32.6
Multi Family	0.005	32.6

Savings Algorithms

CFL - Single and Multi Family Residential Home

60W Incandescent Lamp Demand		0.060	kW		
		2.30	Hours per Day		
	x	365	Days	839.5	Hours per Year
60W Incandescent Lamp Energy Usage		50.4	kWh per Year		
15W Compact Fluorescent Lamp Demand		0.015	kW		
		2.30	Hours per Day		
	x	365	Days	839.5	Hours per Year
15W Compact Fluorescent Lamp Energy Usage		12.6	kWh per Year		
60W Incandescent Lamp Energy Usage		50.4	kWh per Year		
15W Compact Fluorescent Lamp Energy Usage	-	12.6	kWh per Year		
CFL Savings Before Adjustments		37.8	kWh per Year		
		37.8	kWh per Year		
Persistance Factor	x	0.800	pf	20.0%	Lamps not installed or replaced back
		30.2	kWh per Year		
Adjustment for Mix of CFL sizes found in CA Study		30.2	kWh per Year		
	x	1.08	factor		
		32.6	kWh per Year		

CFL Energy Savings **32.6 kWh / Year Savings**

60W Incandescent Lamp Demand		0.060	kW		
15W Compact Fluorescent Lamp Demand	-	0.015	kW		
CFL Demand Reduction Before Adjustments		0.045	kW		
CFL Demand Reduction Before Adjustments		0.045	kW		
Coincidence Factor		0.120	cf	12.0%	Lamps on between 5 and 9 p.m.
Persistance Factor	x	0.800	pf	20.0%	Lamps not installed or replaced back
		0.004	kW		
Adjustment for Mix of CFL sizes found in CA Study		0.004	kW		
	x	1.080	factor		
		0.005	kWh per Year		

CFL Demand Savings **0.005 kW Savings**

Hawaii Energy Hero Audits

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 21, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents:

TRM Review Actions:

Major Changes:
Increased focus and penetration of direct install and educational outreach

Measure Description:
- Work through state and local agencies serving the needs of low income families to identify qualified customers who will receive energy efficiency goods and services at no cost ("direct install")
- Continue to work with community action organizations to develop and deliver program services for low-income customers to include direct install and delivery of appropriate saving technologies

Baseline Efficiencies:
High Efficiency:
Energy Savings:
Savings Algorithms

Operating Hours
Loadshape
TBD

Freeridership/Spillover Factors
TBD
Demand Coincidence Factor

Persistence
Lifetime

Measure Costs and Incentive Levels

Description	Unit Incentive	Incremental Cost
Energy Hero Audits	$ 90.00	$ 400.00

Component Costs and Lifetimes Used in Computing O&M Savings
TBD

Reference Tables
None

Smart Strips

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: March 2, 2011
Effective date: January 1, 2011
End date: TBD

Referenced Documents:
RM Review Actions:
Major Changes:
New

Measure Description: Switches off plug load using current sensors and switching devices which turn off plug load when electrical current drops below threshold low levels. Smart Strips can be used on electrical home appliances or in the workplace.

Market

Residential, low Income.

Baseline Efficiency

The baseline efficiency case is no power strip and leaving peripherals on or using a power surge protector.

High Efficiency

The high efficiency case is an Akamai Power Strip

Energy Savings:

Measure	Energy Savings (kWh/year)	Demand Savings (kW)
Akamai Power Strip	67	0.0076

Hours

The savings are based on 8,760 hours per year.

Measure Life
5 years

Savings Algorithms

Akamai Power Strips				
Savings per Unit	49 kWh		87.5 kWh	
Plugs per Unit	5 plugs		7 plugs	
Savings per Plug	9.8 kWh/plug		12.5 kWh/plug	
Average Savings per Plug			11.15 kWh	
		x	6 plugs/unit	
Akamai Power Strip Energy Savings			67 kWh per Unit first year	
Hours of Operation			8760 hours/year	
Demand Savings			0.0076 kW	
First Year Savings			67 kWh first year	
Measure Life		x	5 year measure life	
Lifetime Savings			334.5 kWh lifetime	
Total Resource Cost			$ 30.96	
Total Resource Benefit		÷	$ 46.15	
Total Resource Cost Ratio			1.5 TRB Ratio	
Potential Akamai Power Strip Incentive			$ 7.00	
First Year Savings		÷	66 kWh first year	
			$ 0.11 per kWh first year	
Standard Power Strip Cost			$ 14.49	
Akamai Power Strip Cost		-	$ 30.96	
Incremental Akamai Power Strip Cost			$ 16.47	
Incremental Akamai Power Strip Cost			$ 16.47	
Potential Akamai Power Strip Incentive		÷	$ 7.00	
Percentage of Incremental Cost			43%	
Akamai Power Strip Cost			$ 30.96	
Potential Akamai Power Strip Incentive		÷	$ 7.00	
Percentage of Customer Measure Cost			23%	

Persistence

Lifetime
5 years

Measure Costs and Incentive Levels

Description	Unit Incentive	Incremental Cost
Akamai Power Strip	$ 7.00	$ 16.47

Component Costs and Lifetimes Used in Computing O&M Savings
TBD

10.0 (BEEM) Business Energy Efficiency Measures

High Efficiency Lighting

Compact Fluorescent Lighting (CFL)

Measure ID: See Table 7.3
Measure Code: L01, L02, L03, L04, L05, L06

Version Date & Revision History
Draft date: February 24, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: Econorthwest TRM Review – 6/23/10
The California Energy Commission California Commercial End Use Summary
http://www.energy.ca.gov/ceus/
DEER-The Database for Energy Efficient Resources

TRM Review Actions:

- 6/23/10 Rec. 15 – For PY 2010, revise lighting hours of operation and peak coincidence factors, conduct additional research to evaluate the assumed hours of operation and coincidence factor for Hawaii customer base. - Adopted
- 6/23/10 Rec. # 16 – Consider developing commercial CFL measure categories by lamp size - Adopted.

Major Changes:

- Wholesale replacement of prior TRM using DEER operational data and CEUS Commercial CFL Data

Description: A compact fluorescent lamp is a type of fluorescent lamp. Many CFL's are designed to replace an incandescent lamp and can fit in the existing light fixtures formerly used for incandescent lamps. CFLs typically replace 100 watts or less of incandescent.

CFL retrofit savings are determined by the delta wattage between the incandescent and CFL lamp, annual hours of operation, and the percent of peak period the lamps are on. The average delta wattage is typically a readily available value. The annual hours, persistence factor and peak percent are utilized based on DEER data.

Although the breakdown of lamp sizes installed is reasonable, the savings for this measure could be broken up based on lamp size. This would allow greater flexibility in matching claimed savings to actual projects completed. Savings for each wattage category are based on the savings for typical CFL lighting replacement projects from DEER, with the DEER wattage categories are shown below:

	CFL Wattage Reduction		
	< 16W	16-26W	> 26W
Average Savings (W)	32	60	76

Energy Savings: Using the DEER operational hours the energy savings are:

	CFL Energy Reduction		
Building Type	**< 16W**	**16-26W**	**> 26W**
All Commercial	131.5	246.5	312.3
Misc. Commercial	131.5	246.5	312.3
Cold Storage	126.5	237.1	300.4
Education	80.7	151.2	191.5
Grocery	177.0	332.0	420.5
Health	196.8	369.0	467.4
Hotel/Motel	150.2	281.6	356.7
Misc. Industrial	130.4	244.5	309.7
Office	85.4	160.1	202.7
Restaurant	160.5	300.8	381.1
Retail	128.0	240.0	304.0
Warehouse	126.5	237.1	300.4

Demand Savings: Using the CEUS coincidence factors the demand savings are:

	CFL Demand Reduction		
Building Type	**< 16W**	**16-26W**	**> 26W**
All Commercial	0.015	0.029	0.036
Misc. Commercial	0.009	0.017	0.022
Cold Storage	0.015	0.029	0.036
Education	0.006	0.011	0.014
Grocery	0.026	0.048	0.061
Health	0.020	0.037	0.047
Hotel/Motel	0.018	0.034	0.043
Misc. Industrial	0.015	0.029	0.036
Office	0.015	0.029	0.036
Restaurant	0.023	0.043	0.054
Retail	0.018	0.034	0.043
Warehouse	0.014	0.026	0.032

CFL Operational Hours and Peak Coincidence Factors:

Commercial Lighting Factors

Building Type	Hours of Operation[1]	Peak Coincidence Factor[2]
All Commercial	4,325	0.50
Misc. Commercial	4,325	0.30
Cold Storage	4,160	0.50
Education	2,653	0.20
Grocery	5,824	0.85
Health	6,474	0.65
Hotel/Motel	4,941	0.60
Misc. Industrial	4,290	0.50
Office	2,808	0.50
Restaurant	5,278	0.75
Retail	4,210	0.60
Warehouse	4,160	0.45

[1] The Database for Energy Efficient Resources (DEER)

[2]California Commercial End Use Summary (CEUS)

Saving Algorithm:

CFL - Commercial Use (16-26W All Commercial Example Calculation)					
Incandescent Lamp Demand		0.083	kW		
		11.85	Hours per Day		
	x	365	Days	4,325.0	Hours per Year
Incandescent Lamp Energy Usage		359.0	kWh per Year		
Compact Fluorescent Lamp Demand		0.023	kW		
		11.85	Hours per Day		
	x	365	Days	4,325.0	Hours per Year
Compact Fluorescent Lamp Energy Usage		99.5	kWh per Year		
Incandescent Lamp Energy Usage		359.0	kWh per Year		
Compact Fluorescent Lamp Energy Usage	-	99.5	kWh per Year		
CFL Savings Before Adjustments		259.5	kWh per Year		
		259.5	kWh per Year		
Persistance Factor	x	0.950	pf	5.0%	Lamps not installed or replaced back
		246.5	kWh per Year		
CFL Energy Savings		**246.5**	**kWh / Year Savings**		
Incandescent Lamp Demand		0.083	kW		
Compact Fluorescent Lamp Demand	-	0.023	kW		
CFL Demand Reduction Before Adjustments		0.060	kW		
CFL Demand Reduction Before Adjustments		0.060	kW		
Coincidence Factor		0.500	cf	50.0%	Lamps on between 5 and 9 p.m.
Persistance Factor	x	0.950	pf	5.0%	Lamps not installed or replaced back
		0.029	kW		
CFL Demand Savings		**0.029**	**kW Savings**		

Measure
2.8 years (DEER)

Unit Incentive/Incremental Cost

Description	Unit Incentive	Incremental Cost
CFL	$ 1.00	$ 2.50

T12 to T8 with Electronic Ballast

Measure ID: See Table 7.3
Measure Code: L016, L017, L018, L019

Version Date & Revision History
Draft date: February 24, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: Energy and Peak Demand Impact Evaluation Report of the 2005-2007 Demand Management Programs – KEMA (KEMA 2005-07).
Econorthwest TRM Review – 6/23/10
DEER-The Database for Energy Efficient Resources
The California Energy Commission California Commercial End Use Summary
http://www.energy.ca.gov/ceus/

TRM Review Actions:

- 6/23/10 Rec. #18 – Break down T8 savings by lamp length - Adopted

Major Changes:

- Wholesale replacement of prior TRM using DEER operational data and CEUS Commercial Data

Description: This measure involves the replacement of an existing T12 lamp with a new high efficiency T8 lamp, and savings are calculated assuming standard T12 lamps and magnetic ballasts. The average watt savings per lamp for replacing 2', 3', 4', and 8' lamps is calculated by weighting the average toward those replacements that most likely to occur; largely 4' 2 lamp and 4' 4 lamp fixtures. Based on the assumed fixture distribution, the average savings per lamp is 18.6W.

Base Efficiency

The base case efficiency is either an existing T12 lamp with magnetic ballast.

High Efficiency

The high efficiency case is a T8 lamp with electronic ballast.

Demand Savings: Using the CEUS coincidence factors the demand savings are:

	Demand Savings (kW)			
Building Type	**2' Lamp**	**3' Lamp**	**4' Lamp**	**8' Lamp**
All Commercial	0.0040	0.0070	0.0100	0.0200
Misc. Commercial	0.0020	0.0040	0.0060	0.0120
Cold Storage	0.0040	0.0070	0.0100	0.0200
Education	0.0020	0.0030	0.0040	0.0080
Grocery	0.0070	0.0110	0.0160	0.0340
Health	0.0050	0.0080	0.0130	0.0260
Hotel/Motel	0.0050	0.0080	0.0120	0.0240
Misc. Industrial	0.0040	0.0070	0.0100	0.0200
Office	0.0040	0.0070	0.0100	0.0200
Restaurant	0.0060	0.0100	0.0140	0.0300
Retail	0.0050	0.0080	0.0120	0.0240
Warehouse	0.0040	0.0060	0.0090	0.0180

Energy Savings: Using the DEER operational hours the energy savings are:

	Energy Savings (kWh/year)			
Building Type	**2' Lamp**	**3' Lamp**	**4' Lamp**	**8' Lamp**
All Commercial	35.9	56.4	83.2	170.8
Misc. Commercial	35.9	56.4	83.2	170.8
Cold Storage	34.5	54.3	80.0	164.3
Education	22.0	34.6	51.0	104.8
Grocery	48.3	76.0	112.0	230
Health	53.7	84.5	124.5	255.7
Hotel/Motel	41.0	64.5	95.0	195.2
Misc. Industrial	35.6	56.0	82.5	169.5
Office	23.3	36.6	54.0	110.9
Restaurant	43.8	68.9	101.5	208.5
Retail	34.9	54.9	81.0	166.3
Warehouse	34.5	54.3	80.0	164.3

Incentive

Equipment Description	All Commercial Demand (kW) Savings	All Commercial Energy Savings (kWh)	Current Incentive
2'T12 - 2'T8	0.004	35.9	$4.80
3'T12 - 3'T8	0.007	56.4	$5.20
4'T12 - 4'T8	0.01	83.2	$5.60
8'T12 - 8'T8	0.02	170.8	$7.20

T8 to T8 Low Wattage

Measure ID: See Table 7.3
Measure Code: L020, L021

Version Date & Revision History
Draft date: February 24, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: Energy and Peak Demand Impact Evaluation Report of the 2005-2007 Demand Management Programs – (KEMA 2005-07).
Econorthwest TRM Review – 6/23/10
DEER-The Database for Energy Efficient Resources
The California Energy Commission California Commercial End Use Summary
http://www.energy.ca.gov/ceus/

TRM Review Actions:
- 6/23/10 Rec. #no number– Adjust with DEER/CEUS usage characteristics - Adopted

Major Changes:
- Adjustment of hours and coincidence factors of prior TRM using DEER operational data and CEUS Commercial Data

Description:
This measure involves the replacement of 4' standard T8 with low wattage T8 fixtures and electronic ballasts.

Base Efficiency

The baseline T8 fixtures are assumed to be standard T8 (32W) lamps with standard magnetic ballasts.

High Efficiency

The high efficiency case is super T8 low wattage (25W/28W) lamps with high performance electronic ballasts.

Energy and Demand Savings:
The Base Watts and New Watts values are taken from Appendix B of the KEMA Report Table B-2. Appendix G of the KEMA report gives the same value for all Building Types. The following table shows the savings for low wattage T8 lamps and ballast compared to standard T8 lamps.

Energy and Demand Savings and Incentive Levels: Using the DEER operational hours (Energy) and the CEUS coincidence factors (Demand) the savings are the following:

T8 to low wattage T8 with HEEB		
Building Type	Demand (kW) Savings	Energy (kWh) Savings
All Commercial	0.009	78.1
Misc. Commercial	0.005	78.1
Cold Storage	0.009	75.1
Education	0.004	47.9
Grocery	0.015	105.1
Health	0.012	116.9
Hotel/Motel	0.011	89.2
Misc. Industrial	0.009	77.4
Office	0.009	50.7
Restaurant	0.014	95.3
Retail	0.011	76.0
Warehouse	0.008	75.1

Commercial Lighting Factors

Building Type	Hours of	Peak
All Commercial	4,325	0.50
Misc. Commercial	4,325	0.30
Cold Storage	4,160	0.50
Education	2,653	0.20
Grocery	5,824	0.85
Health	6,474	0.65
Hotel/Motel	4,941	0.60
Misc. Industrial	4,290	0.50
Office	2,808	0.50
Restaurant	5,278	0.75
Retail	4,210	0.60
Warehouse	4,160	0.45

[1] The Database for Energy Efficient Resources (DEER)

[2] California Commercial End Use Summary (CEUS)

Incentive

Equipment Description	All Commercial Demand (kW) Savings	All Commercial Energy Savings (kWh)	Current Incentive	¢ /kWh
4'T12 - LW 4'T8	0.01	78.1	$8.40	$0.11
4'T8 - LW 4'T8	0.006	78.1	$5.60	$0.07

Delamping

Measure ID: See Table 7.3
Measure Code: L023, L024, L025

Version Date & Revision History
Draft date: February 24, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: Energy and Peak Demand Impact Evaluation Report of the 2005-2007 Demand Management Programs – KEMA (KEMA 2005-07).
Econorthwest TRM Review – 6/23/10
DEER-The Database for Energy Efficient Resources
The California Energy Commission California Commercial End Use Summary
http://www.energy.ca.gov/ceus/

TRM Review Actions:
- 6/23/10 Rec. #20 – Break down the savings by lamp size. - Adopted

Major Changes:
- Adjustment of hours and coincidence factors of prior TRM using DEER operational data and CEUS Commercial Data

Description: The ballasts are re-wired for de-lamping.

Base Efficiency

The base case is no delamping

High Efficiency

The savings for this measure are determined by calculating the average watt reduction by removing either a 32 W T8, or a standard 40 W or reduced wattage 34 W T12 lamp from a standard ballast fixture, magnetic energy saving ballast fixture, or electric ballast fixture. This measure covers 2', 4' and 8' fixtures.

Incremental Cost
$4 per lamp

Energy and Demand Savings

	Delamping Avg. Wattage Reduction			
	2' Lamp	3' Lamp	4' Lamp	8' Lamp
Average	18.5	27.5	34.5	77.0

	Delamping Energy Reduction			
Building Type	2' Lamp	3' Lamp	4' Lamp	8' Lamp
All Commercial	80.0	118.9	149.2	333.0
Misc. Commercial	80.0	118.9	149.2	333.0
Cold Storage	77.0	114.4	143.5	320.3
Education	49.1	73.0	91.5	204.3
Grocery	107.7	160.2	200.9	448.4
Health	119.8	178.0	223.4	498.5
Hotel/Motel	91.4	135.9	170.5	380.5
Misc. Industrial	79.4	118.0	148.0	330.3
Office	51.9	77.2	96.9	216.2
Restaurant	97.6	145.1	182.1	406.4
Retail	77.9	115.8	145.2	324.2
Warehouse	77.0	114.4	143.5	320.3

	Delamping Demand Reduction			
Building Type	2' Lamp	3' Lamp	4' Lamp	8' Lamp
All Commercial	0.009	0.014	0.017	0.039
Misc. Commercial	0.006	0.008	0.010	0.023
Cold Storage	0.009	0.014	0.017	0.039
Education	0.004	0.006	0.007	0.015
Grocery	0.016	0.023	0.029	0.065
Health	0.012	0.018	0.022	0.050
Hotel/Motel	0.011	0.017	0.021	0.046
Misc. Industrial	0.009	0.014	0.017	0.039
Office	0.009	0.014	0.017	0.039
Restaurant	0.014	0.021	0.026	0.058
Retail	0.011	0.017	0.021	0.046
Warehouse	0.008	0.012	0.016	0.035

Commercial Lighting Factors

Building Type	Hours of Operation[1]	Peak Coincidence Factor[2]
All Commercial	4,325	0.50
Misc. Commercial	4,325	0.30
Cold Storage	4,160	0.50
Education	2,653	0.20
Grocery	5,824	0.85
Health	6,474	0.65
Hotel/Motel	4,941	0.60
Misc. Industrial	4,290	0.50
Office	2,808	0.50
Restaurant	5,278	0.75
Retail	4,210	0.60
Warehouse	4,160	0.45

[1] The Database for Energy Efficient Resources (DEER)

[2] California Commercial End Use Summary (CEUS)

Equipment Description	All Commercial Demand (kW) Savings	All Commercial Energy Savings (kWh)	Current Incentive
Delamping 2'	0.009	80	$2.50
Delamping 3'	0.014	118.9	N/A
Delamping 4'	0.017	149.2	$5.00
Delamping 8'	0.039	333	$7.50

Delamping with Reflectors

Measure ID: See Table 7.3
Measure Code: L023, L024, L025

Version Date & Revision History
Draft date: February 24, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents:
New Buildings Institute, Advanced Lighting Guidelines, 2003
Energy and Peak Demand Impact Evaluation Report of the 2005-2007 Demand Management Programs – KEMA (KEMA 2005-07).
Econorthwest TRM Review – 6/23/10
DEER-The Database for Energy Efficient Resources
The California Energy Commission California Commercial End Use Summary
http://www.energy.ca.gov/ceus/

TRM Review Actions:
- 6/23/10 Rec. #20 – Break down the savings by lamp size**.** - Adopted

Major Changes:
- Adjustment of hours and coincidence factors of prior TRM using DEER operational data and CEUS Commercial Data

Description: Putting reflectors on the ballasts allows for more light, with less lamps. The ballasts are re-wired for de-lamping.

Base Case

The base efficiency case is no delamping with reflectors.

High Efficiency

The savings for this measure are determined by calculating the average watt reduction by removing either a 32 W T8, or a standard 40 W or reduced wattage 34 W T12 lamp from a standard ballast fixture, magnetic energy saving ballast fixture, or electric ballast fixture.

Energy and Demand Savings:

The wattage per lamp varies greatly depending on the size of the lamp.

