Appendix 1

Cost Effectiveness
2009 Utah-Demand Side Management Annual Report

Rocky Mountain Power

3/31/2010

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Cost Effectiveness and Program Evaluation

The cost effectiveness of individual programs operated by the Company for 2009 are calculated using actual expenditures and reported savings. Cost-effectiveness is provided at the individual program, load management portfolio, residential energy efficiency portfolio, non-residential energy efficiency portfolio, combined energy efficiency portfolio, and overall demand-side management program portfolio levels.

Energy savings shown in this report are gross savings and the impact of line losses is indicated through designations of the savings as being “at site” or “at generation”. Line losses are based on the Company’s 2001 line loss study. Net-to-gross assumptions are consistent with planning estimates. The energy savings attributed to each program are shaped according to specific end-use savings (the hourly calculation of when energy is used for the various end-use measures from which the savings are derived). Program costs and the value of the energy savings are then compared on a present value basis with the Company’s 2008 Integrated Resource Plan (IRP) calculated decrement values for demand-side resource savings and avoided capacity investments. The energy efficiency resource decrement values are fully shaped to represent the 8,760 hourly values that exist within a calendar year. By matching the hourly savings with the hourly avoided costs, both energy and capacity impacts of energy efficiency savings are recognized. The cost/benefit analysis of the load management programs are based on the avoided value of peak or capacity investments. For purposes of calculating program cost-effectiveness, no energy savings are included for the load management programs, only a shift of when the energy is used away from the peak load hours. The five California Standard Practice Manual cost effectiveness tests were utilized in the cost benefit analysis for both energy efficiency and load management programs.

The resultant benefit cost ratios may be used to assess relative sensitivity of input assumptions. For example, benefit cost ratios that are close to 1.0 would be highly sensitive to changes in savings, different customer costs, higher estimates of free-ridership, and variations in avoided costs or a different discount rate.

The Company updates the cost effectiveness results annually based on actual results. Key inputs like net to gross ratios, measure life and deemed savings values will be updated as formal evaluations are completed and during the course of normal program management. Company program managers employ professional judgment informed by input from third-party delivery vendors when key cost effectiveness inputs are changed. Any changes will be noted in future DSM Annual Reports.

Key Assumptions for Cost Effectiveness Calculations:

Cost effectiveness calculations for programs and measures (or measure groups) within each program will be detailed on the following tables.

Global assumptions used in all cost effectiveness calculations include:

Key Assumptions for All Cost Effectiveness Studies:

Assumption	Value	Source
Discount Rate	7.40%	2008 IRP
Line Losses (Utah Specific)		
Residential	9.720%	2001 MAC Line Loss Study
Commercial	9.353%	2001 MAC Line Loss Study
Industrial	6.330%	2001 MAC Line Loss Study

Key elements that go into the cost effectiveness calculation for each program include:

- KW/kWh Savings at Gross
- Administrative expenses
- Incentives paid
- Total utility costs – including administration and evaluation
- Gross customer costs
- Net To Gross ratio
- Measure life
- IRP decrement value

The following Tables provide details for the key assumptions and inputs for cost effectiveness calculations for each program.

Portfolio and Sector Level Cost Effectiveness

The overall DSM portfolio and component sectors were all cost effective on a Total Resource Cost and Utility Cost basis. Only the Non-residential and Load Management portfolios generated Ratepayer Impact Test results greater than 1.0.

The following table provides the overall portfolio and sector results of all 5 cost effectiveness tests.

2009 Portfolio and Sector Cost Effectiveness Summary

	Cost Effectiveness Test				
	PTRC	**TRC**	**UCT**	**RIM**	**PCT**
2009 Total Portfolio Including Load Management & Marketing	2.185	1.987	1.949	1.020	9.934
2009 Load Management Portfolio	2.212	2.011	1.484	1.484	NA
2009 Energy Efficiency Portfolio Including Marketing	2.163	1.967	2.648	0.807	8.796
2009 Residential Energy Efficiency Portfolio	1.646	1.496	1.714	0.615	17.319
2009 Non-residential Energy Efficiency Portfolio	2.891	2.628	4.674	1.068	5.445

Portfolio and Segment Level Cost Effectiveness Summaries:

The cost effectiveness results for the portfolio level and segment level are aggregations of the costs and benefits from the component programs. The inputs and assumptions that support these results are contained in the program level cost effectiveness results.

2009 Total Portfolio Including Marketing and Load Management

	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	NA	$110,383,792	$241,215,461	$130,831,669	2.185
Total Resource Cost Test (TRC) No Adder	NA	$110,383,792	$219,286,783	$108,902,991	1.987
Utility Cost Test (UCT)	NA	$112,535,923	$219,286,783	$106,750,860	1.949
Rate Impact Test (RIM)		$215,074,172	$219,286,783	$4,212,611	1.020
Participant Cost Test (PCT)		$15,560,660	$154,581,881	$139,021,220	9.934
Lifecycle Revenue Impacts ($/kWh)				NA	

2009 Load Management Portfolio

	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder		$49,888,451	$110,344,311	$60,455,860	2.212
Total Resource Cost Test (TRC) No Adder		$49,888,451	$100,313,010	$50,424,559	2.011
Utility Cost Test (UCT)		$67,601,242	$100,313,010	$32,711,768	1.484
Rate Impact Test (RIM)		$67,601,242	$100,313,010	$32,711,768	1.484
Participant Cost Test (PCT)		$0	$17,712,791	$17,712,791	NA
Lifecycle Revenue Impacts ($/kWh)				NA	

2009 Energy Efficiency Portfolio Including Marketing

	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0558	$60,495,341	$130,871,150	$70,375,809	2.163
Total Resource Cost Test (TRC) No Adder	0.0558	$60,495,341	$118,973,773	$58,478,432	1.967
Utility Cost Test (UCT)	0.0414	$44,934,680	$118,973,773	$74,039,092	2.648
Rate Impact Test (RIM)		$147,472,930	$118,973,773	($28,499,157)	0.807
Participant Cost Test (PCT)		$15,560,660	$136,869,090	$121,308,429	8.796
Lifecycle Revenue Impacts ($/kWh)				$0.0000960377	

2009 Residential Energy Efficiency Portfolio

	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0607	$34,053,946	$56,051,071	$21,997,125	1.646
Total Resource Cost Test (TRC) No Adder	0.0607	$34,053,946	$50,955,519	$16,901,573	1.496
Utility Cost Test (UCT)	0.0530	$29,724,436	$50,955,519	$21,231,083	1.714
Rate Impact Test (RIM)		$82,839,293	$50,955,519	($31,883,774)	0.615
Participant Cost Test (PCT)		$4,329,510	$74,983,390	$70,653,880	17.319
Lifecycle Revenue Impacts ($/kWh)				$0.0001074434	

2009 Non-Residential Energy Efficiency Portfolio

	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0428	$25,656,834	$74,167,585	$48,510,751	2.891
Total Resource Cost Test (TRC) No Adder	0.0428	$25,656,834	$67,425,078	$41,768,243	2.628
Utility Cost Test (UCT)	0.0240	$14,425,684	$67,425,078	$52,999,394	4.674
Rate Impact Test (RIM)		$63,129,910	$67,425,078	$4,295,167	1.068
Participant Cost Test (PCT)		$11,231,150	$61,155,348	$49,924,198	5.445
Lifecycle Revenue Impacts ($/kWh)				($0.0000178437)	

Program Level Cost Effectiveness

Home Energy Savings Program – Schedule 111

The following tables outline the primary inputs and assumptions utilized in the cost effectiveness calculations for the Home Energy Savings program.

Reported kWh savings are calculated based on measure level deemed savings values (ex ante) multiplied by measure participation. Sources for the deemed savings estimates are included in the detailed table below.