	Demand Savings (kW)			
Building Type	2' Lamp	3' Lamp	4' Lamp	8' Lamp
All Commercial	0.0090	0.0140	0.0170	0.0390
Misc. Commercial	0.0060	0.0080	0.0100	0.0230
Cold Storage	0.0090	0.0140	0.0170	0.0390
Education	0.0040	0.0060	0.0070	0.0150
Grocery	0.0160	0.0230	0.0290	0.0650
Health	0.0120	0.0180	0.0220	0.0500
Hotel/Motel	0.0110	0.0170	0.0210	0.0460
Misc. Industrial	0.0090	0.0140	0.0170	0.0390
Office	0.0090	0.0140	0.0170	0.0390
Restaurant	0.0140	0.0210	0.0260	0.0580
Retail	0.0110	0.0170	0.0210	0.0460
Warehouse	0.0080	0.0120	0.0160	0.0350

	Energy Savings (kWh/year)			
Building Type	2' Lamp	3' Lamp	4' Lamp	8' Lamp
All Commercial	80.0	118.9	149.2	333
Misc. Commercial	80.0	118.9	149.2	333
Cold Storage	77.0	114.4	143.5	320.3
Education	49.1	73.0	91.5	204.3
Grocery	107.7	160.2	200.9	448.4
Health	119.8	178.0	223.4	498.5
Hotel/Motel	91.4	135.9	170.5	380.5
Misc. Industrial	79.4	118.0	148.0	330.3
Office	51.9	77.2	96.9	216.2
Restaurant	97.6	145.1	182.1	406.4
Retail	77.9	115.8	145.2	324.2
Warehouse	77.0	114.4	143.5	320.3

Incentives

Equipment Description	All Commercial Demand (kW) Savings	All Commercial Energy Savings (kWh)	Current Incentive
Delamping w/ Refl. 2'	0.009	80	$5.00
Delamping w/ Refl. 3'	0.014	118.9	N/A
Delamping w/ Refl. 4'	0.017	149.2	$10.00
Delamping w/ Refl. 8'	0.039	333	$15.00

LED Product Customized Process

Measure ID: See Table 7.3 (TBD)
Measure Code: LED - Custom

Version Date & Revision History
Draft date: February 24, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: Illuminating Engineers Society (IES) LM79 /LM80
ENERGY STAR LED Website
http://www.energystar.gov/index.cfm?c=ssl.pr_why_es_com

TRM Review Actions:

- n/a

Major Changes:

- n/a

Description: Light Emitting Diodes (LED) are a lighting technology that utilizes solid-state technology to produce light, opposed to fluorescent or incandescent lighting sources. In general, LED technology will provide energy levels 15% of a comparable incandescent lamp (15W to a 100W equivalent).
LED lighting projects (Fixtures and Lamps) are handled under a customized incentive basis.

Equipment Qualifications: The program has developed minimum qualifications as a measure to protect the consumers who are purchasing LED products and insure energy savings potential and persistence.

- *Power and Photometric Measurements:* IES LM79 testing performed and results submitted and understood by the customer. Provides color temperature and power input vs. light output data.
- *Lumen Maintenance:* IES LM80 testing performed and results submitted and understood by the customer. Provides % lumen maintenance over operating hours. (If not available at time of project than product requires a 5 year warranty)
- *Safety:* UL listed products. UL number provided with application.
- *Warranty Protection:* Minimum 3 year warranty with clear description of how warranty is executed.

or

- Energy Star Listing (http://www.energystar.gov/index.cfm?fuseaction=iledl.display_products_html) and for all projects
- *Program Persistence Requirement:* Acknowledge that the lamps must be in place for a period of 5 years. If replaced with higher usage technologies the rebate will be required to be refunded.
- *Purchaser Due Diligence:* Customers are informed to utilize third-party education such as the US DOE Calipers reports (http://www1.eere.energy.gov/buildings/ssl/caliper.html)

Payback Qualifications: For LED products the payback requirements are allowed to be six months or greater. This is 6 months lower than the standard customized payback requirement of 1 year or greater. The TRB/TRC must be greater than 1.

Energy and Demand Savings: A simple worksheet is utilized to compare pre and post lighting configurations. The existing lamp counts, wattage (with ballasts as appropriate) and operating hours are used to determine the existing "base case" energy usage. The "enhanced case" is then determined using the same information for the proposed LED technology.

A review is performed to insure LED wattages are in the expected range for the equivalent light output of the existing technology.

Project:	Customer Name
Application Number:	2CBEEM111111
Date:	12/16/2010
Techology Type:	F32 T8 to LED
Input by:	Kimo Kilowatt

Existing / Base

Location	Fixture Type	Fixture Qty	Lamps Per Fixture	Lamp Wattage	Total Wattage	M - F Hours of Operation	Sat. Hours of Operation	Sun. Hours of Operation	Annual Hours of Operation	Peak Demand Hours	Peak Demand kW	Total Demand Max kW	Annual Energy kWh/Year
Campus Upper Building	T8 F32	1	190	29	5,510	12	4	-	3,337	2.0	2.8	5.5	18,388
					-				-		-	-	-
					-				-		-	-	-
					-				-		-	-	-
								Total	834	2.0	2.8	5.5	18,388

Notes:

Retrofit / Enhanced

Location	Fixture Type	Fixture Qty	Lamps Per Fixture	Lamp Wattage	Total Wattage	M - F Hours of Operation	Sat. Hours of Operation	Sun. Hours of Operation	Annual Hours of Operation	Peak Demand Hours	Peak Demand kW	Total Demand Max kW	Annual Energy kWh/Year
Campus Upper Building	LED	1	190	14	2,660	12	4	0	3,337	2	1	2.7	8,877
									-				
								Total	1,669	2.0	1.3	2.7	8,877
Notes:										Reduction Percentage		-52%	-52%

Project Summary

Average Energy Savings Per Year	9510.86 kWh/Year
Demand Savings	1.43 kW

Cost Breakdown

Material Cost	$7,990

LED Exit Signs

Measure ID: See Table 7.3
Measure Code: L07

Version Date & Revision History
Draft date: January, 2010
Effective date:
End date: TBD

Referenced Documents: Energy and Peak Demand Impact Evaluation Report of the 2005-2007 Demand Management Programs – KEMA (KEMA 2005-07).
http://www.energystar.gov/ia/business/small_business/led_exitsigns_techsheet.pdf
Econorthwest TRM Review – 6/23/10

TRM Review Actions:
- 6/23/10 No Changes

Major Changes:
- Now change

Measure Description:
Replacement of Incandescent Exit Signs with LED Exit Signs. Savings are equal across all building use types.

Baseline Efficiencies:
Demand Baseline has been determined by technical specifications of an incandescent exit sign, which typically holds two 20 W bulbs (40 W). The Energy Baseline is based on 24/7 operation of the sign (8,760 hours).

Building Types	Demand Baseline(kW)	Energy Baseline (kWh)
All Types	0.040	351

High Efficiency:
The typical technical specification on an LED Exit Sign (through energystar.gov) claims "less than 5W" of Demand. The Energy High Efficiency figure is based on 24/7 operation (8,760 hours).

Building Types	Demand High Efficiency (kW)	Energy High Efficiency (kWh)
All Types	0.005	44

Final Savings:
The Impact Evaluation Report by KEMA states that LED exit signs are expected to have high realization ratios and that measured savings were typically 100% of claimed savings. These figures match the suggested savings by the KEMA report.

Building Types	Demand Savings (kW)	Energy Savings (kWh)
All Types	0.035	307

Saving Algorithm:

Exit Signs - Businesses			
Incandescent Exit Sign		0.040 kW	
		24.00 Hours per Day	
	x	365 Days	8,760 Hours per Year
Incandescent Exit Sign		350.4 kWh per Year	
LED Exit Sign		0.005 kW	
		24.00 Hours per Day	
	x	365 Days	8,760 Hours per Year
LED Exit Sign		43.8 kWh per Year	
Incandescent Exit Sign		350.4 kWh per Year	
LED Exit Sign	-	43.8 kWh per Year	
Savings Before Adjustments		306.6 kWh per Year	
		306.6 kWh per Year	
Persistance Factor	x	1.000 pf	0.0% Lamps not installed or replaced back
		307 kWh per Year	
CFL Energy Savings		**307 kWh / Year Savings**	
Incandescent Exit Sign		0.040 kW	
LED Exit Sign	-	0.005 kW	
Demand Reduction Before Adjustments		0.035 kW	
Demand Reduction Before Adjustments		0.035 kW	
Coincidence Factor		1.000 cf	100.0% Lamps on between 5 and 9 p.m.
Persistance Factor	x	1.000 pf	0.0% Lamps not installed or replaced back
		0.035 kW	
CFL Demand Savings		**0.035 kW Savings**	

Incentive
$25

T5/T5HO Fixture with Electronic Ballasts

Measure ID: See Table 7.3
Measure Code:

Version Date & Revision History
Draft date: May 28, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents:
New Buildings Institute, *Advanced Lighting Guidelines*, 2003
State of Minnesota Deemed Savings
Technical Reference User Manual, No. 2004-31. Efficiency Vermont.
Consumers Energy Business Solutions. Workpapers High Bay Fluorescents.

TRM Review Actions:

Major Changes: The replacement fixtures will be changed to 4 lamp HO T5 fixtures for 400W HIDs and 10 lamp HO T5 fixtures for 1000W HIDs.

Referenced Documents:

Description: This measure involves the replacement of high intensity discharge (HID) fixtures with T5 or T5 High Output (HO) fluorescent fixtures.

Base Case Efficiency
The base case efficiency is a 400W metal halide fixture would be replaced with a 4-lamp T5 or T5HO fixture and a 1000W metal halide fixture would be replaced with a 6-lamp T5 or T5HO fixture.

High Efficiency

The high efficiency case involves the replacement of 400W or 1000W HID fixtures with energy efficient T5 or T5HO fluorescent fixtures.

Energy and Demand Savings

Installed T5HO Fixture	Replaced HID Fixture	Average Demand Reduction Per Bulb (W)
2', 3', 4'	MH	299
	MV	240
	HPS	276
	PSMH	272

Installed T5 Fixture	Replaced HID Fixture	Demand Reduction Per Bulb (W)
(2) F54T5/HO	250W MH	89
(2) F54T5/HO	250W MV	84
(2) F54T5/HO	250 W HPS	89
(2) F54T5/HO	250 W PSMH	77.5
(3) F54T5/HO	250W MH	38.67
(3) F54T5/HO	250W MV	35.33
(3) F54T5/HO	250W HPS	38.67
(3) F54T5/HO	250W PSMH	31
(4) F54T5/HO	400W MH	56
(4) F54T5/HO	400W MV	55
(4) F54T5/HO	310 HPS	32.75
(4) F54T5/HO	400W PSMH	55.75
(4) F54T5/HO	320W PSMH	27
(4) F54T5/HO	350W PSMH	35.25
(6) F54T5/HO	400W MH	16.67
(6) F54T5/HO	400W MV	16
(6) F54T5/HO	310W HPS	1.17
(6) F54T5/HO	400W HPS	16.5
(6) F54T5/HO	350W PSMH	2.83
(8) F54T5/HO	750W HPS	46.5
(8) F54T5/HO	750W PSMH	43
(10) F54T5/HO	1000W MH	49.5
(10) F54T5/HO	1000W MV	49.5
(10) F54T5/HO	1000W HPS	51.5
(10) F54T5/HO	1000W MH	49.5
Average		43.5

BASE CASE: METAL HALIDE (MH)

Average Wattage Reduction per T5 installed (W)		299		
Building Type	Hours of Operation[1]	Peak Coincidence Factor[2]	Demand (kW) Savings	Energy (kWh/year) Savings
All Commercial	4,325	0.50	0.150	1293.2
Misc. Commercial	4,325	0.30	0.090	1293.2
Cold Storage	4,160	0.50	0.150	1243.8
Education	2,653	0.20	0.060	793.2
Grocery	5,824	0.85	0.254	1741.4
Health	6,474	0.65	0.194	1935.7
Hotel/Motel	4,941	0.60	0.179	1477.4
Misc. Industrial	4,290	0.50	0.150	1282.7
Office	2,808	0.50	0.150	839.6
Restaurant	5,278	0.75	0.224	1578.1
Retail	4,210	0.60	0.179	0.0
Warehouse	4,160	0.45	0.135	1243.8

[1] The Database for Energy Efficient Resources (DEER)

[2] California Commercial End Use Summary (CEUS)

Measure Life
14 years

Incremental Cost
$192 (High Bay 4L T5HO Replacing 400W HID)

HID Pulse Start Metal Halide

Measure ID: See Table 7.3
Measure Code: L011, L012, L013

Version Date & Revision History
Draft date: February 24, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: Energy and Peak Demand Impact Evaluation Report of the 2005-2007 Demand Management Programs – KEMA (KEMA 2005-07).
Econorthwest TRM Review – 6/23/10
DEER-The Database for Energy Efficient Resources
The California Energy Commission California Commercial End Use Summary
http://www.energy.ca.gov/ceus/

TRM Review Actions:
- 6/23/10 Rec. #17 – Break down savings by wattage ranges pulse start metal halides- Adopted

Major Changes:
- Wholesale replacement of prior TRM using DEER operational data and CEUS Commercial Data

Referenced Documents:

Description: Traditional probe-start metal halide lamps do not use an igniter and require three electrical contacts to ignite the gas and remain lit. Recently developed pulse-start metal halide lamps use only two contacts and use an igniter located inside the ballast pod. Pulse-start lamps offer higher light output per unit of electric power. Multiple Wattages of Pulse-Start Metal Halides are installed. The most common have rated wattages between 100 and 250, with the majority of installations being 250 W.

Persistance and Coincidence factor
- 100% Persistence
- 100% Coincidence

Incremental Cost
$150 (320W PS Replacing 400W HID)

Base Case
Probe start metal halide

High Efficiency
Lower wattage pulse start metal halide

Energy Savings

The savings for pulse start metal halide fixtures are calculated based on a wattage savings for the replacement of a metal halide fixture with a smaller wattage pulse start metal halide fixture. Based on the wattages provided, it appears that it was assumed that a 175W metal halide fixture would be replaced with a 100W pulse start metal halide fixture, 250W metal halide fixture would be replaced with either a 150W or 175W pulse start metal halide fixture, and a 400W metal halide would be replaced with a 250W pulse start metal halide fixture. Based on the expected fixture wattages and breakdown of fixture installations, an average savings of 123W per fixture was assumed.

Measure	Metal Halide (W)	Pulse Start Metal Halide (W)
Equivalent Replacement	175	100
	250	150 or 175
	400	250

Savings

	Pulse Start Wattage Reduction		
	<=100W	101-200W	201-350W
Average	48	70	109

Energy Savings: Using the DEER operational hours the energy savings are:

	Pulse Start Energy Reduction		
Building Type	**<=100W**	**101-200W**	**201-350W**
All Commercial	209.0	302.0	471.4
Misc. Commercial	209.0	302.0	471.4
Cold Storage	201.1	290.4	453.4
Education	128.2	185.2	289.2
Grocery	281.5	406.6	634.8
Health	312.9	452.0	705.7
Hotel/Motel	238.8	345.0	538.6
Misc. Industrial	207.4	299.5	467.6
Office	135.7	196.0	306.1
Restaurant	255.1	368.5	575.3
Retail	203.5	293.9	458.9
Warehouse	201.1	290.4	453.4

Demand Savings: Using the CEUS coincidence factors the demand savings are:

	Pulse Start Demand Reduction		
Building Type	**<=100W**	**101-200W**	**201-350W**
All Commercial	0.024	0.035	0.055
Misc. Commercial	0.015	0.021	0.033
Cold Storage	0.024	0.035	0.055
Education	0.010	0.014	0.022
Grocery	0.041	0.059	0.093
Health	0.031	0.045	0.071
Hotel/Motel	0.029	0.042	0.065
Misc. Industrial	0.024	0.035	0.055
Office	0.024	0.035	0.055
Restaurant	0.036	0.052	0.082
Retail	0.029	0.042	0.065
Warehouse	0.022	0.031	0.049

Pulse Start Operational Hours and Peak Coincidence Factors:

Commercial Lighting Factors

Building Type	Hours of Operation[1]	Peak Coincidence Factor[2]
All Commercial	4,325	0.50
Misc. Commercial	4,325	0.30
Cold Storage	4,160	0.50
Education	2,653	0.20
Grocery	5,824	0.85
Health	6,474	0.65
Hotel/Motel	4,941	0.60
Misc. Industrial	4,290	0.50
Office	2,808	0.50
Restaurant	5,278	0.75
Retail	4,210	0.60
Warehouse	4,160	0.45

[1] The Database for Energy Efficient Resources (DEER)

[2]California Commercial End Use Summary (CEUS)

HID Metal Halide

Measure ID: See Table 7.3
Measure Code: L011, L012, L013

Version Date & Revision History
Draft date: February 24, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: Energy and Peak Demand Impact Evaluation Report of the 2005-2007 Demand Management Programs – KEMA (KEMA 2005-07).
Econorthwest TRM Review – 6/23/10

TRM Review Actions:

Major Changes:

Referenced Documents:

Description: Traditional probe-start metal halide lamps do not use an igniter and require three electrical contacts to ignite the gas and remain lit.

Energy Savings:

	Probe Start Energy Reduction		
Building Type	**<=100W**	**101-200W**	**201-350W**
All Commercial	625.0	625.0	625.0
Misc. Commercial	625.0	625.0	625.0
Cold Storage	784.9	784.9	784.9
Education	543.1	543.1	543.1
Grocery	1,363.4	1,363.4	1,363.4
Health	729.1	729.1	729.1
Hotel/Motel	1,266.7	1,266.7	1,266.7
Office	838.9	838.9	838.9
Restaurant	1,147.6	1,147.6	1,147.6
Retail	939.3	939.3	939.3
Warehouse	779.3	779.3	779.3

Demand Savings:

Building Type	Probe Start Demand Reduction		
	<=100W	101-200W	201-350W
All Commercial	0.030	0.030	0.030
Misc. Commercial	0.030	0.030	0.030
Cold Storage	0.020	0.020	0.020
Education	0.030	0.030	0.030
Grocery	0.040	0.040	0.040
Health	0.020	0.020	0.020
Hotel/Motel	0.050	0.050	0.050
Office	0.040	0.040	0.040
Restaurant	0.040	0.040	0.040
Retail	0.040	0.040	0.040
Warehouse	0.030	0.030	0.030

Induction

Measure ID: See Table 7.3
Measure Code: L011, L012, L013

Version Date & Revision History
Draft date: February 24, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: Energy and Peak Demand Impact Evaluation Report of the 2005-2007 Demand Management Programs – KEMA (KEMA 2005-07).
Econorthwest TRM Review – 6/23/10
DEER-The Database for Energy Efficient Resources
The California Energy Commission California Commercial End Use Summary
http://www.energy.ca.gov/ceus/

TRM Review Actions:

Major Changes:
- Wholesale replacement of prior TRM using DEER operational data and CEUS Commercial Data

Referenced Documents:

Description:

Base Case
- (For Induction Lighting < 100W) - 45 W Induction lamp compared to 75W Metal Halide lamp
- (For Induction Lighting > 100W) – 150W Induction lamp compared to 250W Metal Halide lamp

High Efficiency Case

The high efficiency case is utilizing induction Lighting

Energy and Demand Savings

Commercial Lighting Factors			< 100W		> 100W	
Building Type	Hours of Operation[1]	Peak Coincidence Factor[2]	Energy Savings (kWh/year)	Demand Savings (kW)	Energy Savings (kWh/year)	Demand Savings (kW)
All Commercial	4,325	0.50	171.3	0.020	571.1	0.066
Misc. Commercial	4,325	0.30	171.3	0.012	571.1	0.040
Cold Storage	4,160	0.50	164.8	0.020	549.3	0.066
Education	2,653	0.20	105.1	0.008	350.3	0.026
Grocery	5,824	0.85	230.7	0.034	769.1	0.112
Health	6,474	0.65	256.5	0.026	854.9	0.086
Hotel/Motel	4,941	0.60	195.7	0.024	652.5	0.079
Misc. Industrial	4,290	0.50	169.9	0.020	566.5	0.066
Office	2,808	0.50	111.2	0.020	370.8	0.066
Restaurant	5,278	0.75	209.1	0.030	697.0	0.099
Retail	4,210	0.60	166.8	0.024	555.9	0.079
Warehouse	4,160	0.45	164.8	0.018	549.3	0.059

[1] The Database for Energy Efficient Resources (DEER)
[2] California Commercial End Use Summary (CEUS)

Savings Algorithm

Induction Lighting < 100 W			
Base Case (Metal Halide)		75	Watts
Ballast Factor		1.16	
Demand		86.70	Watts
Demand		0.09	kW
Hours of Operation		4325	hours/year
Base Case Energy Usage		374.98	kWh/year
Base Case Demand		0.09	kW
High Efficiency Case (Induction)		45	Watts
Ballast Factor		1.00	
Demand		45.00	Watts
Demand		0.05	kW
Hours of Operation		4325	hours/year
High Efficiency Energy Usage		194.63	kWh/year
Energy Savings Before Adjustments		180.35	kWh/year
Persistance Factor	x	0.95	
Energy Savings		171.33	kWh/year
Induction Lighting < 100 W Energy Savings		**171.33**	**kWh/year**
Base Case Demand		0.09	kW
High Efficiency Demand	-	0.05	kW
Demand Reduction Before Adjustments		0.04	kW
Demand Reduction Before Adjustments		0.04	kW
Coincidence Factor		0.50	kW
Persistance Factor	x	0.95	kW
		0.020	kW
Induction Lighting < 100 W Demand Savings		**0.02**	**kW**

Savings Algorithm

Induction Lighting > 100 W			
Base Case (Metal Halide)		250	Watts
Ballast Factor		1.16	
Demand		289.00	Watts
Demand		0.29	kW
Hours of Operation		4325	hours/year
Base Case Energy Usage		1,249.93	kWh/year
Base Case Demand		0.29	kW
High Efficiency Case (Induction)		150	Watts
Ballast Factor		1.00	
Demand		150.00	Watts
Demand		0.15	kW
Hours of Operation		4325	hours/year
High Efficiency Energy Usage		648.75	kWh/year
Energy Savings Before Adjustments		601.18	kWh/year
Persistance Factor	x	0.95	
Energy Savings		571.12	kWh/year
Induction Lighting > 100 W Energy Savings		**571.12**	**kWh/year**
Base Case Demand		0.29	kW
High Efficiency Demand	-	0.15	kW
Demand Reduction Before Adjustments		0.14	kW
Demand Reduction Before Adjustments		0.14	kW
Coincidence Factor		0.50	kW
Persistance Factor	x	0.95	kW
		0.066	kW
Induction Lighting > 100 W Demand Savings		**0.07**	**kW**

Incentive

Existing:
Induction lighting < 100 W = $45
Induction lighting > 100 W = $60

New Construction:
Induction lighting < 100 W = $25
Induction lighting > 100 W = $35

Incremental Cost
Induction lighting < 100 W = $200
Induction lighting > 100 W = $800

Measure Life
2 year (DEER) – Is this correct or typo from DEER list?