Program Inputs - Home Energy Savings		
Gross kWh/Year Savings (at Site)	85,973,283	Annual results 2009 (Gross at Site). Calculated as deemed savings per unit * unit participation. Deemed savings per unit is from a variety of sources, including Regional Technical Forum, Energy Star and measure specific analysis performed by the program administrator. More detail is available at the measure group level.
Program Management and Administration Costs	$ 3,695,659	Annual costs 2009
Incentives	$21,743,763	Annual costs 2009
Total Utility Costs	$25,439,423	Annual costs 2009
Total Participant Costs	$33,470,957	Deemed costs per unit * unit participation. Deemed costs per unit is from a variety of sources, including Regional Technical Forum, Energy Star and analysis of invoices submitted with incentive applications. Developed and maintained by program administrator - PECI.
Net To Gross Ratio	0.8	Planning estimate from original program filing (2006) and used for prior cost effectiveness assessments.
Measure Life		At program level, it is a weighted average of the measure group inputs.

All Measures				AC: IRP 46% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0616	$723,668	$1,052,066	$328,398	1.454
Total Resource Cost Test (TRC) No Adder	0.0616	$723,668	$956,424	$232,755	1.322
Utility Cost Test (UCT)	0.0470	$552,666	$956,424	$403,757	1.731
Rate Impact Test (RIM)		$1,325,391	$956,424	($368,968)	0.722
Participant Cost Test (PCT)		$171,002	$1,103,461	$932,459	6.453
Lifecycle Revenue Impacts ($/kWh)				$0.0000045779	

Home Energy Savings Program Measure Group Inputs and Assumptions:

Lighting (Includes CFLs, Fixtures and Ceiling Fans)	**Value**	**Source and Notes**
Gross kWh/Year Savings (at Site)	72,414,500	Annual results 2009 (Gross at Site) based on measure level savings from Energy Star savings calculator 2008 and RTF 2007
Program Management and Administration Costs	$ 949,212	Allocated percentage (based on kWh contribution) of non -incentive costs for 2009.
Incentives	$ 2,290,120	Annual costs 2009
Total Utility Costs	$ 3,239,332	Annual costs 2009
Total Participant Costs	$ 8,494,960	Deemed based on RTF estimates developed and maintained by program administrator - PECI.
Net To Gross Ratio	0.8	Planning estimate from original program filing (2006) and used for prior cost effectiveness assessments.
Measure Life (Years)	9	RTF PTR Software Version 1.0, FY 2007 (10/1/2006 - 9/30/2007)
2008 IRP Decrement		East Side Residential Whole House

Appliances (Clothes Washers, Dishwasher, Water Heater, Refrigerator)	**Value**	**Source and Notes**
Gross kWh/Year Savings (at Site)	4,707,990	Annual results 2009 (Gross at Site) based on measure level savings from RTF PTR Software 2007
Program Management and Administration Costs	$ 953,644	Allocated percentage (based on kWh contribution) of non -incentive costs for 2009.
Incentives	$ 1,807,610	Annual costs 2009
Total Utility Costs	$ 2,761,254	Annual costs 2009
Total Participant Costs	$ 5,639,339	Deemed based on RTF and Energy Star estimates developed and maintained by program administrator - PECI.
Net To Gross Ratio	0.8	Planning estimate from original program filing (2006) and used for prior cost effectiveness assessments.
Measure Life (Years)	14	Average life for group based on measure level inputs from RTF PTR Software Version 1.0, FY 2007 (10/1/2006 - 9/30/2007)
2008 IRP Decrement		East Side Residential Whole House

Shell Measures (Insulation and Windows)	**Value**	**Source and Notes**
Gross kWh/Year Savings (at Site)	8,656,368	Annual results 2009 (Gross at Site) based on measure level inputs. (RTF for insulation projects completed prior to June 1, 2009. For projects completed after June 1, 2009 savings based on revised modeling described in Advice 09-04 Home Energy Saver simulation tool analysis. Windows based on RTF data)
Program Management and Administration Costs	$ 1,753,421	Allocated percentage (based on kWh contribution) of non -incentive costs for 2009.
Incentives	$ 17,523,048	Annual costs 2009
Total Utility Costs	$ 19,276,469	Annual costs 2009
Total Participant Costs	$ 19,124,707	Windows deemed based on RTF. Insulation based on application analysis.
Net To Gross Ratio	0.8	Planning estimate from original program filing (2006) and used for prior cost effectiveness assessments.
Measure Life (Years)	45	RTF PTR Software Version 1.0, FY 2007 (10/1/2006 - 9/30/2007)
2008 IRP Decrement		East Side Residential Whole House

HVAC (AC and Heat Tune ups, Duct Sealing, Duct Insulation)	Value	Source and Notes
Gross kWh/Year Savings (at Site)	194,423	Annual results 2009 (Gross at Site) based on measure level inputs based on program administrator research utilizing sources including Energy Trust of Oregon 2007, and RTF PTR Software Version 1.0 + Research by Gary Smith 2006.
Program Management and Administration Costs	$ 39,382	Allocated percentage (based on kWh contribution) of non -incentive costs for 2009.
Incentives	$ 122,986	Annual costs 2009
Total Utility Costs	$ 162,368	Annual costs 2009
Total Participant Costs	$ 211,952	Deemed incremental costs for HVAC measures from multiple sources. Tune-ups & heat pumps (average cost from customer application). Duct sealing & insulation - PTCS/RTF. Developed and maintained by program administrator - PECI.
Net To Gross Ratio	0.8	Planning estimate from original program filing (2006) and used for prior cost effectiveness assessments.
Measure Life (Years)	14	Average life. Combination of RTF and program administrator research.
2008 IRP Decrement		East Side Residential Whole House

The complete set of inputs and results of the cost effectiveness analysis, as conducted by The Cadmus Group are included on the following pages:

Date: **March 22, 2010**

To: **John Rush**
Don Jones Jr.

From: **Brian Hedman The Cadmus Group**

Re: **Utah Home Energy Savings 2009 Program Cost Effectiveness – Using Planning Estimates**

The tables below present the cost effectiveness findings of the Utah Home Energy Savings program based on 2009 costs and savings estimates provided by PacifiCorp in a spreadsheet entitled "Utah_Savings_Summary_2010-03-10_v1 +dlj edits 031410". The Utility discount rate is from the 2008 PacifiCorp Integrated Resource Plan.
Cost effectiveness was tested using the 2008 IRP 46% east residential whole house load factor decrement. Table 1 lists modeling inputs.
The program is cost effective from the TRC, UCT and PCT perspectives. The benefit/cost ratio for the RIM test is less than 1, indicating the program will have an upward influence on rates.

Table 1: Home Energy Savings
Inputs

Parameter	Value
Discount Rate	7.4%
Line Loss	9.72%
Residential Energy Rate ($/kWh)	$0.0857

Table 2: Home Energy Savings
Annual Program Costs

	Program Costs	Utility Admin	Evaluation	Incentives	Total Utility Costs	Net Participant Incremental Cost
Lighting	$949,212			$2,290,120	$3,239,332	$6,795,968
Appliance	$953,644			$1,807,610	$2,761,254	$4,511,471
Shell	$1,753,421			$17,523,048	$19,276,469	$15,299,765
HVAC	$39,382			$122,986	$162,368	$169,561
Total	$3,695,659	$0	$0	$21,743,763	$25,439,423	$26,776,766

Table 3: Home Energy Savings
Savings by Measure Type

	Gross kWh Savings	Realization Rate	Adjusted Gross Savings	Net to Gross Percentage	Net kWh Savings	Measure Life
Lighting	72,414,500	100%	72,414,500	80%	57,931,600	9
Appliance	4,707,990	100%	4,707,990	80%	3,766,392	14
Shell	8,656,368	100%	8,656,368	80%	6,925,095	45
HVAC	194,423	100%	194,423	80%	155,538	14