Sensors

Measure ID: See Table 7.3
Measure Code: L011, L012, L013

Version Date & Revision History
Draft date: February 24, 2011
Effective date: July 1, 2010
End date: TBD

Reference
(1) BC Hydro report: Smart Strip electrical savings and usability, October 2008 (unit can only take one surge, then needs to be replaced)
(2) Plug Load Characterization Study for Southern California Edison. Prepared by Research Into Action (2010)
(3) Based on assumption that office equipment will be running during the peak period
(4) Assumes 2 weeks of vacation and 2 weeks of holidays for a total of 48 work weeks annually
(5) See Table 'Standby Power Consumption of Devices Using Smart Strip Plug Outlets'
(6) Standby loads sourced from Lawrence Berkeley National Laboratory http://standby.lbl.gov/summary-table.html. Hours of operation based on engineering estimations.

Measure Description
Plug load occupancy sensors are devices that control low wattage office equipment using an occupancy sensor. They typically use an infrared sensor to monitor movement, and use a smart strip to turn off connected devices, or put them in standby mode, when no one is present.

Definition of Efficient Equipment
In order for this characterization to apply, the installed equipment must be a 'smart' power strip with both control and peripheral outlets, and an occupancy sensor.

Definition of Baseline Equipment
The baseline assumes a mix of typical document station office equipment (printers, scanners, fax machines, etc.) each with uncontrolled standby load.

Deemed Savings for this Measure

Annual kWh Savings = 169 kWh/yr
Demand kW Savings = 0

Deemed O&M Cost Adjustments
n/a

Coincidence Factor
0

Energy Savings

ΔkWh = (WORKDAYS x ΔWsleep)/1000

Where:

WORKDAYS = Average number of workdays, or business days, in a year
= 240 (4)

ΔWsleep = The energy savings of devices plugged into the strip when in 'sleep' mode (Wh)
= 704 (5)

Coincident Peak Demand Savings

ΔkW = 0

Deemed O&M Cost Adjustment Calculation
n/a

Reference Tables
Standby Power Consumption for Devices Using Smart Strip Plug Outlets (6) (All values in Watts)

Computer Peripherals	Connected Load when 'On'	Connected Load in 'Sleep'	Hours in Sleep Mode	Daily Savings
Laser Printer	131	2	4	516
Multi-function device, laser (scanner, fax)	50	3	4	188
			Total	704

Lifetime of Efficient Equipment
The estimated useful life for a smart strip plug outlet is 8 years (1)

Measure Cost
The incremental cost for this measure is assumed to be $70 (2)

High Efficiency HVAC

Chiller

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 24, 2011
Effective date: March 1, 2011
End date: TBD

Referenced Documents: Econorthwest TRM Review – 6/23/10
IECC 2006

TRM Review Actions:

- 6/23/10 Rec. #23 – Utilize IECC 2006 Efficiencies as the Baseline Efficiency and Efficient Packaged Unit 15% better than IECC 2006 – Adopted
- 6/23/10 Rec. #24 - break down the savings by chiller type and size. Conduct additional research for future program years to calibrate claimed savings for Hawaii customer base.- Adopted

Major Changes:

- Chiller efficiency selected at 15% improvement over IECC 2006.

Description: The replacement of chillers with Energy Efficiency above the Hawaii Model Energy Code.

High Efficiency Chiller - 15% higher than IECC 2006

		IECC 2006 IPLV (kW/Ton)	Hawaii Energy Premium Efficiency (kW/Ton)
Reciprocating	All	0.70	0.60
Rotary Screw and Scroll	< 150 tons	0.68	0.58
	150-300 tons	0.63	0.54
	> 300 tons	0.57	0.48
Centrifugal	< 150 tons	0.67	0.57
	150-300 tons	0.60	0.51
	> 300 tons	0.55	0.47

Energy Savings:

High Efficiency Chiller - 15% higher than IECC 2006 - Energy Reduction (kWh/Ton)

Building Type	Recipricating	Rotary Screw or Scroll			Centrifugal		
	All	<150	150-300	>300	<150	150-300	>300
All Commercial	312.5	303.6	281.2	254.4	299.1	267.8	245.5
Misc. Commercial	312.5	303.6	281.2	254.4	299.1	267.8	245.5
Cold Storage	536.7	521.3	483.0	437.0	513.7	460.0	421.7
Education	307.9	299.1	277.1	250.7	294.7	263.9	241.9
Grocery	536.7	521.3	483.0	437.0	513.7	460.0	421.7
Health	435.7	423.3	392.1	354.8	417.0	373.5	342.3
Hotel/Motel	312.4	303.5	281.2	254.4	299.0	267.8	245.5
Misc. Industrial	435.7	423.3	392.1	354.8	417.0	373.5	342.3
Office	520.1	505.3	468.1	423.5	497.8	445.8	408.7
Restaurant	349.0	339.0	314.1	284.2	334.1	299.2	274.2
Retail	273.9	266.1	246.5	223.1	262.2	234.8	215.2
Warehouse	536.7	521.3	483.0	437.0	513.7	460.0	421.7

Demand Savings:

High Efficiency Chiller - 15% higher than IECC 2006 - Demand Reduction (kW/Ton)

Building Type	Recipricating	Rotary Screw or Scroll			Centrifugal		
	All	<150	150-300	>300	<150	150-300	>300
All Commercial	0.064	0.062	0.058	0.052	0.061	0.055	0.050
Misc. Commercial	0.064	0.062	0.058	0.052	0.061	0.055	0.050
Cold Storage	0.072	0.070	0.065	0.059	0.069	0.062	0.057
Education	0.084	0.082	0.076	0.068	0.080	0.072	0.066
Grocery	0.056	0.054	0.050	0.045	0.053	0.048	0.044
Health	0.071	0.069	0.064	0.058	0.068	0.061	0.056
Hotel/Motel	0.055	0.053	0.049	0.044	0.052	0.047	0.043
Misc. Industrial	0.064	0.062	0.058	0.052	0.061	0.055	0.050
Office	0.048	0.047	0.043	0.039	0.046	0.041	0.038
Restaurant	0.056	0.054	0.050	0.045	0.053	0.048	0.044
Retail	0.069	0.067	0.062	0.056	0.066	0.059	0.054
Warehouse	0.063	0.061	0.057	0.051	0.060	0.054	0.050

Measure Life
20 years (DEER)

VFD – Chilled Water

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 24, 2011
Effective date: March 1, 2011
End date: TBD

Referenced Documents: Energy and Peak Demand Impact Evaluation Report of the 2005-2007 Demand Management Programs – KEMA (KEMA 2005-07).
Econorthwest TRM Review – 6/23/10
IECC 2006

TRM Review Actions:
6/23/10 Rec. #25 - Breakdown the savings by building types. Conduct additional research for future program years to calibrate claimed savings for Hawaii customer base - Adopted

Major Changes:
- Energy savings separated into building type breakdown.

Description: The installation of variable frequency drives on chilled and/or condenser water pumps used in HVAC systems.

Qualification
- Require pre-notification before projects begin.
- The program reserves the right to perform on-site verifications, both pre- and post-installation.
- Existing equipment must not have a VFD. (i.e. – incentives are not available for replacement)
- For existing facilities, motor hp must be between 3 and 100.
- For new facilities, motor hp must be between 3 and 50.
- The VFDs must actively control and vary the pump speed.

Energy and Demand Savings

Energy Savings = 902.7 kWh per HP
Demand Savings = 0.245 kW per HP

HVAC Pump Motor VFD

DSMIS Values for All Commercial
kW = 0.245 per HP
kWh = 902.7 per HP

KEMA 2008 Values for All Commercial (HECO):
kW = none available
kWh = none available

Base Pump Motor Use:

Base HP =	10	HP	Example
Motor Efficiency =	92%		Estimated Typical
Average Load =	75%		Estimated Typical
HP to kW conversion =	0.746		
kW load = HP*0.746*% Load/eff =	6.1	kW	
Hours of operation =	6000	hours	Estimated
kWh Used Annually = kW load * Hours =	36,489		

Pump Motor Savings with VFD:

Energy Savings percentage =	24.74%		Needed to meet the kWh savings from DSMIS
kWh savings = % savings * kWh annual use =	9,027	kWh	
kW average savings = kWh savings/Hours =	1.50	kW	
kW savings = average kW savings * CF =	2.45	kW	Based on DSMIS value of 245 watts per HP
CF needed = kW savings (program) / kW average =	1.63		

Incentive
$80 per HP

VFD - AHU

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 24, 2011
Effective date: March 1, 2011
End date: TBD

Referenced Documents: Energy and Peak Demand Impact Evaluation Report of the 2005-2007 Demand Management Programs – KEMA (KEMA 2005-07).
Econorthwest TRM Review – 6/23/10
IECC 2006

TRM Review Actions:
6/23/10 Rec. #25 - Breakdown the savings by building types. Conduct additional research for future program years to calibrate claimed savings for Hawaii customer base - Adopted

Major Changes:
- Energy savings separated into building type breakdown.

Description: The installation of variable frequency drives on fans used in HVAC systems.

Values for this measure are not called out in the KEMA report. The DSMIS values for this measure are 200 watts and 760.9 kWh per horsepower. The primary assumption used for the savings calculation is that the percentage savings of the energy used before the VFD is applied. This percent savings is shown in the calculations below as about 21%. Based on information from the EPRI Adjustable Speed Drive directory and comparing energy use for outlet damper, inlet damper and VFD controls the average savings for this profile would be 50% for replacement of an outlet damper and 33% for replacement of an inlet damper. See table below.

Percentage of Full Load Power				Power Savings %	
% Flow	Outlet Dampers	Inlet Dampers	VFD	Outlet Savings	Inlet Savings
100	111	109	105	6	4
90	107	93	73	34	20
80	104	82	57	47	25
70	99	75	44	55	31
60	94	69	32	62	37
50	87	65	21	66	44
40	80	63	14	66	49
30	72	60	8	64	52
			Average	**50**	**33**

Therefore, the 21% of base case savings used in to match the DSMIS values in the calculations below appears to be reasonable and possibly conservative. The actually savings for the customer will depend on many factors related to their type of building, system and hours of operation.

VFD Energy and Demand Savings

Building Type	Hours	Demand Savings (kW/hp)	Energy Savings (kWh/hp)
All Commercial	3,720	0.20	485.5
Misc. Commercial	3,720	0.20	485.5
Cold Storage	6,389	0.20	833.7
Education	3,665	0.20	478.3
Grocery	6,389	0.20	833.7
Health	5,187	0.20	676.9
Hotel/Motel	3,719	0.20	485.3
Misc. Industrial	5,187	0.20	676.9
Office	6,192	0.20	808.0
Restaurant	4,155	0.20	542.2
Retail	3,261	0.20	425.6
Warehouse	6,389	0.20	833.7

Example Calculation:

HVAC Fan Motor VFD

DSMIS Values for All Commercial:
- kW = 0.200 per HP
- kWh = 760.9 per HP

KEMA 2008 Values for All Commercial (HECO):
- kW = none available
- kWh = none available

Base Fan Motor Use:

Base HP =	10	HP	Example
Motor Efficiency =	92%		Estimated Typical
Average Load =	75%		Estimated Typical
HP to kW conversion =	0.746		
kW load = HP * 0.746 * % Load / eff =	6.1	kW	
Hours of operation =	6000	hours	Estimated
kWh Used Annually = kW load * Hours =	36,489	kWh	

Fan Motor Savings with VFD:

Energy savings percentage =	20.85%		Needed to meet the kWh savings from DSMIS
kWh savings = % savings * kWh annual use =	7,608	kWh	
kW average savings = kWh savings / Hours =	1.268	kW	
kW savings = average kW savings * CF =	2.0	kW	Based on DSMIS value of 200 watts per HP
CF needed = kW savings (program) / kW average =	1.58		

Package Unit AC

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 24, 2011
Effective date: March 1, 2011
End date: TBD

Referenced Documents: Econorthwest TRM Review – 6/23/10
IECC 2006

TRM Review Actions:
6/23/10 Rec. #21 – Utilize IECC 2006 Efficiencies as the Baseline Efficiency and Efficient Packaged Unit 15% better than IECC 2006 – Adopted
6/23/10 Rec. #22 - Break down packaged AC savings based on equipment size. - Adopted

Major Changes:
- Package Chiller AC efficiency selected at 15% improvement over IECC 2006.

Description: The replacement of package air conditioners with Energy Efficiency above the Hawaii Model Energy Code.

Package Unit AC

			15% Higher than Code	
Unit Size (Btu/Hr.)	**IECC 2006 Efficiency (kW/Ton)**	**(EER)**	**Hawaii Energy Premium Efficiency (kW/Ton)**	**(EER)**
< 65,000	0.923	13.0	0.803	15.0
65,001 to 135,000	1.188	10.1	1.033	11.6
135,001 to 240,000	1.263	9.5	1.098	10.9
240,001 to 760,000	1.263	9.5	1.098	10.9
> 760,000	1.304	9.2	1.134	10.6

Energy Savings:

Package Unit AC - 15% higher than IECC 2006 - Energy Reduction

Building Type	< 65,000	65,001 to 135,000	135,001 to 240,000	240,001 to 760,000	> 760,000
All Commercial	412.1	530.4	563.9	563.9	582.3
Misc. Commercial	412.1	530.4	563.9	563.9	582.3
Cold Storage	707.7	910.9	968.4	968.4	1000.0
Education	406.0	522.5	555.5	555.5	573.7
Grocery	707.7	910.9	968.4	968.4	1000.0
Health	574.6	739.5	786.2	786.2	811.9
Hotel/Motel	412.0	530.2	563.7	563.7	582.1
Misc. Industrial	574.6	739.5	786.2	786.2	811.9
Office	685.9	882.8	938.6	938.6	969.2
Restaurant	460.2	592.4	629.8	629.8	650.3
Retail	361.2	464.9	494.3	494.3	510.4
Warehouse	707.7	910.9	968.4	968.4	1000.0

Demand Savings:

Package Unit AC - 15% higher than IECC 2006 - Demand Reduction

Building Type	< 65,000	65,001 to 135,000	135,001 to 240,000	240,001 to 760,000	> 760,000
All Commercial	0.069	0.089	0.095	0.095	0.098
Misc. Commercial	0.042	0.053	0.057	0.057	0.059
Cold Storage	0.069	0.089	0.095	0.095	0.098
Education	0.028	0.036	0.038	0.038	0.039
Grocery	0.118	0.151	0.161	0.161	0.166
Health	0.090	0.116	0.123	0.123	0.127
Hotel/Motel	0.083	0.107	0.114	0.114	0.117
Misc. Industrial	0.069	0.089	0.095	0.095	0.098
Office	0.069	0.089	0.095	0.095	0.098
Restaurant	0.104	0.134	0.142	0.142	0.147
Retail	0.083	0.107	0.114	0.114	0.117
Warehouse	0.062	0.080	0.085	0.085	0.088

Window AC

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 24, 2010
Effective date: July 1, 2010
End date: TBD

Referenced Documents: HECO DSM Docket – Backup Worksheets - Global Energy (07-14-06)
Econorthwest TRM Review – 6/23/10
Energy Star Calculator

TRM Review Actions:
- No changes recommended

Major Changes:
- Eliminated Incentives for units under 12,000 BTU

Measure Description:
The selection of a new 12.0 EER Room Air Conditioner versus or replacing a standard 9.8 EER Room Air Conditioner in a commercial facility.

Appliances must comply with:
- Energy Star

Energy Star Air Conditioners – use at least 10% less energy than conventional models and often include timers for better temperature control, allowing you to use the minimum amount of energy you need to cool your room.

Baseline Efficiencies:
Baseline energy usage based on 2009 Energy Star Information for the Room ACs are as follows:

	Demand Baseline (kW)	Energy Baseline (kWh)	Notes
Non ES Qualifying Room AC	1.2	6,142	9.8 EER, 12,000 BTUh

High Efficiency:
The high efficiency case Energy Star energy usage based on 2009 Energy Star Information for the Room AC is as follows:

Energy Star Criteria is 10.8 EER. HECO DSM Docket 2006 by Global Energy Partners used 12.0 EER

	Demand High Efficiency (kW)	Energy High Efficiency (kWh)	Notes
ES Qualifying Room AC	1.0	5,016	12.0 EER, 12,000 BTUh

Energy Savings:
Energy Star Room AC Gross Savings before operational adjustments:

	Demand Savings (kW)	Energy Savings (kWh)	Notes
ES Qualifying Room AC	0.224	1,126	9.8 to12.0 EER, 12,000 BTUh

Savings Algorithm

Room Air Conditioner - Business

Conventional Room AC Built After 1994				
Average Unit Cooling Capacity		12,000	BTU / Hr	(Equals 1 Ton Cooling Capacity)
Energy Efficiency Ratio	÷	9.8	EER	DOE Federal Test Procedure 10CFR 430, Appendix F
Full Load Demand		1,224.5	Watts	
Conversion	÷	1,000.0	Watts / kW	
Full Load Demand		1.2	kW	
Conventional Room AC Full Load Demand		1.2	kW	
Honolulu Full Load Equivalent Cooling Hours	x	5,016.0	Hours per Year	EPA 2002
Conventional Room AC Annual Energy Consumption		6,142.0	kWh per Year	
Energy Star Qualified Room AC				
Average Unit Cooling Capacity		12,000	BTU / Hr	(Equals 1 Ton Cooling Capacity)
Energy Efficiency Ratio	÷	12.0	EER	HECO DSM Docket 2006 - Global Energy Partners
Full Load Demand		1,000.0	Watts	(Energy Star Criteria = 10.8 EER)
Conversion	÷	1,000.0	Watts / kW	
Full Load Demand		1.0	kW	
Energy Star Room AC Full Load Demand		1.0	kW	
Honolulu Full Load Equivalent Cooling Hours	x	5,016.0	Hours per Year	EPA 2002
Energy Star Room AC Annual Energy Consumption		5,016.0	kWh per Year	
Conventional Room AC Annual Energy Consumption		6,142.0	kWh per Year	
Energy Star Room AC Annual Energy Consumption	-	5,016.0	kWh per Year	
Energy Star Room AC Annual Energy Savings		1,126.0	kWh per Year	Energy Star Consumer Room AC Calculator Cadmus 4/2009
		1,126		
Persistance Factor	x	1	pf	100.0%
		1,126	kWh per Year	
Room Air Conditioner Energy Savings		**1,126**	**kWh / Year Savings**	
Conventional Room AC Full Load Demand		1.224	kW	
Energy Star Room AC Full Load Demand	-	1.000	kW	
Demand Savings		0.224	kW	
Business Window AC Demand Savings		**0.224**	**kW Savings**	

Measure Life
12 years (DEER)

Incentive
$50 per EER above Qualifying Efficiency
AND, $70 per ton (12,000 Btuh)

Incremental Cost = $171 (Source: ACEEE)

Inverter Variable Refrigerant Flow (VRF) Split Air Conditioning Systems

Measure ID: See Table 7.3 (TBD)
Measure Code: Inverter VRF AC

Version Date & Revision History
Draft date: February 24, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: none

TRM Review Actions:
- n/a

Major Changes:
- n/a

Description: Inverter driven variable refrigerant flow (VRF) air conditioning systems are direct expansion AC systems that utilize variable speed evaporator/condenser fans, and a combination of fixed and variable speed compressors along with most often multiple individual zone evaporators to provide the ability to more closely match the AC system's output with the building's cooling requirements.
Savings comes from:
- *Part Load Efficiencies*: Increased part-load efficiency operation
- *High Efficiency Motors*: Many systems use ECM motors
- *Higher Room Temperatures*: The capacity matching allows for better humidity control through longer
- cooling operation.
- *Reduction of Distribution Losses*: Duct losses are reduced with DX systems. This may be offset by dedicated outside air distribution systems when needed.

Payback Qualifications: VRF products need a payback requirement of 1 year or greater. The TRB/TRC must be greater than 1.

Energy and Demand Savings: VRF systems have demonstrated a 20-30% reduction in energy consumption as compared to standard DX equipment. The energy savings and demand tables that follow provide the savings by building type and system size for VRF systems. These figures are conservatively determined to be 20% greater than provided by the "Standard" Package Unit AC measures that require EERs 15% greater than IECC 2006 requirements.