Total	85,973,282		85,973,282		68,778,626	

Table 4: IRP 46% Load Factor Decrement

All Measures				AC: IRP 46% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0696	$30,472,425	$49,628,140	$19,155,715	1.629
Total Resource Cost Test (TRC) No Adder	0.0696	$30,472,425	$45,116,491	$14,644,066	1.481
Utility Cost Test (UCT)	0.0581	$25,439,423	$45,116,491	$19,677,069	1.773
Rate Impact Test (RIM)		$71,997,604	$45,116,491	($26,881,113)	0.627
Participant Cost Test (PCT)		$5,033,002	$60,388,739	$55,355,736	11.999
Lifecycle Revenue Impacts ($/kWh)				$0.0004776176	
Discounted Participant Payback (years)				0.73	

Table 5: 2009 - Lighting

	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$7,745,180	$30,839,666	$23,094,487	3.982
Total Resource Cost Test (TRC) No Adder	$7,745,180	$28,036,060	$20,290,881	3.620
Utility Cost Test (UCT)	$3,239,332	$28,036,060	$24,796,729	8.655
Rate Impact Test (RIM)	$37,782,962	$28,036,060	($9,746,902)	0.742
Participant Cost Test (PCT)	$4,505,848	$43,458,531	$38,952,683	9.645
Discounted Participant Payback (years)			0.78	

Table 6: 2009 - Appliance

	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$5,465,115	$3,122,291	($2,342,824)	0.571
Total Resource Cost Test (TRC) No Adder	$5,465,115	$2,838,446	($2,626,669)	0.519
Utility Cost Test (UCT)	$2,761,254	$2,838,446	$77,192	1.028
Rate Impact Test (RIM)	$5,732,366	$2,838,446	($2,893,920)	0.495
Participant Cost Test (PCT)	$2,703,861	$3,951,708	$1,247,846	1.462
Discounted Participant Payback (years)			8.53	

Table 7: 2009 – Home Improvement

	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$17,053,187	$15,489,347	($1,563,840)	0.908
Total Resource Cost Test (TRC) No Adder	$17,053,187	$14,081,224	($2,971,962)	0.826
Utility Cost Test (UCT)	$19,276,469	$14,081,224	($5,195,245)	0.730
Rate Impact Test (RIM)	$28,200,542	$14,081,224	($14,119,318)	0.499
Participant Cost Test (PCT)	($2,223,282)	$12,815,309	$15,038,591	NA
Discounted Participant Payback (years)			NA	

Table 8: 2009 – HVAC

	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$208,943	$176,836	($32,107)	0.846
Total Resource Cost Test (TRC) No Adder	$208,943	$160,760	($48,183)	0.769
Utility Cost Test (UCT)	$162,368	$160,760	($1,608)	0.990
Rate Impact Test (RIM)	$281,734	$160,760	($120,973)	0.571
Participant Cost Test (PCT)	$46,575	$163,191	$116,616	3.504
Discounted Participant Payback (years)			3.16	

Process and Impact Evaluation

No process or impact evaluations were completed during 2009. The Company has initiated a process and impact evaluation for the program for program years 2006 to 2008. Results of those evaluations are expected to be complete in the second quarter of 2010.

Refrigerator Recycling (See ya later, refrigerator) – Schedule 117

The following tables outline the primary inputs and assumptions utilized in the cost effectiveness calculations for the See ya later, refrigerator program.

Reported kWh savings are calculated based on measure level evaluated savings values (ex post) multiplied by measure participation. Sources for the evaluated savings are included in the detailed table below.

Program Inputs - See ya later, refrigerator		
Gross kWh/Year Savings (at Site)	21,518,205	Annual results 2009 (Gross at Site) - Calculated as evaluated savings per unit (ex-post) * unit participation.
Utility Administration Costs	$ 42,752	Annual costs 2009
Program Management and Administration Costs	$ 1,804,988	Annual costs 2009
Incentives	$ 491,340	Annual costs 2009
Total Utility Costs	$ 2,339,080	Annual costs 2009
Total Participant Costs	NA	There are no participant costs for this program.
Net To Gross Ratio		Utilize measure specific savings and Net To Gross
Measure Life (Years)	8	*Evaluation of Utah Refrigerator Recycling Program* - Kema - July 31, 2007