The VRF applications have been new construction projects with no ability to perform pre and post measurements. Hawaii Energy will perform field pre and post field measurements to determine the measure effectiveness in the local environment

Existing - Variable Refrigerant Flow AC

Same as Non-VRF with efficiencies 15% over IECC 2006 - Demand Reduction

Building Type	< 65,000	65,001 to 135,000	135,001 to 240,000	240,001 to 760,000	> 760,000
Single Family	0.144	0.185	0.198	0.198	0.204
All Commercial	0.138	0.126	0.134	0.134	0.139
Misc. Commercial	0.059	0.075	0.081	0.081	0.083
Cold Storage	0.102	0.131	0.140	0.140	0.144
Education	0.041	0.053	0.056	0.056	0.057
Grocery	0.174	0.223	0.237	0.237	0.245
Health	0.133	0.171	0.181	0.181	0.187
Hotel/Motel	0.122	0.158	0.168	0.168	0.172
Office	0.102	0.131	0.140	0.140	0.145
Restaurant	0.153	0.198	0.209	0.209	0.217
Retail	0.122	0.158	0.168	0.168	0.173
Warehouse	0.091	0.118	0.125	0.125	0.130

New - Variable Refrigerant Flow AC

Same as Non-VRF with efficiencies 15% over IECC 2006 - Demand Reduction

Building Type	< 65,000	65,001 to 135,000	135,001 to 240,000	240,001 to	> 760,000
Single Family	0.120	0.110	0.117	0.117	0.121
All Commercial	0.069	0.089	0.095	0.095	0.098
Misc. Commercial	0.042	0.053	0.057	0.057	0.059
Cold Storage	0.069	0.089	0.095	0.095	0.098
Education	0.028	0.036	0.038	0.038	0.039
Grocery	0.118	0.151	0.161	0.161	0.166
Health	0.090	0.116	0.123	0.123	0.127
Hotel/Motel	0.083	0.107	0.114	0.114	0.117
Misc. Industrial	0.069	0.089	0.095	0.095	0.098
Office	0.069	0.089	0.095	0.095	0.098
Restaurant	0.104	0.134	0.142	0.142	0.147
Retail	0.083	0.107	0.114	0.114	0.117
Warehouse	0.062	0.080	0.085	0.085	0.088

Energy Reduction (kWh/ton)

Building Type	New	Existing
Single Family	816	681
All Commercial	554	782
Misc. Commercial	554	782
Cold Storage	500	736
Education	465	685
Grocery	726	1070
Health	887	1308
Hotel/Motel	691	1019
Office	593	874
Restaurant	706	1040
Retail	544	802
Warehouse	526	775

High Efficiency Water Heating

Commercial Solar Water Heating

Measure ID: See Table 7.3 (TBD)
Measure Code: High Efficiency Water Heating – Solar Water Heating

Version Date & Revision History
Draft date: May 30, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: none

TRM Review Actions:
- n/a

Major Changes:
- n/a

Measure Description:
Replacement of a Standard Electric Resistance Water Heater (SERWH) or heat pump with a Solar Water Heater. Solar equipment must comply with Solar Rating and Certification Corporation (SRCC) standards.

Baseline Efficiencies:
Baseline usage is a 0.9 COP Electric Resistance Water Heater or heat pump with a COP of 3.5.

The baseline water heater energy consumption is by a single 4.0 kW electric resistance element that is controlled thermostatically on/off controller based of tank finish temperature set point. The tank standby loss differences between baseline and high efficiency case are assumed to be negligible.

The baseline water heater energy consumption by a heat pump is 6.0 kW.

Energy Savings

Base Case	Annual Energy Savings (kWh/year) (per 5,000 BTU capacity derated)	Demand Savings (kW)
Standard Electric Resistance Water Heater (COP = 0.9)	429	0.46
Heat Pump (COP 3.5)	32	0.75

Savings Algorithm (Standard Electric Water Heater) – BASE CASE

Commercial Solar Water Heating - Standard Electric Water Heater (SERWH) - BASE CASE				
Energy per Day (BTU) Needed in Tank		5,000	BTU/Day	
Energy per Day (BTU) Needed in Tank		5,000	BTU/Day	
BTU to kWh Energy Conversion	÷	3,412	kWh / BTU	
Energy per Day (kWh)		1.5	kWh / Day	
Days per Month	x	30.4	Days per Month	
Energy (kWh) per Month		45	kWh / Month	
Days per Year	x	365	Days per Year	
Energy (kWh) Needed in Tank to Heat Water per Year		535	kWh / Year	
Elec. Res. Water Heater Efficiency	÷	0.90	COP	
Base SERWH Energy Usage per Year at the Meter		594	kWh / Year	
Design Annual Solar Fraction		90%	Water Heated by Solar System	Program Design
		10%	Water Heated by Remaining Backup Element	
Energy Usage per Year at the Meter		594	kWh / Year	
	x	10%	Water Heated by Remaining Backup Element	
Back Up Element Energy Used at Meter		59	kWh / Year	
Circulation Pump Energy		0.082	kW	KEMA 2008
Pump Hours of Operation	x	1,292	Hours per Year	KEMA 2008
Pump Energy used per Year		106	kWh / Year	
Back Up Element Energy Used at Meter		59	kWh / Year	36%
Pump Energy used per Year	+	106	kWh / Year	64%
Design Solar System Energy Usage		165	kWh / Year	
Design Solar System Energy Usage		165	kWh / Year	
Performance Factor		0.94	pf	HE
Persistance Factor	x	0.93	pf	KEMA 2008
Residential Solar Water Heater Energy Savings		145	kWh/ Year	KEMA 2008
Base SERWH Energy Usage per Year at the Meter		594	kWh / Year	
Design Solar System Energy Usage	-	165	kWh / Year	
		429	kWh / Year	
Energy Savings		**429**	**kWh/year (Per 5,000 BTU panel installed derated)**	
SERWH Element Power Consumption		4.0	kW	
Coincidence Factor	x	0.143	cf	8.6 Minutes per hour
SERWH On Peak Demand		0.57	kW On Peak	KEMA 2008
Solar System Metered on Peak Demand		0.11	kW On Peak	KEMA 2008
Commercial Solar Water Heating Demand Savings		**0.46**	**kW Savings**	

Savings Algorithm (Heat Pump) – BASE CASE

Commercial Solar Water Heating - Heat Pump - BASE CASE				
Energy per Day (BTU) Needed in Tank		5,000	BTU/Day	
Energy per Day (BTU) Needed in Tank		5,000	BTU/Day	
BTU to kWh Energy Conversion	÷	3,412	kWh / BTU	
Energy per Day (kWh)		1.5	kWh / Day	
Days per Month	x	30.4	Days per Month	
Energy (kWh) per Month		45	kWh / Month	
Days per Year	x	365	Days per Year	
Energy (kWh) Needed in Tank to Heat Water per Year		535	kWh / Year	
Heat Pump Efficiency	÷	3.50	COP	
Base Heat Pump Energy Usage per Year at the Meter		153	kWh / Year	
Design Annual Solar Fraction		90%	Water Heated by Solar System	Program Design
		10%	Water Heated by Remaining Backup Element (Heat Pump)	
Energy Usage per Year at the Meter		153	kWh / Year	
	x	10%	Water Heated by Remaining Backup Element (Heat Pump)	
Back Up Element Energy Used at Meter		15	kWh / Year	
Circulation Pump Energy		0.082	kW	KEMA 2008
Pump Hours of Operation	x	1,292	Hours per Year	KEMA 2008
Pump Energy used per Year		106	kWh / Year	
Back Up Element Energy Used at Meter		15	kWh / Year	13%
Pump Energy used per Year	+	106	kWh / Year	87%
Design Solar System Energy Usage		121	kWh / Year	
Design Solar System Energy Usage		121	kWh / Year	
Performance Factor		0.94	pf	HE
Persistance Factor	x	0.93	pf	KEMA 2008
Residential Solar Water Heater Energy Savings		106	kWh/ Year	KEMA 2008
Base Heat Pump Energy Usage per Year at the Meter		153	kWh / Year	
Design Solar System Energy Usage	-	121	kWh / Year	
		32	kWh / Year	
Energy Savings		**32**	**kWh/year (Per 5,000 BTU panel installed derated)**	
SERWH Element Power Consumption		4.0	kW	
Coincidence Factor	x	0.143	cf	8.6 Minutes per hour
SERWH On Peak Demand		0.57	kW On Peak	KEMA 2008
Solar System Metered on Peak Demand		0.11	kW On Peak	KEMA 2008
Commercial Solar Water Heating Demand Savings		**0.46**	**kW Savings**	

Incentive
$50 per 5,000 BTU panel output after derated based on orientation and tilt factor.

Measure Life
15 years

High Efficiency Water Pumping

VFD Domestic Water Booster Packages

Measure ID: See Table 7.3 (TBD)
Measure Code:

Version Date & Revision History
Draft date: May 23, 2011
Effective date: March 7, 2011
End date: TBD

Referenced Documents:

- The increased incentive was based on previous paid booster pump installations and measured energy/demand savings. Previous Incentive Level = $0.06/kWh. New Incentive Levels = $0.08/kWh
- The energy and demand impacts are based on HECO's evaluation from past projects and monitoring.

Major Changes

Effective 7/1/10 through 3/6/11
Previous Incentive = $1,600 + [(Existing System hp – New System hp) x $65]

Effective 3/7/11 through 6/30/11
New Incentive = $3,000 + [(Existing System hp – New System hp) x $80]

Description: Pump improvements can be done to optimize the design and control of water pumping systems. The measurement of energy and demand savings for commercial and industrial applications will vary with the type of pumping technology, operating hours, efficiency and current and proposed controls. Depending on the specific application, slowing the pump, trimming or replacing the impeller, or replacing the pump may be suitable options for improving pumping efficiency.

Base Efficiency
The baseline equipment is assumed to be a non-optimized existing pumping system.

High Efficiency
In order for this characterization to apply, the efficient equipment is assumed to be an optimized pumping system meeting applicable program efficiency requirements. The proposed Booster Pump System must be a more efficient design than the existing system. (i.e. Installed with VFD.). All pump motors must meet NEMA Premium Efficiency standards.

Qualification

- Booster Pump applications require pre-notification before equipment is purchased and installed.
- The new Booster Pump System's total horsepower must be equal to or less than that of the existing system.
- The system horsepower reduction must be between 0 to 129 hp. For projects with greater than 129hp, please contact the program
- Booster Pump applications do not apply to New Constructions.

Energy and Demand Savings:

Demand Savings = 2.62 + (HP Reduction) x 0.115
Energy Savings = 25,500 + (HP Reduction) x 989

	No HP Reduction	W/HP Reduction	HP Reduction Multiplier
Demand Savings (kW/HP)	2.620	2.735	0.115
Energy Savings (kWh/HP-year)	25,500	26,489	989

Savings Algorithm:

	No HP Reduction	W/HP Reduction	HP Reduction Multiplier
Demand Savings (kW/HP)	2.620	2.735	0.115
Energy Savings (kWh/HP-year)	25,500	26,489	989

Based on HECO's evaluation from past projects and monitoring

Previous Incentive	$ 1,600	$ 1,600
Cost/kWh	$ 0.06	$ 0.06
Base HP Reduction		$ 65.00
New Incentive	$ 3,000	$ 3,000
Cost/kWh	$ 0.12	$ 0.11
Proposed HP Reduction		$ 80.00

Demand Savings = 2.62 + (HP Reduction) x 0.115
Energy Savings = 25,500 + (HP Reduction) x 989

Example

	Existing System	New System
Small Building	7.5 HP	3 HP
12 Floors (83 Units)	7.5 HP	3 HP
	15 HP	6 HP
Cost	$ 31,000	

Savings Summary

HP Reduction	kW	kWh
9	3.77	34,401

Previous Rebate	HP Reduction	Total	$/kWh
$ 1,600	$ 585	$ 2,185	$ 0.064
7% Incremental Cost			

New Rebate	HP Reduction	Total	$/kWh
$ 3,000	$ 720	$ 3,720	$ 0.108
12% Incremental Cost			

Incentives:

Incentive = [(Existing System hp – New System hp) x $80] + $2100

VFD Pool Pump Packages

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 24, 2010
Effective date: July 1, 2010
End date: TBD

Referenced Documents:

Measure Description
A variable speed commercial pool pump motor in place of a standard single speed motor of equivalent horsepower.

Definition of Efficient Equipment
The high efficiency equipment is a variable speed commercial pool pump.

Definition of Baseline Equipment
The baseline efficiency equipment is assumed to be a single speed commercial pool pump.

$$\Delta kWh = (kWBASE \times Hours) \times 55\% \text{ BASE}$$

Where:

Unit = 2-speed or variable speed pool pump
ΔkWh = Average annual kWh reduction: 400 kWh
Hours = Average annual operating hours of pump
kWBASE = connected kW of baseline pump
55% = average percent energy reduction from switch to 2-speed or variable speed pump (1)

Baseline Efficiency
The baseline efficiency case is a single speed pump.

Based Demand	1.40 kW
Base Energy Usage per day	8.39 kWh/day
Base Energy Usage per year	3063 kWh/year

High Efficiency
The high efficiency case is a 2-speed or variable speed pump.

Demand Reduction	10%
High Efficiency Demand	1.26 kW
Energy Savings	55%
High Efficiency Energy Usage	1378 kWh/year

Energy and Demand Savings

Energy Savings per year	1685 kWh/year
Demand Savings	0.140 kW

(1) Davis Energy Group (2008). Proposal Information Template for Residential Pool Pump Measure Revisions. Prepared for Pacific Gas and Electric Company; Page 2.

Savings Algorithm

Commercial Pool Pump		
Average Pool Pump Horesepower	1.5	HP
Efficiency	0.8	
Hours of operation per day	6	hours
Number of days pool in use	100	days per year
1 HP Equals	0.746	kW

Based Demand	1.40	kW
Base Energy Usage per day	8.39	kWh/day
Base Energy Usage per year	3063	kWh/year

Demand Reduction	10%	
High Efficiency Demand	1.26	kW
Energy Savings	55%	
High Efficiency Energy Usage	1378	kWh/year

Energy Savings per year	1685	kWh/year
Demand Savings	0.140	kW

Deemed Lifetime of Efficient Equipment
The estimated useful life for a variable speed pool pump is 10 years.

Deemed Measure Cost
The incremental cost is estimated to be $350 for a two speed motor and $1,500 for a variable speed motor

Incremental Cost
$161 per motor. – (from: 2001 DEER Update Study, CCIG-CRE-02, p. 4-84,
Xenergy, Oakland, CA.

Incentives
$350

High Efficiency Motors

Nema Premium Efficiency Motors

Measure ID: See Table 7.3 (TBD)
Measure Code:

Version Date & Revision History
Draft date: March 2, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents:

TRM Review Actions:

- n/a

Measure Description
This measure relates to the installation of premium efficiency three phase Open Drip Proof (ODP) and Totally Enclosed Fan-Cooled (TEFC) motors less than or equal to 450 HP, meeting minimum qualifying efficiency for the following HVAC applications: supply fans, return fans, exhaust fans, chilled water pumps, and boiler feed water pumps. On December 9, 2010, new federal efficiency standards will take effect requiring motors in this size category to meet National Electric Manufacturers Association (NEMA) premium efficiency levels. Therefore, this measure should be suspended at that time.

Baseline
The baseline condition is a standard motor that meets the minimum efficiency allowed under the Federal Energy Policy Act of 1992 (EPACT 92) that went into effect October 1997.

Demand	0.746 kW
Base Efficiency	80%
Base Demand	0.933 kW
Base Energy	1531.6 kWh/year

High Efficient Condition
The efficient condition is a NEMA Premium labeled motor.

Demand	0.746 kW
High Efficiency	82.50%
High Efficiency Demand	0.904 kW
High Efficiency Energy	1485.2 kWh/year

Energy Savings

Based on per HP

Demand Savings	0.0283 kW
Energy Savings	46.4 kWh/year

Savings Algorithm

$$\Delta kWh = HP \times 0.746 \times ((1/\eta BASE)-(1/\eta EE)) \times LF \times HOURS$$

Where:

HP	= Motor Horse Power = Actual installed
ηBASE	= Efficiency of baseline motor. Based on EPACT 92 for installed HP
ηEE	= Efficiency of premium efficiency motor = Actual installed
LF	= Load factor of motor = 0.75
HOURS	= Annual motor run hours

1	HP	equals	0.746 kW
Hours of Operation		6	per day
Hours of Operation		2190	per year
Load Factor		0.75	

Demand	0.746	kW
Base Efficiency	80%	
Base Demand	0.933	kW
Base Energy	1531.6	kWh/year

Demand	0.746	kW
High Efficiency	82.50%	
High Efficiency Demand	0.904	kW
High Efficiency Energy	1485.2	kWh/year

Demand Savings	0.0283	kW
Energy Savings	46.4	kWh/year

MOTOR INCENTIVES REFERENCE TABLE							
Motor Size (hp)	3600 RPM		1800 RPM		1200 RPM		Incentive Per Motor
	ODP	TEFC	ODP	TEFC	ODP	TEFC	
1	77.0	77.0	85.5	85.5	82.5	82.5	$15
1.5	84.0	84.0	86.5	86.5	86.5	87.5	$23
2	85.5	85.5	86.5	86.5	87.5	88.5	$30
3	85.5	86.5	89.5	89.5	88.5	89.5	$45
5	86.5	88.5	89.5	89.5	89.5	89.5	$50
7.5	88.5	89.5	91.0	91.7	90.2	91.0	$75
10	89.5	90.2	91.7	91.7	91.7	91.0	$100
15	90.2	91.0	93.0	92.4	91.7	91.7	$120
20	91.0	91.0	93.0	93.0	92.4	91.7	$160
25	91.7	91.7	93.6	93.6	93.0	93.0	$200
30	91.7	91.7	94.1	93.6	93.6	93.0	$210
40	92.4	92.4	94.1	94.1	94.1	94.1	$240
50	93.0	93.0	94.5	94.5	94.1	94.1	$300
60	93.6	93.6	95.0	95.0	94.5	94.5	$360
75	93.6	93.6	95.0	95.4	94.5	94.5	$450
100	93.6	94.1	95.4	95.4	95.0	95.0	$600
125	94.1	95.0	95.4	95.4	95.0	95.0	$750
150	94.1	95.0	95.8	95.8	95.4	95.8	$900
200	95.0	94.4	95.8	96.2	95.4	95.8	$1,200
250	95.0	95.8	95.8	96.2	95.4	95.8	$1,500
300	95.4	95.8	95.8	96.2	95.4	95.8	$1,800
350	95.4	95.8	95.8	96.2	95.4	95.8	$2,100
400	95.8	95.8	95.8	96.2	95.8	95.8	$2,400
450	95.8	95.8	96.2	96.2	96.2	95.8	$2,700

Measure Life
15 years

Incremental Cost
1 to 5HP ($35.20 per HP)
7.5 to 20HP ($17.30 per HP)
25 to 100HP ($10.28 per HP)
125 to 250HP ($5.95 per HP)

Building Envelope Improvements

Window Tinting

Measure ID: See Table 7.3 (TBD)
Measure Code:

Version Date & Revision History
Draft date: March 2, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents: Basis for a Prescriptive Window Film Rebate Program (Attachment G) prepared for HECO (XENERGY Inc.) November 5, 1999

TRM Review Actions:

- n/a

Major Changes:
Rebate increased from $0.35 to $1.00 per square foot

Description:

- *Warranty* – Film must have a minimum five-year manufacturer's warranty and one-year installer's warranty
- *Conditioned Space* – Rebates shall be paid on actual square footage of glass in a conditioned space
- *Eligible Types* – Windows may be clear or factory tinted, single or double pane, but must not have reflected glass. All orientations are eligible.
- *Unshaded* – Windows significantly shaded by buildings, trees or awnings are not eligible for rebates.
- *Replacement Film* – Replacement of deteriorated window film is eligible for 50% of the rebate if the customer did not receive a rebate for the existing film.

Equipment Qualifications:

Solar Heat Gain Coefficient (SHGC) < 0.435

Payback Qualifications:

None

Energy and Demand Savings:

Savings	Hotel	Office	Other	Average
Energy Savings (kWh/ft2)	5.6	4.5	4.5	**4.9**
Demand Savings (kW/ft2)	0.0014	0.0008	0.0016	**0.0013**

Incentives:

Description	Unit Incentive	Incremental Cost
Window Film per square feet	$ 1.00	$ 3.00

Persistence Factor
1.0

Coincidence Factor
1.0

Lifetime
10 years (DEER)

Energy Star Business Equipment

Refrigerators w/Recycling

Measure ID: See Table 7.3

Version Date & Revision History
Draft date: February 24, 2010
Effective date: July 1, 2010
End date: TBD

Referenced Documents: HECO DSM Docket – Backup Worksheets - Global Energy (07-14-06)
Econorthwest TRM Review – 6/23/10
Department of Energy Refrigerator Profile – Updated December 2009

TRM Review Actions:

- 6/23/10 Rec. # 11 – Revise savings to be consistent with ENERGY STAR estimates. – Adopted with modifications on refrigerator figures based on DOE Refrigerator profile and the addition of bounty, recycle with new figures.
- 6/23/10 Rec. # 12 – Split the claimed savings by appliance. – Adopted.
- 6/23/10 Rec. # 14 – Revise demand savings values for ENERGY STAR appliances – Adopted.

Major Changes:

- Split between ESH appliances
- Incorporation of three refrigerator categories (new, new with turn in, and bounty (turn in only))
- All ESH 313 kWh and 0.12 kW changed to:
  - New ES Refrigerator Only – 105 kWh, .017 kW
  - New ES Refrigerator with Turn-In – 822 kWh, .034 kW

Measure Description:
The replacement of standard Refrigerators for business locations.

Appliances must comply with:

- Energy Star

Refrigerators – ENERGY STAR refrigerators utilize improvements in insulation and compressors.

Baseline Efficiencies:
Baseline energy usage based on 2009 Energy Star Information for the appliances are as follows:

	Demand Baseline (kW)	Energy Baseline (kWh)	Notes
Non ES Qualifying Refrigerator		537	19.0-21.4 Top Freezer

High Efficiency:

The high efficiency case Energy Star energy usage based on 2009 Energy Star Calculator Information and DOE Refrigerator Market Profile for the appliances is as follows:

	Demand High Efficiency (kW)	Energy High Efficiency (kWh)	Notes
ES Qualifying Refrigerator		435	19.0-21.4 Top Freezer

Energy Savings:

Energy Star Appliance Gross Savings before operational adjustments:

	Demand Savings (kW)	Energy Savings (kWh)
ES Refrigerator	0.017	105
ES Refrigerator with Turn-In	0.034	822

Energy Star Appliance Net Savings operational adjustments:

Operational Factor	Adjustment Factor
Persistence Factor (pf)	1.0
Demand Coincidence Factor (cf)	1.0

Savings Algorithms

Energy Star Refrigerator and Turn In Refrigerator - Single and Multi Family Residential Home

Opportunity		Energy Usage		
New Non-ENERGY STAR		540		Table 2
New ENERGY STAR Refrigerator	-	435		Table 2
		105	kWh/Year	Table 1
#1 - Purchase of ENERGY STAR Refrigerator		105		Table 1
#2 - Removal of Old Unit from Service (off the grid)	+	717		Table 1
#1 + #2 = Purchase ES and Recycle old unit		822	kWh/Year	

	Energy Usage	Ratio	Contribution		
Post-1993 Refrigerator	640	55%	354.54		Table 3
Pre-1993 Refrigerator	1,131	45%	504.46		Table 3
			859	kWh/Year	

Table 1

Energy Savings Opportunities for Program Sponsors

Opportunity	Annual Savings			
	Per Unit		Aggregate U.S. Potential	
	kWh	$	MWh	$ million
1. **Increase the number of buyers that purchase ENERGY STAR qualified refrigerators.** • 9.3 million units were sold in 2008. • 70 percent were not ENERGY STAR. • 6.5 million potential units per year could be upgraded.	105	11.64	675,928	75
2. **Decrease the number of units kept on the grid when new units are purchased.** • 8.7 million primary units were replaced in 2008. • 44 percent remained in use, whether they were converted to second units, sold, or given away. • 3.8 million units are candidates for retirement every year.	717	79.53	2,746,062	305
3. **Decrease the number of second units.** • 26 percent of households had a second refrigerator in 2008. • 29.6 million units are candidates for retirement.	859	95.28	25,442,156	2,822
4. **Replace pre-1993 units with new ENERGY STAR qualified models.** • 19 percent of all units in use in 2008 were manufactured before 1993. • 27.3 million total potential units are candidates for targeted replacement.	730	81	19,946,440	2,212

Sources: See endnote 10.

Table 2

Energy and Cost Comparison for Upgrading to ENERGY STAR

Purchase Decision	New Non-ENERGY STAR Qualified Refrigerator	New ENERGY STAR Qualified Refrigerator
Annual Consumption	540 kWh	435 kWh
	$60	$48
Annual Savings	–	105 kWh
	–	$12
Average Lifetime	12 years	12 years
Lifetime Savings	–	1,260 kWh
	–	$140
Price Premium	–	$30 - $100
Simple Payback Period	–	3-9 years

Note: Calculations based on shipment-weighted average annual energy consumption of 2008 models. An ENERGY STAR qualified model uses 20 percent less energy than a new non-qualified refrigerator of the same size and configuration.

Source: See endnote 10.

Table 3

Energy and Cost Comparison for Removing a Second Refrigerator from the Grid

Fate of Unit	Post-1993 Unit		Pre-1993 Unit	
	Remains on the Grid	Removed from the Grid	Remains on the Grid	Removed from the Grid
Annual Consumption	640 kWh	–	1,131 kWh	–
	$71	–	$125	–
Annual Savings	–	640 kWh	–	1,131 kWh
	–	$71	–	$125
Average Lifetime*	6	–	6	–
Lifetime Savings*	–	3,840 kWh	–	6,788 kWh
	–	$426	–	$753
Removal Cost	–	$50 - $100	–	$50 - $100
Simple Payback Period	–	1-2 years	–	<1 year

*Assumes unit has six years of functionality remaining.

Sources: See endnote 10.

Operating Hours

Refrigerators = 8,760 hours per year

Loadshape
TBD

Freeridership/Spillover Factors
TBD

Demand Coincidence Factor
NA

Persistence
NA

Lifetime
14 years

Measure Costs and Incentive Levels

Residential Measure Costs and Incentive Levels

Description	Unit Incentive	Incremental Cost HECO DSM Docket 2006	Average Incremental Cost Energy Star 2009
ES Refrigerator	$50	$ 60.36	$ 65
ES Refrigerator w/turn in	$125		$130*

***Estimated value**

Component Costs and Lifetimes Used in Computing O&M Savings
TBD

Reference Tables
None

Energy Awareness, Measurement and Control Systems

Condominium Submetering Pilot

Measure ID: See Table 7.3 (TBD)
Measure Code:

Version Date & Revision History
Draft date: March 2, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents:

TRM Review Actions:

Major Changes

Description:

Equipment Qualifications:

This program is to assist master-metered condominiums and their Association of Apartment Owners (AOAO) efforts to reduce energy consumption and implement the current submetering proposal as one that will insure both equity and fairness in allocating energy costs as well as encouraging energy conservation through direct feedback of personal energy use to tenants.

The combination of billing submeters, along with education, peer group comparisons and special equipment offerings, will assist the tenant achieve significant energy conservation and efficiency.

Requirements:

- The metering system must remain in place and billing to occur for a period of at least five (5) years or a pro-rated portion of the incentive will be recovered by Hawaii Energy. Provide Hawaii Energy with energy meter data for analysis purposes.
- A joint educational and monitoring program will be undertaken with AOAO to assist in the verification of savings and development of an ongoing energy incentive offering for other condominiums in Hawaii.

Baseline

The base case is no submetering

Building Types	Demand Baseline (kW)	Energy Baseline (kWh/year)
Condominium	1.50	7,200

High Efficiency

The high efficiency case is with submetering

Building Types	Efficient Case (kW)	Efficient Case (kWh/year)
Condominium	1.38	6,480

Energy and Demand Savings:

Building Types	Gross Customer Savings (kW)	Gross Customer Savings (kWh/year)
Condominium	0.12	720

Operational Factor	Adjustment Factor
Persistence Factor (pf)	1.00
Demand Coincidence Factor (cf)	1.00

Building Types	Net Customer Savings (kW)	Net Customer Savings (kWh/year)
Condominium	0.12	720

It is expected there will be at least 10% reduction in energy usage and 8% reduction in peak demand during (5PM – 9PM), however, there is no minimum reduction in electrical use to be required by AOAO to retain the incentive.

Savings Algorithm:

Submetering (Condominium)				
Average Tenant Energy Usage		600	kWh per home per month	
	x	12		
Baseline Household Energy Usage		7,200	kWh per Year	
Energy Reduction		10.0%		
Actively Informed Household Energy Usage		6,480	kWh per Year	
Baseline Household Energy Usage		7,200	kWh per Year	
Actively Informed Household Energy Usage	-	6,480	kWh per Year	
Gross Customer Level Energy Savings		720	kwh per Year	
	x	1,000	Watts per kW	
	÷	8,760	Hours per Year	
Average 24/7 Demand Reduction		82	Watts	
Gross Customer Level Energy Savings		720	kwh per Year	
Persistance Factor	x	1.0		
Net Customer Level Savings		720	kwh per Year	
Submetering Energy Savings		720	kWh / Year Savings	
Baseline Household Demand		1.50	kW	HECO 2008 Load Study
Peak Demand Reduction		8.00%		
Actively Informed Household Demand		1.38	kW	
Baseline Household Demand		1.50	kW	
Actively Informed Household Demand	-	1.38	kW	
Gross Customer Demand Savings		0.120	kW	
Gross Customer Demand Savings		0.120	kW	
Persistance Factor	x	1.00		
Coincidence Factor	x	1.00		
		0.120	kW	
Whole House Metering Demand Savings		0.12	kW Savings	

Incentives/Incremental Cost

- $150 per unit metered, payable to the AOAO for distribution to owners on a percentage of ownership basis to comply with condominium regulations.
- Incentive payment will be made upon billing individual tenants.
- Incentive payment cannot exceed 50% of total project cost.
- The payment of the incentive will be based on the AOAO securing the approval, installing and utilizing the submeters for billing purposes.

Description	Incentive	Incremental Cost
Condominium Submeter	$250	$750

Refrigeration – Vending Misers

Measure ID: See Table 7.3 (TBD)
Measure Code:

Version Date & Revision History
Draft date: March 2, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents:

(1) USA Technologies Energy Management Product Sheets (2006). http://www.usatech.com/energy_management/energy_productsheets.php. Accessed 9/1/09.

TRM Review Actions:

- n/a

Measure Description

Controls can significantly reduce the energy consumption of vending machine lighting and refrigeration systems. Qualifying controls must power down these systems during periods of inactivity but, in the case of refrigerated machines, must always maintain a cool product that meets customer expectations. This measure applies to refrigerated beverage vending machines, non-refrigerated snack vending machines, and glass front refrigerated coolers. This measure should not be applied to ENERGY STAR® qualified vending machines, as they already have built-in controls.

Algorithms for Calculating Primary Energy Impact

Unit savings are deemed based on the following algorithms and assumptions:

$\Delta kWh = (kWrated)(Hours)(SAVE)$
$\Delta kW = \Delta kWh / Hours$

Where:

kWrated = Rated kW of connected equipment. See Table below for default rated kW by connected equipment type.
Hours = Operating hours of the connected equipment: default of 8,760 hours
SAVE = Percent savings factor for the connected equipment. See table below for values.

Vending Machine and Cooler Controls Savings Factors(1)

Equipment Type	kW_{RATED}	SAVE (%)	ΔkW	ΔkWh
Refrigerated Beverage Vending Machines	0.40	46	0.184	1612

Baseline Efficiency

The baseline efficiency case is a standard efficiency refrigerated beverage vending machine, non-refrigerated snack vending machine, or glass front refrigerated cooler without a control system capable of powering down lighting and refrigeration systems during periods of inactivity.

High Efficiency

The high efficiency case is a standard efficiency refrigerated beverage vending machine, non-refrigerated snack vending machine, or glass front refrigerated cooler with a control system capable of powering down lighting and refrigeration systems during periods of inactivity.

Hours
It is assumed that the connected equipment operates 24 hours per day, 7 days per week for a total annual operating hours of 8,760.

Measure Life
5 Years

Incentive
$50/unit

Energy Management System – Hotel Room

Measure ID: See Table 7.3 (TBD)
Measure Code:

Version Date & Revision History
Draft date: June 3, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents:

TRM Review Actions:

- n/a

Measure Description
Energy is the lodging industry's second-greatest operating cost. An energy management system (EMS) with occupancy detection can accurately determines when to switch to energy-saving setbacks and when to switch back. The direct digital control (DDC) processor is capable of controlling a fan coil unit or packaged terminal air conditioner found in guestrooms.

Qualification/Requirements

- Guest rooms with adjoining doors must be sectioned off and individually controlled.
- Controls on sliding glass doors shall use occupancy sensors or other technologies that will de-energize the fan coil unit (FCU) when the door remains open or the room becomes vacant or unoccupied.
- Chilled water valves shall close when rooms are vacant or unoccupied.
- Temperature setpoints shall be set-up when rooms become vacant or unoccupied.
- Outside air shall be provided to corridors, makeup air units or directly to the FCU to ensure a positive pressure in the hotel rooms and eliminate air infiltration and humidity migration associated with a negative room pressure.

Baseline Efficiency
The baseline efficiency case is no energy management system.

High Efficiency
The high efficiency case is an energy management system.

Energy Savings

Measure	Energy Savings (kWh/year)	Demand Savings (kW)
EMS	750	0.10

Measure Life
15 Years

Incentive and Incremental Cost

Measure	Incentive	Incremental Cost
EMS	$ 50	$ 402

11.0 (CBEEM) Custom Business Energy Efficiency Measures

Customized Project Measures

Customized Project Measures

Measure ID: See Table 7.3 (TBD)
Measure Code:

Version Date & Revision History
Draft date: March 2, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents:

TRM Review Actions:

- n/a

Major Changes:

- Measure life > 5 years has $0.08/kWh incentive and a $100/kW day-peak demand incentive

Description: The Custom project measure is offered for energy efficiency projects involving complex site-specific applications that require detailed engineering analysis and/or projects which do not qualify for incentives under any of the prescriptive rebate offering. Projects offered through the custom approach must pass a cost-effectiveness test based on project-specific costs and savings.

Measure Life	Reduction in Energy Use Incentive	Evening Peak Demand Reduction (5:00 p.m. to 9:00 p.m. weekdays)	Day Peak Demand Reduction (12:00 p.m. to 2:00 p.m. weekdays)	First Year Energy Savings (kWh)	Demand Savings (kW)
< 5 years	$0.05 /kWh	$125 / kW	*$100 / kW		
> 5 years	$0.08 /kWh	$125 /kW	*$100 /kW		

Program Requirements:

- Approval is required prior to the start of work on any customized project.
- Total resource benefit ratio is greater than or equal to 1.
- Incremental simple payback greater than one year or six months for LED projects.

Requirements for Non ENERGY STAR® LED Lamps	
• Five year manufacturer warranty or three year manufacturer warranty with LM79 and LM80 (1,000 hour) tests	• UL Listed

Energy and Demand Savings:

All assumptions, data and formulas used in the calculations must be clearly documented. Standard engineering principles must be applied, and all references cited. Energy saving calculations shall also reflect the interactive effects of other simultaneous technologies to prevent the overstatement of the actual savings. Proposed base and enhanced cases must be performed by a qualified person or firm. In some cases, a professional engineer may be required to provide verification of the analysis.

Savings Algorithms

Gross energy and demand savings estimates for custom projects are calculated using engineering analysis and project-specific details. Custom analyses typically include a weather dependent load bin analysis, whole building energy model simulation, or other engineering analysis and include estimates of savings, costs, and an evaluation of the project's cost-effectiveness.

Baseline Efficiency

The baseline efficiency case assumes compliance with the efficiency requirements as mandated by the Hawaii State Energy Code or industry accepted standard practice.

High Efficiency

The high efficiency scenario is specific to the custom project and may include one or more energy efficiency measures. Energy and demand savings calculations are based on projected changes in equipment efficiencies and operating characteristics and are determined on a case-by-case basis. The project must be proven cost-effective and pass total resource benefit and have a payback greater than or equal to 1.

Persistance Factor
PF = 1 since all custom projects require verification of equipment installation.

Incentives

- Incentives is limited to 50% of incremental costs.
- Installations are subject to inspection for up to 5 years. Removal will be cause for incentive forfeiture.

Customized Project Measures – American Recovery & Reinvestment Act (ARRA)

Measure ID: See Table 7.3 (TBD)
Measure Code:

Version Date & Revision History
Draft date: March 2, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents:

TRM Review Actions:

- n/a

Major Changes:

- Measure life > 5 years has $0.08/kWh incentive and a $100/kW day-peak demand incentive

ELIGIBILITY

Government and non-profit organization energy efficiency projects that are not already ARRA funded.

Measure Life	Reduction in Energy Use Incentive	Evening Peak Demand Reduction (5:00 p.m. to 9:00 p.m. weekdays)	Day Peak Demand Reduction (12:00 p.m. to 2:00 p.m. weekdays)	First Year Energy Savings (kWh)	Demand Savings (kW)
< 5 years	$0.05 /kWh	$125 / kW	*$100 / kW		
> 5 years	$0.08 /kWh	$125 /kW	*$100 /kW		
Total Project Cost	**Reduction in Energy Use Incentive**	**Evening Peak Demand Reduction Incentive (5:00 p.m. to 9:00 p.m. weekdays)**	**Day Peak Demand Reduction Incentive (12:00 p.m. to 2:00 p.m. weekdays)**		
Incentive Program		**Incentive Amount**	**% of Total Project Cost**		
Custom (PBF)					
Supplemental Custom (ARRA)					
Total			**25%**		

*** HVAC application only**

Requirements for Customized Incentives

- Program approval is required prior to the start of work on any customized project.
- Total resource benefit ratio that is greater than 1
- Incremental simple payback greater than one year or six months for LED projects
- SEP and Hawaii Energy incentive limited to 25% of total project cost
- **Hawaii Energy custom incentives limited to 50% of incremental costs**
- **Total projects cost must exceed $60,000**
- **Installations are subject to inspection for up to five years. Removal will be cause for incentive forfeiture.**

Requirements for Non ENERGY STAR® LED Lamps

- **Five year manufacturer warranty or three year manufacturer warranty with LM79 and LM80 (1,000 hour) tests**
- **UL Listed**

PROCESS

1. Call to discuss project with us.
2. Submit completed application and work sheet.
3. Provide supporting information:
   ● Layouts ● Energy Models ● Drawings ● Technical attachments ● Vendor literature

Energy and Demand Savings:

All assumptions, data and formulas used in the calculations must be clearly documented. Standard engineering principles must be applied, and all references cited. Energy saving calculations shall also reflect the interactive effects of other simultaneous technologies to prevent the overstatement of the actual savings. Proposed base and enhanced cases must be performed by a qualified person or firm. In some cases, a professional engineer may be required to provide verification of the analysis.

Savings Algorithms

Gross energy and demand savings estimates for custom projects are calculated using engineering analysis and project-specific details. Custom analyses typically include a weather dependent load bin analysis, whole building energy model simulation, or other engineering analysis and include estimates of savings, costs, and an evaluation of the project's cost-effectiveness.

Baseline Efficiency

The baseline efficiency case assumes compliance with the efficiency requirements as mandated by the Hawaii State Energy Code or industry accepted standard practice.

High Efficiency

The high efficiency scenario is specific to the custom project and may include one or more energy efficiency measures. Energy and demand savings calculations are based on projected changes in equipment efficiencies and operating characteristics and are determined on a case-by-case basis. The project must be proven cost-effective and pass total resource benefit and have a payback greater than or equal to 1.

Energy Savings

Hawaii Energy will be allowed to claim credit for the fraction of the energy and demand savings and total resource benefits that is proportional to the share of customer incentive cost paid with PBFA funds.

Persistance Factor

PF = 1 since all custom projects require verification of equipment installation.

Incentives

- SEP and Hawaii Energy incentive limited to 25% of total project cost
- Total project cost must exceed $60,000

Customized Project Measures – Forced to Induced Draft Cooling Tower

Measure ID: See Table 7.3 (TBD)
Measure Code:

Version Date & Revision History
Draft date: June 8, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents:

TRM Review Actions:

- n/a

Major Changes:

Base Case
Forced draft cooling tower with 2 speed motor (Low/High)

High Efficiency Case
Induced draft cooling tower with a variable frequency drive (VFD)

Fan performance affinity law is utilized whereas the power is proportional to the cube of shaft speed:

$$HP_2/HP_1 = (RPM_2/RPM_1)^3$$

VFD modulates fan motor:

Motor (VFD) Modulates	Percent of time	Operating Hrs / Year
25%	47%	3088
50%	42%	2759
75%	11%	723
100%	0%	0

Energy Savings

COOLING TOWER - FORCED DRAFT TO INDUCED DRAFT SAVING ALGORITHM

Average Energy Charge $ 0.25 per kWh

HVAC run time fraction 75%
Hours Per Year 8760 Hours / Year
Total Motor/Fan run time 6570 Hours / Year

BASE CASE (EXISTING) - FORCED DRAFT COOLING TOWER 2-SPEED MOTOR (LOW/HIGH)

Low Speed run-time 65%
Low Speed run-time 4271 Hours / Year
High Speed run-time 35%
High Speed run-time 2300 Hours / Year

Example

Cooling	HP	Operating KW Conversion	Average KW	Operating hrs/yr	Energy kWh/yr	Cost ($/Yr)
LOW SPEED MODE	25	0.746	18.65	4271	79,645	$ 19,911
HIGH SPEED MODE	50	0.746	37.3	2300	85,771	$ 21,443
Total			**27.975**	**6570**	**165,416**	**$ 41,354**

HIGH EFFICIENCY CASE (ENHANCED) - INDUCED DRAFT COOLING TOWER WITH VFD

Fan Speed (RPM_1) 1750
Fan Motor (HP_1) 50

Cooling	$HP_2 = HP_1(RPM_2/RPM_1)^3$	Operating KW Conversion	Average KW	Operating hrs/yr	Energy kWh/yr	Cost ($/Yr)	Motor (VFD) Modulates	RPM_2	Percent of time	Operating Hrs / Year
25%	0.781	0.746	0.58	3088	1800	449.92	25%	437.5	47%	3088
50%	6.250	0.746	4.66	2759	12866	3216.43	50%	875	42%	2759
75%	21.094	0.746	15.74	723	11372	2843.09	75%	1312.5	11%	723
100%	50.000	0.746	37.30	0	0.00	0.00	100%	1750	0%	0
Total			**14.57**	**6570**	**26,038**	**$ 6,509.43**				

Annual Energy Savings (kWh/year)	Demand Savings (kW)	Annual Cost Savings	kWh/HP
139,378	**13.40**	**$ 34,844.61**	**2,788**

	Energy ($/kWh)	Demand (kW)	Total
Incentive Rate	$ 0.08	$ 100.00	
Custom Incentive	$ 11,150	$ 1,340	**$ 12,491**

Business Design, Audits and Commissioning

Central Plant Optimization Competition Program

Measure ID: See Table 7.3 (TBD)
Measure Code:

Version Date & Revision History
Draft date: March 2, 2011
Effective date: January 1, 2011
End date: TBD

Referenced Documents:

TRM Review Actions:

- n/a

Major Changes:

Description:
This program is designed to improve building operations through a systematic approach of installing critical metering, performing retro-commissioning activities to identify and optimize system operations, and then measuring and sharing results.

Claimed Savings
Energy and Demand savings (100%) will be claimed upfront and 50% payment of claimed energy savings will be paid at $0.10/kWh upon implementation (1 month after start of Operational Period).

Adjustment of Incentive Funding

- **Return of Incentive Funds for Decreased Energy Savings**
  If overfunded, customer shall return the difference between the actual and estimated claimed energy saving to the Program.

- **Additional Funding for Increased Energy Savings**
  If underfunded, payment will be made to customer (up to 100% of investment).

PROCESS

A baseline energy usage will be determined based on both metering and engineering calculations. Post meter installation review along with spot measurements will be conducted.

Initial Meeting
Application
Preliminary Systems Review

- Consultant Price Proposal
- Consultant Perform Systems Review
    - Consultant Provide Metering and Commissioning Plan

Metering and Commissioning Plan

- Approve Metering Plan
- Approve Metering Budget
- Metering Installation
- Design/Oversight/Test Metering/Base Meter Readings – 2 weeks

System Commissioning Plan

- Approve Commissioning Plan
- Investigation
- Analysis/Documentation
- Field Commissioning/Tuning
- Development of Sequence of Operations
- Recommend Operational Improvements
- Recommended System Upgrades
- Maintenance and Operations Plan
- Operational Training
- System Commissioning Budget

Final Metering and Commissioning Report & Documentation Submittal

Operational Performance Period

- Start Operation Period (after commissioning, training)
    - Estimated Performance Assessment 1 – (1 month after start of Operational Period)
    - Estimated Performance Assessment 2 – (6 month after start of Operational Period)
    - Estimated Performance Assessment 3 – (End of Operational Period)
- End Operational Period (1 – year after start of operational period)
- Review Savings Achievement

Central Plant Optimization Competition Process and Project Review Worksheet

Deliverable	Action		Customer Cost	Incentive Rate	Committed Incentive	Set Aside Incentive	
Initial Meeting	Scope review, Program review						
Application							
Preliminary Systems Review	Price Proposal		$ -	50%	$ -		***Payment 1***
	Perform Systems Review						
Metering and Commissioning Plan	Approve Metering Plan						
	Metering Budget		$ -				
	Metering Installation		$ -				
	Design/Oversight/Test Metering/Base Meter Readings-2 Weeks		$ -	100%		$ -	***Payment 2***
			$ -				
System Commissioning Program	Approve Commissioning Plan						
	Investigation		$ -	50%		$ -	
	Analysis /Documentation		$ -	50%		$ -	
	Field Commissioning / Tuning		$ -	50%		$ -	
	Development of Sequence of Operations		$ -	50%		$ -	
	Recommend Operational Improvements		$ -	50%		$ -	
	Recommended System Upgrades		$ -	50%		$ -	
	Maintenance and Operations Plan		$ -	50%		$ -	
	Operational Training		$ -	50%		$ -	
	System Commissioning Budget		$ -			$ -	***Payment 3***
	Final Report & Documentation						
Operational Performance Period	Start Operational Period (after commissioning, training)						
						Incentive	*Multiply Est. Performance Assessments by Incentive to achieve potential savings*
						$ 0.10	
						Potential Savings	
	Estimated Performance Assessment **1**	(1mo after start of Operational Period)	#REF!	50%		**#REF!**	***Payment 4***
	Estimated Performance Assessment **2**	(6mo after start of Operational Period)	#REF!	25%		**#REF!**	***Payment 5***
	Estimated Performance Assessment **3**	(End of Operational Period)	#REF!	25%		**#REF!**	***Payment 6***
	Potential Savings per Year		#REF!	100%		#REF!	
	End Operational Period (1 - year after start of operational period)						
	Review Savings Achievement						

Incentives and Responsibilities:

Incentive	Amount	Responsibilities
Commissioning Contract	50% incentive up to $0.20 per sq. ft.	• Preliminary Systems Review • Metering Plan • Development of Sequence of Operations • Operational Improvements • System Upgrade Improvements • Maintenance and Operations Plan • Operational Training • Owner commitment to participate in the Optimization Competition
Metering System	100% incentive for approved metering equipment and data collection systems	• Access to performance data for five years. • Owner commitment to perform operational and system upgrade recommendations with less than 2 year paybacks up to the cost of the metering incentive within two years or forfeit metering incentive
Energy Reduction	$0.10 per kWh saved for one year	• 50% upon implementation • 25% for performance at sixth month • 25% for performance at one year

*Total incentives not to exceed customer cost.

Package & Split Annual Tune-Up

Measure ID: See Table 7.3 (TBD)
Measure Code:

Version Date & Revision History
Draft date: March 2, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents:

TRM Review Actions:

- n/a

Major Changes:

Description:

- Demonstrate the benefits of tune-ups
- Educate customer on savings potential
- Utilize the Participating Contractors to contact the customers and have them arrange for the service work
- Participating Contractors will use the Hawaii Energy PTAC/Split AC Maintenance Checklist to inspect and perform the pre and post conditions of their maintenance work
- Participating Contractor's invoice must show that checklist requirements have been met and signed by the servicing technician
- Customers can have 2 incentives per location annually

Baseline Efficiency

The base case efficiency is no tune up.

Building Types	Demand Baseline (kW)	Energy Baseline (kWh/year)
Residential Household	1.1	5,256

High Efficiency

The high efficiency case is with annual AC tune up.

Building Types	Efficient Case (kW)	Efficient Case (kWh/year)
Residential Household	1.1	4,778

Energy and Demand Savings:

Building Types	Net Customer Savings (kW)	Net Customer Savings (kWh/year)
Residential Household	0.000	438
On Peak Run Time Reduction Peak Demand Savings	0.03	

Savings Algorithms

Commercial Package & Split AC Annual Tune Up					
Average AC unit Size		1	ton unit		
Average AC Unit EER		11.0	EER		
EER to kW Conversion		12			
	÷	11.0	EER		
Average AC Unit kW/Ton		1.09	kW/Ton		
Equivelant Full Load Run Hours (EFLRH)		4,380.0	hrs./Year	12.0	hrs. per Day
Average AC unit Size		1	ton unit		
Average AC Unit kW/Ton		1.09	kW/Ton		
Equivelant Full Load Run Hours (EFLRH)	x	4,380	hrs./Year		
Post Tune Up - Average AC Unit Energy Consumption		4,380	kWh/Year		
Incorrect Refrigerant Charge		5%			
Clogged AHU Filter		3%			
Dirty Condenser Coil		3%			
Pre Tune Up AC Operational Problems EFLRH Adjustment Factor		10%			
Post Tune Up - Average AC Unit Energy Consumption		4,380	kWh/Year		
Pre Tune Up AC Operational Problems EFLRH Adjustment Factor	÷	110%			
Pre Tune Up - Average AC Unit Energy Consumption		4,818	kWh/Year	4,417	hrs. per year
				12.10	hrs. per Day
Pre Tune Up - Average AC Unit Energy Consumption		4,818			
Post Tune Up - Average AC Unit Energy Consumption		4,380			
Post Tune Up - Average AC Unit Energy Savings		438	kWh/Year		
Post Tune Up - Average AC Unit Energy Savings		438	kWh/Year		
Persistance Factor	x	1.0			
Net Customer Level Savings		438	kWh/Year		
AC Tune Up Energy Savings		438	kWh / Year Savings		
Average AC unit Size		1	ton unit		
Average AC Unit kW/Ton		1.09	kW/Ton		
Average AC Unit Demand		1.09	kW		
Average AC Unit Demand		1.09	kW		
Persistance Factor	x	1.00			
Pre Tune Up Coincidence Factor	x	0.25			
Pre Tune Up On Peak Demand		0.273	kW		
AC Unit Demand will not change. A reduction in operational hours will occur once tune up is completed. This lowers Coincidence Factor					
Pre Tune Up Coincidence Factor		0.25			
Post Tune Up Run Time Reduction Adjustment Factor	x	90%			
Post Tune Up Coincidence Factor		0.23			
Average AC Unit Demand		1.09			
Persistance Factor	x	1.00			
Post Tune Up Coincidence Factor	x	0.23			
Pre Tune Up On Peak Demand		0.245	kW		
Pre Tune Up On Peak Demand		0.27			
Post Tune Up Coincidence Factor	-	0.25			
AC Tune Up Demand Savings		0.027	kW		
AC Tune Up Demand Savings		0.027	kW Savings		

Operational Factor	Adjustment Factor
Persistence Factor (pf)	1.00
Demand Coincidence Factor (cf)	0.20

Incentives:

Description	Unit Incentive	Incremental Cost
Package and Split Annual Tune Up	$ 100.00	$ 400.00

12.0 (BHTR) Business Hard to Reach

Energy Efficiency Equipment Grants

Small Business Direct Installation

Measure ID: See Table 7.3 (TBD)
Measure Code:

Version Date & Revision History
Draft date: March 2, 2011
Effective date: July 1, 2010
End date: TBD

Referenced Documents:

TRM Review Actions:

- n/a

Major Changes:

Description: The goal is to provide small business owners with an economical, quick and easy switch to more energy efficient lighting. The program is designed to address the needs of small business owners and help them overcome the barriers of time, trust and technical knowledge to make lighting technology changes.

Requirements: Schedule G

Small Business Direct Install Lighting Retrofit Pilot Program
Summary Sheet

This Program is available for and funded by the Commercial and Industrial Electric Utility Customers of Hawaii, Lanai, Maui, Molokai and Oahu and is administered under the direction of the Hawaii Public Utilities Commission.

Business Name:	
Contact Name:	
Address:	
Phone:	
Fax:	
Email:	

Contractor Name:	
Auditor Name:	
Address:	
Phone:	
Fax:	
Email:	

Total Watts Saved	Energy Savings	Energy Cost Savings	Hawaii Energy Participating Contractor NTE Pricing	Hawaii Energy Cash Incentive	Net Customer Cost	Simple Payback	4 Month Monthly Payment	Monthly Savings % of Payment
-	-	$ -	$ -	$ -	-	#DIV/0!	-	#DIV/0!

Small Business Direct Install Lighting Retrofit Pilot Program Worksheet

For Internal Processsing Use

Application #: 8888888
Approval: MC

This Program is available for and funded by the Commercial and Industrial Electric Utility Customers of Hawaii, Lanai, Maui, Molokai and Oahu and is administered under the direction of the Hawaii Public Utilities Commission.

Step 1	
f2	
Molokai	Island of Project Location
$ 0.437 /kWh	2010 "G" Marginal Cost of Electricity

					Step 2	Step 3				Step 4												
Measure Code	Existing Technology		New Technology		Total Units	M-F Hours per Day	Sat. Hours per Day	Sun. Hours per Day	Annual Hours of Operation	Wkdays Hours on between 5 and 9 p.m.	On-Peak Fraction	Total Watts Saved	Energy Savings	Energy Cost Savings	Hawaii Energy Participating Contractor NTE Pricing	Hawaii Energy Cash Incentive	Net Customer Cost	Simple Payback	4 Month Monthly Payment	Monthly Savings % of Payment
					(each)				(hrs/year)	(hrs)	(%)	(Watts)	(kWh/Year)	($/year)	($)	($)	($)	(Months)	($/month)	(%)
					a	b1a	b1b	b2a	b3 = b1*b2*365/7	c	c2 =c / 4	d = a x o	e = b x (d/1000)	f = e x f2	g = a x p	h = a x q	i = a x (p-q)	j = (i/f) x 12	k = i / 4	l = (f/12)/k
8L1-4L2	8 ft.	1 Lamp F96	4 ft.	2 lamp F25/28 N	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
8L2-4L2	8 ft.	2 Lamp F96	4 ft.	2 lamp F25/28 H	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
8L2HO-4L2R	8 ft.	2 Lamp F96 HO	4 ft.	2 lamp F25/28 N, Reflct.	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
8L2HO-4L4	8 ft.	2 Lamp F96 HO	4 ft.	4 lamp F25/28 N	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
4L4-4L4	4 ft.	4 Lamp F40	4 ft.	4 lamp F25/28 N	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
4L4-4L2R	4 ft.	4 lamp F40	4 ft.	2 lamp F25/28 N, Reflct.	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
4L3-4L3	4 ft.	3 lamp F40	4 ft.	3 lamp F25/28 N, Reflct.	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
4L3-4L2R	4 ft.	3 lamp F40	4 ft.	2 lamp F25/28 N, Reflct.	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
4L2-4L2	4 ft.	2 lamp F40	4 ft.	2 lamp F25/28 N	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
4L1-4L1	4 ft.	1 lamp F40	4 ft.	1 lamp F25/28 N	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
4L4-4L4	4 ft.	4 lamp F32	4 ft.	4 lamp F25/28 N	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
4L4-4L2	4 ft.	4 lamp F32	4 ft.	2 lamp F25/28 N	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
4L3-4L3	4 ft.	3 lamp F32	4 ft.	3 lamp F25/28 N	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
4L3-4L2	4 ft.	3 lamp F32	4 ft.	2 lamp F25/28 N	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
4L2-4L2	4 ft.	2 lamp F32	4 ft.	2 lamp F25/28 N	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
4L1-4L1	4 ft.	1 lamp F32	4 ft.	1 lamp F25/28 N	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
1L400-4L6	HID Pendant	1 lamp 400W	4 foot	6 lamp F25/T8 N	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
1L250-4L4	HID Pendant	1 lamp 250W	4 foot	4 lamp F25/T8 N	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
1L175-4L4	HID Pendant	1 lamp 175W	4 foot	4 lamp F25/T8 N	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
UBL2-2L2	4 ft. U-Bend	2 lamp FB40	2 ft.	2 lamp F17 N	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
UBL2-2L2R	4 ft. U-Bend	2 lamp FB40	2 ft.	2 lamp F17 L, Reflector	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
100-23	100 Watt Incandescent		23 Watt	CFL	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
75-19	75 Watt Incandescent		19 Watt	CFL	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
60-13	60 Watt Incandescent		13 Watt	CFL	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
Exit	40W Incandecent		2 Watt	LED	0	0	0	0	-	-	0%	-	-	$ -	$ -	$ -	$ -	-	$ -	0%
OverHeight	Cost Adder for Fixtures above or out of the reach of a 10' Ladd				0										$ -		$ -			
												-	-	$ -	$ -	$ -	$ -	#DIV/0!	$ -	#DIV/0!

Estimated Incentive Amount (from the worksheet, subject to validation) $ -

Small Business Direct Install Lighting Retrofit Pilot Program Workbook Input

This Program is available for and funded by the Commercial and Industrial Electric Utility Customers of Hawaii, Lanai, Maui, Molokai and Oahu and is administered under the direction of the Hawaii Public Utilities Commission.

WORKBOOK INPUTS

Measure Code	Existing per Unit Watts	Unit New Watts	Unit Watts Saved	Hawaii Energy Participating Contractor Pricing	Hawaii Energy Cash Incentive	Public Benefit Fee Investment
	(Watt/unit)	(Watt/unit)	(Watt/unit)	($/unit)	($)	($/kWh)
	m	n	o = m-n	p	q	r
8L1-4L2	85	46	39	$ 75	$ 27	$ -
8L2-4L2	142	57	85	$ 84	$ 53	$ -
8L2HO-4L2R	170	46	124	$ 85	$ 27	$ -
8L2HO-4L4	170	92	78	$ 138	$ 53	$ -
4L4-4L4	168	92	76	$ 83	$ 51	$ -
4L4-4L2R	168	46	122	$ 65	$ 27	$ -
4L3-4L3	126	69	57	$ 74	$ 38	$ -
4L3-4L2R	126	46	80	$ 65	$ 27	$ -
4L2-4L2	84	46	38	$ 35	$ 27	$ -
4L1-4L1	42	23	19	$ 30	$ 14	$ -
4L4-4L4	112	92	20	$ 83	$ 34	$ -
4L4-4L2	112	46	66	$ 65	$ 53	$ -
4L3-4L3	84	69	15	$ 74	$ 26	$ -
4L3-4L2	84	46	38	$ 65	$ 25	$ -
4L2-4L2	56	46	10	$ 35	$ 27	$ -
4L1-4L1	28	23	5	$ 35	$ 9	$ -
1L400-4L6	475	138	337	$ 360	$ 76	$ -
1L250-4L4	300	92	208	$ 330	$ 51	$ -
1L175-4L4	225	92	133	$ 330	$ 51	$ -
UBL2-2L2	84	32	52	$ 40	$ 22	$ -
UBL2-2L2R	84	27	57	$ 50	$ 30	$ -
100-23	100	23	77	$ 10	$ 4	$ -
75-19	75	19	56	$ 8	$ 4	$ -
60-13	60	13	47	$ 6	$ 4	$ -
Exit	40	2	38	$ 75	$ 38	$ -
OverHeight				$ 8		
						#DIV/0!

Attachment H

PY2010 Outreach Report

PY	Month	Media	Subject	Consumer Marketing	Commercial Marketing	Trade Allies	Other Energy Efficiency Activities
2010	July 2010	Web	Redesigned website launch	✓	✓	✓	✓
2010	July 2010	Web	Program Impact: Hawaii Delivers 4,300 Appliance Rebates in Three Days	✓			
2010	July 2010	Social media	Energy Expo		✓	✓	✓
2010	July 2010	Social media	Summer cooling tips	✓			
2010	July 2010	Social media	Energy news				✓
2010	July 2010	Social media	Asia Pacific Clean Energy Summit and Expo		✓		✓
2010	July 2010	Print	Ad – Hawaii Home + Remodeling	✓			
2010	July 2010	Social media	"HawaiiEnergy: Hawaii's Energy Efficiency Utility wants to reduce your energy bill!!!" (Video by Henry Curtis on Vimeo)	✓	✓		
2010	July 2010	Social media	"Hawaii Energy probably has some of the best looking graphics of any utility company I've seen – which may not be saying a lot." (From Washington D.C. – Graphic designer Jackson Black's blog)				✓
2010	August 2010	Print	"Verification necessary before rebates issued" (Star-Advertiser)	✓			
2010	August 2010	Web	"Greening the yoga studio" (David Onoue, Sports Yoga Hawaii blog)		✓		
2010	August 2010	Web	Redesigned website launch	✓	✓	✓	
2010	August 2010	Social media	Energy Expo		✓	✓	
2010	August 2010	Social media	Summer cooling tips	✓			
2010	August 2010	Social media	Energy news				✓
2010	August 2010	Social media	Asia Pacific Clean Energy Summit and Expo		✓		✓
2010	September 2010	Social media	Asia Pacific Clean Energy Summit and Expo – photos		✓		✓
2010	September 2010	Web	Kanu Hawaii journal: Assessing energy initiatives	✓			
2010	September 2010	Social media	Wesco Road to Sustainability Workshops – photos		✓	✓	
2010	September 2010	Social media	IDEO workshop – photos				✓
2010	September 2010	TV	KHON: Gubernatorial candidates reveal energy plans at Energy Expo				✓
2010	September 2010	TV	KITV: Abercrombie, Aiona Differ on Clean Energy Goals				✓
2010	September 2010	Social media, website	Lighting Design Breakfast workshop featuring Chip Israel		✓	✓	
2010	September 2010	TV	Star-Advertiser: Abercrombie and Aiona tangle on energy policy				✓
2010	September 2010	Web	Civil Beat: Aiona Shines at Energy Expo				✓
2010	September 2010	Web	Green Magazine Hawaii: Energy Expo 2010		✓	✓	
2010	September 2010	Web	Lookin' Green: Hawaii – Open For Clean Energy Business		✓	✓	
2010	September 2010	Social, website	Energy Expo 2010 and workshop presentations		✓	✓	
2010	October 2010	Social media	Windward Ho'olaule'a	✓			
2010	October 2010	Print	Star Advertiser: Projects to generate clean energy power up				✓
2010	October 2010	Social media	Live Energy Lite	✓			
2010	October 2010	Social media, television	KGMB: Hawaii Home Energy Makeover (sponsorship and "Shed Some Light" TV spot)	✓			
2010	October 2010	Social media, press release	Hawaii jumps to No. 12 in ACEEE State Energy Efficiency Scorecarc				✓
2010	October 2010	Social media	Hickam Energy Fair	✓			
2010	October 2010	Social media	Energy Awareness Fair (Marine Corps Base Hawaii)	✓			
2010	October 2010	Social media	CFL Giveaway (The Kohala Center)	✓			
2010	October 2010	Social media, email	HTDC Workshop for Manufacturers		✓	✓	
2010	October 2010	Social media	Pearl Harbor Energy Fair	✓			
2010	October 2010	Social media, press release,	Hot Water, Cool Rates	✓			
2010	October 2010	Social media	Halloween Costume Contest	✓			✓
2010	November 2010	Social media	Hot Water, Cool Rates program website	✓			
2010	November 2010	Website, social media	Pioneer Electric Annual Blowout Trade Show		✓	✓	
2010	November 2010	Website, social media	Winner of Halloween costume contest announcement	✓			
2010	November 2010	Website, social media	11th Annual Pacific Building Trade Expo		✓	✓	
2010	November 2010	Social media	Photos: Kalaeloa Solar One & Hot Water, Cool Rates	✓			
2010	November 2010	Website, social media	Rebuild Hawaii Consortium quarterly meeting		✓	✓	
2010	November 2010	Solar Guy Radio	The Solar Guy: Hot Water, Cool Rates	✓			
2010	November 2010	Website, social media	Chaminade Greenswords CFL exchange	✓			
2010	November 2010	Website, social media	UH-Hilo CFL exchange	✓			
2010	November 2010	Solar Guy Radio	The Solar Guy: Energy Efficiency Portfolio Standard (EEPS)				✓
2010	November 2010	Website, social media	SAIC CEO visit press release photos				✓
2010	November 2010	Website, social media	The light is going out on incandescent lamps (NEMA Lighting Options for your Home brochure)	✓			
2010	November 2010	Website, social media	This holiday season, give the gift of savings with ENERGYSTAR®	✓			
2010	November 2010	Website, social media	Hawaii Home Energy Makeover third airing announcement + webisodes posted on website	✓			
2010	November 2010	Website, social media	Hawaii Energy partners with DHHL, CNHA to offer $250 rebates for ENERGYSTAR® washing machines	✓			
2010	November 2010	Website	The Hawaii Independent – Council for Native Hawaiian Advancement joins effort to reduce grid dependency	✓			
2010	November 2010	Website	Hawaiiusafcu.com – Solar Loan Program banner	✓			
2010	November 2010	Website	www.hawaiinational.com - Solar Water Heater Loan Program	✓			

PY	Month	Media	Subject	Consumer Marketing	Commercial Marketing	Trade Allies	Other Energy Efficiency Activities
2010	December 2010	Social media	Hot Water, Cool Rates program website	✓			
2010	December 2010	*Honolulu Magazine*	Oil ad	✓			
2010	December 2010	*Hawaii Business Magazine*	Oil ad	✓	✓		
2010	December 2010	*Hawaii Home + Remodeling*	Switch & Save CFL ad	✓			
2010	December 2010	Website, social media	Developed software, rules and standards for "Forum" section	✓	✓	✓	
2010	December 2010	Website, social media	Pahoa High & Intermediate School CFL exchange	✓			
2010	December 2010	Website, social media	Hawaii Air National Guard Family Day	✓			
2010	December 2010	Hawaii News Now	Hawaii Energy Program	✓			
2010	December 2010	Website, social media	Hawaii Home Energy Makeover	✓			
2010	December 2010	Website, social media	Walmart, Kailua-Kona CFL giveaway	✓			
2010	December 2010	Website, social media	Gifts that Keep on Giving: Hawaii Energy's Top 5 Energy Saving Gift list	✓			
2010	December 2010	The Kukui High Courier	Hot Water, Cool Rates page	✓			
2010	December 2010	Website, social media	Hilo Bay CFL Giveaway	✓			
2010	December 2010	KHON2	Be Green 2: combining recycling & fundraising	✓			
2010	December 2010	*Honolulu Star-Advertiser*	Hawaii USA FCU ad – Hawaii USA Solar Loan Program	✓			
2010	December 2010	Website, social media	The Event in the Park	✓			
2010	December 2010	*Honolulu Star-Advertiser*	Power bills going up a few cents	✓	✓	✓	
2010	January 2011	*Hawaii Business, Hawaii Home*	Oil ad	✓	✓		
2010	January 2011	Website	Solar Financing Options – Blue Planet Foundation	✓			
2010	January 2011	Website	Conserve Fundraise Learn (C.F.L) Program – The Kohala Center	✓			
2010	January 2011	*Honolulu Star-Advertiser*	HECO request to recoup $1.4M in transition fees rejected				✓
2010	January 2011	*Honolulu Star-Advertiser*	Green Financing Makes Solar A Hot Option for 2011 (FHB advertorial)	✓			
2010	January 2011	Website, social media	Rebuild Hawaii Consortium quarterly meeting		✓	✓	
2010	January 2011	*Honolulu Star-Advertiser*	Homebuilders skirt solar law	✓		✓	
2010	January 2011	*Hawaii 24/7*	Family Support Hawaii free light bulb and book exchange	✓			
2010	January 2011	*KPUA*	Hawaiians get help to buy energy efficient washers	✓			
2010	January 2011	*KHON2*	Hawaiians get help to buy energy efficient washers	✓			
2010	January 2011	*Hawaii Tribune-Herald*	Introduce CFL exchange	✓			
2010	February 2011	*Honolulu Magazine*	Oil advertisement	✓			
2010	February 2011	*Building Management Hawaii*	Hawaii Energy Launches Central Plant Optimization Program		✓	✓	
2010	February 2011	Website	Hawaii Energy launches Central Plant Optimization Competition		✓	✓	
2010	February 2011	*Honolulu Star-Advertiser*	Brighter bulbs	✓			
2010	February 2011	*Big Island Weekly*	CFL bulb exchange: Hawaii 4-H	✓			
2010	February 2011	Kona-Kohala Chamber of	Kona-Kohala Chamber of Commerce	✓			
2010	February 2011	*Hawaii 24/7*	Hawaii First joins in light bulb exchange	✓			
2010	February 2011	Email (e-newsletter)	February Newsletter: Job opening – Business Manager, Hot Water, Cool Rates, Central Plant Optimization Competition, 2011 Hawaii Buildings, Facilities & Property Management Expo on March 9 & 10	✓			✓
2010	February 2011	*West Hawaii Today*	Hawaii Energy offers workshop on February 24		✓	✓	
2010	February 2011	*Molokai Dispatch*	Save Your Energy	✓			
2010	February 2011	*Big Island Video News*	Hawaii Energy offers workshops on Big Island		✓	✓	
2010	February 2011	Web, Social Media	Earn 7 American Institute of Architects and Continuing Education Systems		✓	✓	
2010	February 2011	Web, Social Media	St. Philomena Early Learning Center "Going Green Faire"	✓			
2010	February 2011	*Honolulu Civil Beat*	Program interview				✓
2010	March 2011	*HonuGuide (coupon book)*	HonuGuide – Hawaii's sustainable island living guide (produced by Kanu Hawaii)	✓			
2010	March 2011	*Maui Now*	Limited $250 Rebate for ENERGY STAR Purchase on Maui	✓			
2010	March 2011	*Hawaii 24/7*	Hawaii Energy program offers $250 rebates for Maui and Hawaii County residents	✓			
2010	March 2011	*Maui Tomorrow*	$250 rebate for Maui for ENERGY STAR® refrigerators	✓			
2010	March 2011	*Hawaii 24/7*	UH-Hilo hosting CFL bulb exchange	✓			
2010	March 2011	Website, social media	West Hawaii Explorations Academy CFL Exchange	✓			
2010	March 2011	*West Hawaii Today*	Rebates available for some appliances	✓			
2010	March 2011	Blue Planet Foundation	Two weeks to ditch the noisy, old fridge	✓			
2010	March 2011	*Hawaii Home+REMODELING*	Thoughts of Home	✓			
2010	March 2011	*The Green Leaf*	$250 to replace the clunky fridge	✓			
2010	March 2011	Website, social media	Hawaii Building, Facilities and Property Management Expo		✓	✓	
2010	March 2011	*The Molokai Dispatch*	Energy Kokua for Business Owners		✓	✓	
2010	March 2011	*Maui Now*	Solar Rebates Go Through the Roof	✓		✓	
2010	March 2011	*Star-Advertiser*	Solar water heater rebate to double	✓			
2010	March 2011	Website	Hawaii Energy offers limited-time BONUS rebates for qualified residential solar water heating installations	✓		✓	
2010	March 2011	Hawaii Energy Options	Hawaii Energy Doubles Rebate for Solar Water Heating	✓		✓	
2010	March 2011	*Maui News*	Solar water heater rebate to double	✓		✓	✓
2010	March 2011	Website, social media	Ocean View Teen Club CFL Exchange	✓			

PY	Month	Media	Subject	Consumer Marketing	Commercial Marketing	Trade Allies	Other Energy Efficiency Activities
2010	March 2011	Website	Go Green (Koko Marina Center)	✓			
2010	March 2011	*The Molokai Dispatch*	Cash for Water Heaters	✓			
2010	March 2011	*Hawaii Home+REMODELING*	Thoughts of Home	✓			
2010	March 2011	Sears advertisement	Trade-Up for Cool Cash ($125)	✓			
2010	March 2011	Clark Realty website	Considering a Switch to Solar Hot Water? Bonus Rebate	✓		✓	
2010	March 2011	Blue Planet Foundation e-	Hawaii Energy doubles solar hot water rebates through May 31	✓		✓	
2010	March 2011	Solar Guy Radio	On air Radio discussion	✓	✓		
2010	April 2011	KSSK	First Hawaiian Bank solar interest buy-down	✓		✓	
2010	April 2011	*Honolulu Weekly*	Energy House	✓			
2010	April 2011	*Hawaii 24/7*	Hawaii Energy's bonus solar water heating rebate ends early after exhausting funds	✓			
2010	April 2011	*Charlene on Green*	Hawaii Energy's bonus solar water heating rebate ends early after exhausting funds	✓			
2010	May 2011	*Honolulu Star-Advertiser*	More funds to go toward solar water heater rebate	✓			
2010	May 2011	*Hawaii 24/7*	Cash reward for turning in old appliances	✓			
2010	May 2011	Web, Social Media	Hawaii Energy offers new program to help residents improve energy efficiency	✓			
2010	May 2011	*Hawaii 24/7*	Hawaii Energy helping residents improve energy efficiency	✓			
2010	May 2011	Web, Social Media	Pioneer Electric Annual Summer Trade Show (tabletop)		✓	✓	
2010	May 2011	*Honolulu Star-Advertiser*	Isle ad businesses await judging for ADDY awards				✓
2010	May 2011	Web, Social Media	WorkForce 2011 Job & Career Fair				✓
2010	May 2011	Web, Social Media	Hawaii Energy, Toshiba announce Lighting the Future offering for small businesses and nonprofits		✓	✓	
2010	May 2011	Web, Social Media	Hawaii Energy's $1,000 solar water heating incentive ends	✓			
2010	May 2011	*Honolulu Star-Advertiser*	Incentive reduced for solar water rebate program	✓			
2010	May 2011	Web, Social Media	Hawaii Energy lends a hand to Molokai residents with refrigerator trade-in program	✓			
2010	May 2011	*Honolulu Star-Advertiser*	Homeowner solar rebate reduced	✓			
2010	May 2011	*Maui Now*	Hui Up Program Offers Refrigerator Trade-In on Molokai	✓			
2010	June 2011	*Honolulu Star-Advertiser*	LEDs offered to small biz, nonprofits		✓		
2010	June 2011	*Maui Now*	Get Free LED Lighting! Lamps Offered to Businesses, Nonprofits		✓		
2010	June 2011	Island energy Inquiry blog	Hawaii Energy, Toshiba Lighting the Future for Small Business and Non Profits		✓		
2010	June 2011	Hawaii Energy website	West Hawaii Explorations Academy CFL Exchange	✓			
2010	June 2011	*Maui Now*	Hawaii Energy Offers $35 Cash For Inefficient Appliances	✓			
2010	June 2011	*Maui News*	Businesses, groups can get free fixtures		✓		
2010	June 2011	Blue Planet Foundation e-	Blue Planet Foundation seeks groups interested in CFL fundraisers	✓			
2010	June 2011	Wall-to-Wall Studios blog	Wall-to-Wall Studios Wins National Silver ADDY for Hawaii Energy TV	✓	✓		
2010	June 2011	*Maui Weekly*	Nonprofits and small businesses receive "Lighting the Future"		✓		
2010	June 2011	Blue Planet Foundation e-	Hawaii Energy's Bounty Program pays cash for old appliances		✓		
2010	June 2011	Focus Maui Nui website (Maui	Lighting the Way to Conserve Maui's Energy		✓		
2010	June 2011	*Hawaii 24/7*	Kanu Hawaii announces energy challenge	✓			
2010	June 2011	Maui Economic Development	Focus Maui Nui: Lighting the Way to Conserve Maui		✓		
2010	June 2011	*Hawaii News Now*	State Capitol in Battle of Buildings		✓	✓	✓
2010	June 2011	Website, social media	iConserve Energy Public Rally	✓	✓	✓	✓

PY	Month	Event or Trade Ally	Action	Result	Consumer Marketing	Commercial Marketing	Trade Allies	Other Energy Efficiency Activities	Installation of energy efficient measures	Commission proceedings
2010	July 2010	Pacific Fellows	Briefing	Provided briefing on energy conservation and efficiency issues for Hawaii				✔		
2010	July 2010	Kukui Gardens	Participated in Event	Worked with ESH Housing to educate residents about switching to energy efficient	✔			✔		
2010	July 2010	T & T Electrical	Training	Trained on direct install, introduced programs, reviewed projects		✔	✔			
2010	July 2010	DWE Inc.	Training	Trained on direct Install, introduced programs, reviewed current projects and		✔	✔			
2010	July 2010	Fukunaga Electrical	Meeting	Reviewed program		✔	✔			
2010	July 2010	KTA Supermarkets	Meeting	Provided update on status of rebates and energy study, reviewed renovation plans for		✔	✔		✔	
2010	July 2010	Hawaii County Building	Meeting	Reviewed documentation for Aupuni Street building/complex, performed walk					✔	
2010	July 2010	County of Hawaii Water Department	Meeting	Provided update on status of rebates, discussed upcoming projects for Kekuanao and					✔	
2010	July 2010	Hapuna Beach Prince Hotel and Mauna Kea Resort Hotel	Meeting	Reviewed programs and discussed potential lighting projects		✔				
2010	July 2010	Hilton Grand Vacations	Meeting	Discussed new building construction and timeline for rebates		✔				
2010	July 2010	Waikoloa Marriott	Meeting	Reviewed programs and discussed possible lighting retrofit of parking structure		✔				
2010	July 2010	Mauna Lani Resorts	Meeting	Introduced program		✔				
2010	July 2010	Four Seasons Resorts Hotel	Meeting	Introduced program and discussed potential projects		✔				
2010	July 2010	Kona Village	Meeting	Introduced program		✔				
2010	July 2010	Valley Isle Motors	Meeting	Lighting audit		✔				
2010	July 2010	Pacific Green Lighting Systems	Meeting	Introduced program		✔				
2010	July 2010	Public Utilities Commission	Meeting	Docket 2009-0108 [IRP (Integrated Resource Planning)/CESP (Clean Energy Scenario						✔
2010	July 2010	Blue Planet	Meeting	Planning meeting to coordinate joint efforts with Blue Planet to distribute CFL gift	✔	✔	✔			
2010	July 2010	KUPU	Meeting	Small Business Direct Install Lighting Program – coordination meeting to implement		✔	✔			
2010	July 2010	Hawaii Renewable Energy Alliance (HREA)	Conference call	HREA Planning Meeting via conference call on energy issues			✔			
2010	July 2010	ECONorthwest	Meeting	Meeting with program evaluators to provide contact information for military,				✔		
2010	July 2010	Hawai'i Island Food Self-Reliance Program	Meeting	Discussed collaborating on common goal of energy conservation and efficiency	✔	✔		✔	✔	
2010	July 2010	Consortium for Energy Efficiency	Conference call	Participated in conference calls concerning specific energy efficiency measures				✔		
2010	August 2010	Honolulu Weekly Green Market	Participated in Event	Promote and educate residents about energy conservation and efficiency	✔			✔		
2010	August 2010	Asia Pacific Clean Energy Summit & Expo	Participated in Event	Participated in panels to discuss energy issues in Hawaii and introduced program	✔	✔	✔	✔		
2010	August 2010	T & T Electrical	Meeting	Trained on direct install, introduced program, reviewed projects		✔	✔			
2010	August 2010	Graham Builders	Meeting	Introduced program		✔	✔			
2010	August 2010	KJL Buildings	Meeting	Discussed renovation projects for several locations		✔			✔	
2010	August 2010	Tetra Tech, Marine Corp Base	Meeting	Project provided status update and met new Project Manager and introduced		✔	✔			
2010	August 2010	Waikiki Parking Garage	Meeting	Introduced program and provided energy savings suggestions for renovation project		✔				
2010	August 2010	Power Efficiency Corporation and Otis Elevator	Meeting	Discussed energy savings options for escalator projects		✔	✔			
2010	August 2010	Outrigger Keauhou Beach Resort	Meeting	Introduced program and discussed upcoming projects, performed post inspection of		✔			✔	
2010	August 2010	Sheraton Keauhou Bay Resort & Spa	Meeting	Introduced programs. discussed potential projects that are on hold to see if Hawaii		✔				
2010	August 2010	Casa De Emdeko	Meeting	Performed post inspection of chiller, VFDs and controls		✔			✔	
2010	August 2010	Hokama Appliance	Meeting	Thanked Ally for supporting recent Trade Up for Cool Cash program and discussed	✔		✔			
2010	August 2010	Outrigger Royal Sea Cliff Condominium	Meeting	Discussed how Hawaii Energy could possibly support projects, discussed chiller		✔			✔	
2010	August 2010	NAVFAC	Meeting	Provided project updates on current and future projects		✔				
2010	August 2010	Public Utilities Commission	Meeting	Docket 2009-0108 [IRP (Integrated Resource Planning)/CESP (Clean Energy Scenario Planning) – collaborative meeting of parties to discuss framework						✔
2010	August 2010	Department of Business, Economic Development & Tourism	Meeting	Discussed energy metrics				✔		
2010	August 2010	Department of Education	Meeting	Introduced program and discussed potential projects		✔				
2010	September 2010	Solar Contractor Breakfast Meeting	Meeting	Update contractors on program status			✔			
2010	September 2010	Solar Contractor Breakfast Meeting	Meeting	Update contractors on program status			✔			
2010	September 2010	Solar Contractor Breakfast Meeting	Meeting	Update contractors on program status			✔			
2010	September 2010	University of Hawaii – Building Technologies Seminar	Seminar	Maximizing building performance		✔		✔		
2010	September 2010	On the Road show – Phillips Lighting Event	Participated in Event	Promote and educate contractors about energy issues and program		✔	✔			
2010	September 2010	On the Road show – Phillips Lighting Event	Participated in Event	Promote and educate contractors about energy issues and program		✔	✔			
2010	September 2010	On the Road show – Phillips Lighting Event	Participated in Event	Promote and educate contractors about energy issues and program		✔	✔			
2010	September 2010	Asia Pacific Clean Energy Expo	Participated in Event	Clean Energy Expo	✔	✔		✔		
2010	September 2010	Hospitality Equipment Trade Show	Participated in Event	Met with potential vendors		✔	✔			
2010	September 2010	Energy Expo 2010	Participated in Event	Energy education and promotion		✔	✔	✔		
2010	September 2010	Lighting Design workshop	Participated in Event	Lighting design for resorts, restaurants, private estates and review of Hawaii Energy		✔	✔	✔		
2010	September 2010	Wesco workshops	Presentation	Presentation of programs		✔	✔			
2010	September 2010	Hawaiki Tower	Meeting	Introduced program and provided energy savings suggestions for renovation project		✔				
2010	September 2010	Allure Waikiki	Meeting	Introduced program and provided energy savings suggestions for renovation project		✔				
2010	September 2010	Johnson Controls	Meeting	Energy Savings Performance Contracting (ESPC) status meeting		✔		✔		
2010	September 2010	Hawaii Army National Guard	Meeting	Introduced program and reviewed projects		✔				
2010	September 2010	Frito Lay	Meeting	Introduced program		✔				
2010	September 2010	Residential low income housing agencies	Meeting	Discussed program	✔	✔				
2010	September 2010	Hickam Air Force Base	Meeting	Post inspections		✔			✔	
2010	September 2010	Disney Resorts	Meeting	Introduced program and discussed current projects		✔				
2010	September 2010	Home World, Pearlridge	Meeting	Discussed current project and potential projects		✔				
2010	September 2010	Makena Beach & Resort Hotel	Meeting	Introduced program		✔				
2010	September 2010	Royal Kona Resorts	Meeting	Introduced program and reviewed upcoming projects. Will do cost analysis upon		✔				
2010	September 2010	Kona Seaside Hotel	Meeting	Introduced program		✔				
2010	September 2010	Hudnut Lighting, Woodberry Consulting and Sheraton Keauhou	Meeting	Introduced program and discussed potential collaboration		✔	✔			
2010	September 2010	Public Utilities Commission	Meeting	Docket 2009-0108 [IRP (Integrated Resource Planning)/CESP (Clean Energy Scenario				✔		
2010	September 2010	High Technology Development Corporation	Meeting	Discussed possible collaboration on co-funding energy studies for industrial small to		✔				
2010	October 2010	Career Day at Alvah Scott Elementary School	Participated in Event	Promoted the program and educated students about energy conservation and	✔			✔		
2010	October 2010	Windward Community College Hoolaulea	Participated in Event	Promoted the program and educated residents about energy conservation and	✔			✔		
2010	October 2010	Live Energy Lite	Participated in Event	Promoted the program and educated residents about energy conservation and	✔			✔		
2010	October 2010	Kaneohe Marine Corp Base Energy Awareness Fair	Participated in Event	Promoted the program and educated residents about energy conservation and	✔			✔		
2010	October 2010	Hickam Energy Awareness Fair	Participated in Event	Promoted the program and educated residents about energy conservation and	✔			✔		
2010	October 2010	Pearl Harbor Energy Awareness Fair	Participated in Event	Promoted the program and educated residents about energy conservation and	✔			✔		
2010	October 2010	High Technology Development Corporation (HTDC) workshop, Oahu	Participated in Event	Promoted the program and educated attendees about energy conservation and		✔		✔		
2010	October 2010	High Technology Development Corporation (HTDC) workshop, Hilo	Participated in Event	Promoted the program and educated attendees about energy conservation and		✔		✔		
2010	October 2010	Joint Spouses Conferences	Participated in Event	Promoted the program and educated residents about energy conservation and	✔			✔		
2010	October 2010	High Technology Development Corporation (HTDC) workshop, Maui	Participated in Event	Promoted the program and educated attendees about energy conservation and		✔		✔		
2010	October 2010	Building Operators Certification class	Training	Building operators certification class				✔		
2010	October 2010	Frito Lay, Hawaii	Meeting	Reviewed customized rebate options		✔				
2010	October 2010	Forest City Watt Watcher Program	Meeting	Discussed potential program and funding of program	✔					
2010	October 2010	Trump Tower	Meeting	Reviewed use of customization worksheet	✔					

PY	Month	Event or Trade Ally	Action	Result	Consumer Marketing	Commercial Marketing	Trade Allies	Other Energy Efficiency Activities	Installation of energy efficient measures	Commission proceedings
2010	October 2010	Solar Attic Fan contractors	Meeting	Discussed products and potential customer base for data logging to create rebate		✔	✔			
2010	October 2010	Ball Metal Can Plant Hawaii	Meeting	Performed post inspection of lighting retrofit		✔			✔	
2010	October 2010	Island Dairy	Meeting	Performed pre inspect and discussed LED criteria		✔			✔	
2010	October 2010	Mauna Loa Macadamia	Meeting	Conducted lighting pre-audit, discussed proposed energy initiatives		✔				
2010	October 2010	Hilo Hawaiian Hotel	Meeting	Performed property walk through and audit		✔				
2010	October 2010	Hilo Bay Hotel and Resort	Meeting	Introduced programs		✔				
2010	October 2010	Naniloa Volcanoes Resorts	Meeting	Introduced programs		✔				
2010	October 2010	Country Club Hotel & Resort	Meeting	Introduced programs		✔				
2010	October 2010	Hilo Reeds Bay Hotel	Meeting	Introduced programs		✔				
2010	October 2010	Hilo Seaside Hotel	Meeting	Introduced programs		✔				
2010	October 2010	Various small businesses	Meeting	Introduced, promoted and discussed programs to identify potential new participants		✔				
2010	October 2010	Naval Computer & Telecommunications Area Master Station (NCTAMS)	Meeting	Performed post inspection		✔			✔	
2010	October 2010	Noresco (Hemmeter Building & State Capitol)	Meeting	Performed post inspection		✔			✔	
2010	October 2010	Kohala Center	Meeting	Worked with Kohala Center to distribute 2,016 CFLs to residents	✔			✔	✔	
2010	October 2010	Blue Planet Foundation 2010 Honua Awards	Participated in Event	Networked with non-profit allies and commercial customers		✔	✔	✔		
2010	October 2010	Life's Good workshop	Training	Variable refrigerant Flow air conditioning units		✔				
2010	November 2010	Pioneer Electric Open House	Meeting	Introduced program and provided energy savings suggestions		✔		✔		
2010	November 2010	American Institute of Architects/Construction Specifications Institute (AIA/CSI	Participated in Event	Introduced program		✔		✔		
2010	November 2010	Plumbing, Air Conditioning and Mechanical Contractors Association meeting	Meeting	Introduced program		✔		✔		
2010	November 2010	Four Seasons Wailea	Meeting	Post inspection and reviewed future projects		✔			✔	
2010	November 2010	Ceramic Tile	Meeting	Introduced program and reviewed current projects		✔			✔	
2010	November 2010	Waikoloa Beach Resort	Meeting	Post inspection and discussed upcoming projects		✔			✔	
2010	November 2010	Hilton Bay Club	Meeting	Post inspection and discussed upcoming projects		✔			✔	
2010	November 2010	Kings Land Resort	Meeting	Post inspection and discussed upcoming projects		✔			✔	
2010	November 2010	Mauna Lani Resort	Meeting	Introduced LED light program and discussed possible projects		✔				
2010	November 2010	King Kamehameha Hotel	Meeting	Discussed possible projects		✔				
2010	November 2010	Various small businesses	Meeting	Introduced program to 26 business owners		✔				
2010	November 2010	School and church	Meeting	Lighting audit		✔				
2010	November 2010	Waikiki Shopping Plaza	Meeting	Provided information about potential rebate opportunities		✔				
2010	November 2010	900 Nimitz Highway	Meeting	Provided information about potential rebate opportunities		✔				
2010	November 2010	Energy Industries	Meeting	Discussed potential projects		✔				
2010	November 2010	Office of Community Services	Meeting	Discussed RLI program and potential rebates	✔	✔				
2010	November 2010	Denny's, Pearlridge	Meeting	Introduced program		✔				
2010	November 2010	Marriott Beachcomber Hotel	Meeting	Introduced program		✔				
2010	November 2010	Hokua AOAO	Meeting	Discussed energy efficiency suggestions		✔				
2010	November 2010	Pakalana	Meeting	Introduced program		✔				
2010	November 2010	Sky Lights Hawaii	Meeting	Discussed program and products for potential participation in rebate program		✔				
2010	November 2010	Kahala Hotel & Resort	Meeting	Assisted in planning new energy study		✔				
2010	November 2010	Alana Double Tree	Meeting	Discussed potential fan coil project and possible rebates		✔				
2010	November 2010	Waikiki Sand Villa	Meeting	Provided overview of rebate opportunities		✔				
2010	December 2010	High Tech Lights lighting presentation	Participated in Event	Lighting program		✔	✔			
2010	December 2010	Hickam National Guard Family Day	Participated in Event	Residential program	✔			✔		
2010	December 2010	Consortium for Energy Efficiency (CEE)	Meeting	Partnering with water utilities			✔	✔		
2010	December 2010	Olino Energy (vendor)	Meeting	LED lighting program		✔	✔			
2010	December 2010	Hawaii Solar Energy Association (HSEA)	Meeting	Solar Water Heating Program Incentives	✔					
2010	December 2010	Sonovia	Meeting	LED lighting program		✔	✔			
2010	December 2010	Catholic Charities	Meeting	CFL distribution and introduce program	✔					
2010	December 2010	Stand Up Paddles World Championship	Meeting	CFL distribution and introduce program	✔					
2010	December 2010	Ala Moana Shopping Center	Meeting	Discussed potential projects		✔				
2010	December 2010	U-Haul	Meeting	Lighting audit & discussed Small Business Direct Install program		✔				
2010	December 2010	Schofield Barracks	Meeting	Discussed new projects		✔				
2010	December 2010	Office of Community Services	Meeting	Discussion of RLI program	✔					
2010	December 2010	Keck Observatory	Meeting	Introduced program		✔				
2010	December 2010	West Hawaii Civic Center	Meeting	Reviewed current project		✔				
2010	December 2010	Matsuyama Market	Meeting	Introduced program		✔				
2010	December 2010	Jacks Dice Shop	Meeting	Introduced LED lighting program		✔				
2010	December 2010	Konawaena Go Green Club	Meeting	CFL distribution and introduce program	✔					
2010	December 2010	WalMart	Meeting	CFL distribution and introduced program	✔					
2010	December 2010	Ritz Carlton Kapalua	Meeting	Introduced program		✔				
2010	December 2010	Pentair Pool Pumps	Meeting	Introduced program		✔				
2010	December 2010	La Tour Café	Meeting	Introduced program		✔				
2010	December 2010	850 Nimitz	Meeting	Introduced program		✔				
2010	December 2010	Easter Seal	Meeting	Discussed potential projects		✔				
2010	December 2010	Easter Seal	Meeting	Discussed potential projects		✔				
2010	December 2010	Easter Seal	Meeting	Discussed potential projects		✔				
2010	December 2010	Pahoa High & Intermediate School	Meeting	CFL distribution and introduce program	✔					
2010	December 2010	Da Tabura	Meeting	Introduce program		✔				
2010	December 2010	UH Extension & 4-H Club	Meeting	CFL distribution and introduce program	✔				✔	
2010	December 2010	Tanaka Saimin	Meeting	Introduce program		✔				
2010	January 2011	Family Support Services of West Hawaii	Meeting	CFL distribution and program introduction	✔				✔	
2010	January 2011	Family Support Services of West Hawaii, Community Play Group	Meeting	CFL distribution and program introduction	✔				✔	
2010	January 2011	Honaunau Elementary	Meeting	CFL distribution and program introduction	✔				✔	
2010	January 2011	High Tech Lighting	Meeting	LED lighting and program introduction		✔				
2010	January 2011	Family Support Services of West Hawaii, Community Play Group	Meeting	CFL distribution and program introduction	✔				✔	
2010	January 2011	Energy Efficiency and Auditing Partnership Workshop	Meeting	Energy efficiency and auditing partnership workshop		✔		✔		
2010	January 2011	Honokaa High School Future Farmers of America	Meeting	CFL distribution and program introduction	✔				✔	
2010	January 2011	Ke Ana Laahana PCS, Hui Mauli Pono	Meeting	CFL distribution and program introduction	✔				✔	
2010	January 2011	Energy Policy Forum at State Capitol	Meeting	Program introduction		✔				
2010	January 2011	Pahala Southside Volleyball Club	Meeting	CFL bulb exchange and program introduction	✔				✔	
2010	January 2011	Rotary Club Meeting at Pearl Country Club	Meeting	Residential and commercial program introduction	✔	✔				
2010	January 2011	Naalehu School	Meeting	CFL distribution and program introduction	✔				✔	
2010	January 2011	WM Keck Observatory	Meeting	Solar water heating		✔				

PY	Month	Event or Trade Ally	Action	Result	Consumer Marketing	Commercial Marketing	Trade Allies	Other Energy Efficiency Activities	Installation of energy efficient measures	Commission proceedings
2010	January 2011	Outrigger Keahou Beach	Meeting	Project discussion		✓				
2010	January 2011	Villages at Mauna Lani	Meeting	Project discussion		✓				
2010	January 2011	Marriott Waikaloa Beach	Meeting	Project discussion		✓				
2010	January 2011	Hilo Hawaiian	Meeting	Program introduction		✓				
2010	January 2011	T & T Electrical	Meeting	Program introduction		✓				
2010	January 2011	Naniloa Hotel	Meeting	Program introduction and project discussion		✓				
2010	January 2011	Kamehameha Schools, Keeau	Meeting	Project discussion		✓				
2010	January 2011	Allana Buick & Bers	Meeting	Program introduction		✓				
2010	January 2011	Green Building LLC	Meeting	Program introduction		✓				
2010	January 2011	Maui Wastewater	Meeting	Program introduction		✓				
2010	January 2011	Maui Community College	Meeting	Project discussion		✓				
2010	January 2011	DOT Honolulu Airport	Meeting	Program introduction and project discussion		✓				
2010	January 2011	Wahiawa General Hospital	Meeting	Project discussion		✓				
2010	January 2011	Moana Pacific	Meeting	Project discussion		✓				
2010	January 2011	Koolani AOAO	Meeting	Project discussion		✓				
2010	January 2011	21st Century Lighting	Meeting	Program introduction		✓				
2010	January 2011	UH Facilities Management	Meeting	Project discussion		✓				
2010	January 2011	Keola Lai	Meeting	Project discussion		✓				
2010	January 2011	Harbor Court	Meeting	Project discussion		✓				
2010	January 2011	Aston Waikiki	Meeting	Program introduction, potential energy projects		✓				
2010	January 2011	Toshiba Lighting	Meeting	Possible partnership		✓				
2010	January 2011	Quantum Energy	Meeting	Product demonstration		✓				
2010	January 2011	Energy Industries	Meeting	Potential rebates		✓				
2010	January 2011	PSIG & UH Manoa	Meeting	Potential rebates		✓				
2010	January 2011	Hale Kaheka	Meeting	Program introduction		✓				
2010	January 2011	1717 Ala Wai	Meeting	Project discussion		✓				
2010	January 2011	Actus Team	Meeting	Projects discussion		✓				
2010	January 2011	Noresco Project	Meeting	Projects discussion		✓				
2010	January 2011	Board of Water Supply	Meeting	State Demonstration Project		✓				
2010	January 2011	NAVFAC	Meeting	Program introduction, outstanding projects, review upcoming projects		✓				
2010	January 2011	Airport DOT	Meeting	Program introduction and projects		✓				
2010	January 2011	Waikoloa Marriott	Meeting	Project proposal discussion		✓				
2010	January 2011	900 Nimitz	Meeting	New construction discussion		✓				
2010	January 2011	SOH Mahulia, Leahi Hospital	Meeting	Project discussion		✓				
2010	January 2011	Kahuku Medical Center	Meeting	Potential project		✓				
2010	January 2011	Lowes Iwilei	Meeting	Project discussion		✓				
2010	January 2011	Integrated Economic Solutions	Meeting	Project discussion		✓				
2010	January 2011	Les Taniyama - PSIG	Meeting	Various HVAC projects		✓				
2010	January 2011	Hawaii Medical Center, Liliha & Fort Weaver	Meeting	Project discussion		✓				
2010	January 2011	Pearl City Nursing Home	Meeting	Project discussion		✓				
2010	January 2011	Lumi - Con LED	Meeting	Potential projects		✓				
2010	January 2011	High Tech Lighting	Meeting	Program introduction		✓				
2010	January 2011	Diagnostic Laboratory Services	Meeting	Project discussion		✓				
2010	January 2011	Rehab Hospital of Pacific	Meeting	Project discussion		✓				
2010	January 2011	Media 5 Architects	Meeting	Project discussion		✓				
2010	January 2011	Queens Medical Center	Meeting	Project discussion		✓				
2010	January 2011	Hawaii Medical Systems - Liliha	Meeting	Program introduction		✓				
2010	January 2011	Aston Waikiki Beach Hotel	Meeting	Program introduction		✓				
2010	January 2011	General Electric	Meeting	Program introduction		✓				
2010	February 2011	Hawaii First Community Resource Center	Presentation	Energy efficiency and bulb exchange meeting and presentation	✓					
2010	February 2011	Waimea Arts Council	Presentation	Energy efficiency and bulb exchange meeting and presentation	✓					
2010	February 2011	Oahu Solar Contractor meeting	Meeting	Solar program update	✓					
2010	February 2011	University of Hawaii Student Affairs Office	Presentation	Energy efficiency and bulb exchange meeting and presentation	✓					
2010	February 2011	HI-INTENSITY Volleyball Club	Presentation	Energy efficiency and bulb exchange meeting and presentation	✓					
2010	February 2011	4-H Paauilo	Presentation	Energy efficiency and bulb exchange meeting and presentation	✓					
2010	February 2011	Maui Solar Contractor meeting	Meeting	Solar program update	✓					
2010	February 2011	Home Depot, Holaulea	Participated in Event	Hawaii Energy informational booth	✓			✓		
2010	February 2011	West Hawaii Explorations Academy	Presentation	Energy efficiency and bulb exchange meeting and presentation	✓					
2010	February 2011	Waikoloa Senior Citizen Center	Presentation	Program introduction and energy efficiency presentation	✓					
2010	February 2011	Kohala Montessori Preschool	Presentation	Energy efficiency and bulb exchange meeting and presentation	✓					
2010	February 2011	Solar Contractor Meeting	Meeting	Solar contractor update	✓					
2010	February 2011	Informational Update Meeting	Meeting	Business program update		✓				
2010	February 2011	Kona Solar Contractor meeting	Meeting	Solar program update	✓					
2010	February 2011	Hilo Solar Contractor Meeting	Meeting	Solar program update	✓					
2010	March 2011	Kealakehe High School	Meeting	Program introduction, bulb exchange	✓					
2010	March 2011	Energy Efficiency Presentation	Presentation	Program introduction, rebates		✓				
2010	March 2011	Yale Energy Efficiency Group	Meeting	Program introduction, bulb exchange	✓					
2010	March 2011	Energy Efficiency Presentation	Presentation	Program introduction, rebates		✓				
2010	March 2011	Financial Empowerment Day	Meeting	Question and answer	✓					
2010	March 2011	Kealakehe Environmental Fair	Presentation	Presentation, question and answer	✓					
2010	March 2011	Humpy's Big Island Alehouse	Meeting	Potential project		✓				
2010	April 2011	Montessori Education Center of Hawaii CFL Exchange (Hawaii)	Participated in Event	CFL Bulb Exchange Event	✓				✓	
2010	April 2011	Rebuild Hawaii Consortium Quarterly Meeting	Meeting	Program and rebate overview and presentation		✓				
2010	April 2011	Prep for Earth and Ocean Day	Participated in Event	Earth day and bulb exchange support	✓			✓		
2010	April 2011	Outrigger Management	Meeting	Program and rebates overview		✓				
2010	April 2011	Meeting, Chief Engineer King Kamehameha Hotel	Meeting	Follow up on renovation rebate application		✓				
2010	April 2011	Bill Carl, Humpys Big Island Alehouse	Meeting	Walk through to discuss possible project and energy audit		✓				
2010	April 2011	Mauna Kea/Hapuna Prince Engineering	Meeting	Program and rebates overview		✓				
2010	April 2011	Building Owners and Managers Association (BOMA) Sustainability Week	Meeting	Program overview		✓				
2010	April 2011	2011 "We Have the Power" Clean Energy Rally	Community Action	Support Blue Planet Foundation's Rally to push a policy House Bill 1520 SD2				✓		
2010	April 2011	Hawaii Clean Energy Day	Participated in Event	Hawaii Energy table at State Capital	✓			✓		
2010	April 2011	Hamakua 4H Under the Sun CFL Exchange	Participated in Event	CFL Bulb Exchange Event	✓				✓	

PY	Month	Event or Trade Ally	Action	Result	Consumer Marketing	Commercial Marketing	Trade Allies	Other Energy Efficiency Activities	Installation of energy efficient measures	Commission proceedings
2010	April 2011	2011 Earth and Ocean Festival at Keauhou	Participated in Event	Attending the Earth and ocean Festival	✔			✔		
2010	April 2011	County of Hawaii, The Kohala Center, Friends of Natural Energy Laboratory of Hawaii	Meeting	Discussion of energy efficiency education work and material distribution for County of Hawaii	✔	✔		✔		
2010	May 2011	Pioneer Electric Annual Summer Trade Show (tabletop)	Participated in Event	Hawaii Energy business incentives		✔		✔		
2010	May 2011	Job Fair	Participated in Event	WorkForce 2011 Job & Career Fair	✔			✔		
2010	May 2011	Maui Hospitality and Engineering	Meeting	Hawaii Energy incentives programs – Lighting the Future, Central Plant Optimization,		✔				
2010	May 2011	Tradewind at the Ponds	Meeting	Limited-time offer		✔				
2010	May 2011	Hawaii Medical Center	Meeting	2226 Liliha St. customized incentive		✔				
2010	May 2011	3M	Meeting	Review of Hawaii Energy program requirements		✔				
2010	May 2011	City Financial Tower	Meeting	VAV automation building control customized incentive		✔				
2010	May 2011	LEDGREEN	Meeting	LED customized incentive		✔				
2010	May 2011	Conference	Participated in Event	American Water Works Association (AWWA) Hawaii Section 37th Annual Conference	✔	✔		✔		
2010	May 2011	Windward Passage	Meeting	Meeting		✔				
2010	May 2011	Chelsea Group	Meeting	Queen's Medical Center central plant optimization		✔				
2010	May 2011	LEDGREEN	Meeting	LED customized rebate		✔				
2010	May 2011	Titan LED	Meeting	Introduction to Hawaii Energy, review of LED requirements, discussion of potential projects		✔				
2010	May 2011	County of Hawaii	Meeting	Hawaii Energy Business incentives and application		✔				
2010	May 2011	Kuhio Park Terrace	Meeting	Meeting		✔				
2010	May 2011	Gentry Pacific Energy Audit	Meeting	Hawaii Energy business incentives		✔				
2010	May 2011	Executive Center	Meeting	Cooling tower with VFD incentive		✔				
2010	May 2011	WKF Inc. (1000 Bishop St.)	Meeting	Limited-time offer and incentive update		✔				
2010	May 2011	Edition Hotel	Meeting	Chiller retrofit project		✔				
2010	May 2011	Kaneohe Marine Corps Base Hawaii (KMCBH)	Meeting	Review KMCBH projects, review Hawaii Energy program requirements		✔				
2010	May 2011	Monsanto-Kunia	Meeting	Potential incentive application		✔				
2010	May 2011	1523 Kalakaua Ave.	Meeting	T-12 to T-8 limited-time offer		✔				
2010	May 2011	ASB Kaneohe	Meeting	Audit and meeting		✔				
2010	May 2011	Inn on the Park Call	Meeting	Potential air cooled chiller project		✔				
2010	May 2011	Meeting	Meeting	Meeting		✔				
2010	May 2011	New hire introduction	Meeting	Introducing Caroline Neary to Big Island customers		✔				
2010	May 2011	U.S. Coast Guard	Meeting	Discussion of potential projects, review Hawaii Energy program requirements		✔				
2010	June 2011	CFL Exchange	Participated in Event	West Hawaii Explorations Academy CFL Exchange	✔				✔	
2010	June 2011	Rally	Participated in Event	iConserve Energy Public Rally				✔		
2010	June 2011	Hawaii Hotel & Lodging Association chapter meeting	Meeting	Business education	✔		✔			
2010	June 2011	Marina Ilikai AOAO	Meeting	Pacific LED Solutions		✔				
2010	June 2011	Monsanto Company	Meeting	Lighting & HVAC post inspection		✔			✔	
2010	June 2011	Leeward Community College	Meeting	Lighting post inspection		✔			✔	
2010	June 2011	Kapiolani Community College	Meeting	Lighting post inspection		✔			✔	
2010	June 2011	WLS Lighting	Meeting	Potential shopping center parking lot LED project		✔				
2010	June 2011	Office Depot	Meeting	Lighting retrofit post inspection		✔			✔	
2010	June 2011	Training and office processing	Meeting	In-office training				✔		
2010	June 2011	Safeway	Meeting	Post inspection report		✔			✔	
2010	June 2011	Hilo Hawaiian Hotel	Meeting	Introduction to energy study and incentive options		✔				
2010	June 2011	Target	Meeting	Introduction to business incentives		✔				
2010	June 2011	Target	Meeting	Photos and inspection		✔			✔	
2010	June 2011	Kamehameha Beach Hotel	Meeting	Chandelier lights inspection		✔			✔	