See Ya Later Refrigerator – All Measures

All Measures				AC: IRP 46% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0363	$1,847,740	$4,010,116	$2,162,376	2.170
Total Resource Cost Test (TRC) No Adder	0.0363	$1,847,740	$3,645,560	$1,797,820	1.973
Utility Cost Test (UCT)	0.0459	$2,339,080	$3,645,560	$1,306,480	1.559
Rate Impact Test (RIM)		$7,033,454	$3,645,560	($3,387,893)	0.518
Participant Cost Test (PCT)		($491,340)	$11,732,057	$12,223,397	NA
Lifecycle Revenue Impacts ($/kWh)				$0.0000938295	
Discounted Participant Payback (years)				NA	

See Ya Later, Refrigerator Program Measure Group Inputs and Assumptions:

Refrigerators	**Value**	**Source and Notes**
Number of Units	13,100	Annual results 2009
Gross kWh/Unit	1,149	*Evaluation of Utah Refrigerator Recycling Program* - Kema - July 31, 2007
Gross kWh/Year Savings (at Site)	15,051,900	Annual results 2009 (Gross at Site)
Net To Gross Ratio	0.33	*Evaluation of Utah Refrigerator Recycling Program* - Kema - July 31, 2007
Measure Life (Years)	8	*Evaluation of Utah Refrigerator Recycling Program* - Kema - July 31, 2007
2008 IRP Decrement Load Shape		East Side Residential Whole House
Freezers	**Value**	**Source and Notes**
Number of Units	3,278	Annual results 2009
Gross kWh/Unit	1,590	*Evaluation of Utah Refrigerator Recycling Program* - Kema - July 31, 2007
Gross kWh/Year Savings (at Site)	5,212,020	Annual results 2009 (Gross at Site)
Net To Gross Ratio	0.58	*Evaluation of Utah Refrigerator Recycling Program* - Kema - July 31, 2007
Measure Life (Years)	8	*Evaluation of Utah Refrigerator Recycling Program* - Kema - July 31, 2007
2008 IRP Decrement Load Shape		East Side Residential Whole House
Savings Kits	**Value**	**Source and Notes**
Number of Units	15,485	Annual results 2009
Gross kWh/Unit	81	Evaluation of Utah Refrigerator Recycling Program - Kema - July 31, 2007
Gross kWh/Year Savings (at Site)	1,254,285	Annual results 2009 (Gross at Site)
Net To Gross Ratio	0.73	*Evaluation of Utah Refrigerator Recycling Program* - Kema - July 31, 2007
Measure Life (Years)	8	*Evaluation of Utah Refrigerator Recycling Program* - Kema - July 31, 2007. Evaluation indicated 5 year measure life, but with kit savings accounting for only 6% of the savings and being generated primarily by CFLs (9 yr life), the program was assessed using an overall 8 year measure life.
2008 IRP Decrement Load Shape		East Side Residential Whole House

The complete set of inputs and results of the cost effectiveness analysis, as conducted by The Cadmus Group are included on the following pages:

Date: **March 22, 2010**

To: **John Rush**
Don Jones Jr.

From: **Brian Hedman**

Re: **Utah See-Ya-Later Refrigerator 2009 Program Cost Effectiveness**

The tables below present the cost effectiveness findings of the Utah See-Ya-Later Refrigerator program based on 2009 costs and savings estimates provided by PacifiCorp in a spreadsheet entitled "UT 2009 Tables and Charts (Draft 3_22_10)". The Utility discount rate is from the 2008 PacifiCorp Integrated Resource Plan.
Cost effectiveness was tested using the 2008 IRP 46% east residential whole house load factor decrement. Table 1 lists modeling inputs.
The program is cost effective from the TRC, UCT and PCT perspectives. The benefit/cost ratio for the RIM test is less than 1, indicating the program will have an upward influence on rates.

Table 1: See-Ya-Later
Inputs

Parameter	Value
Discount Rate	7.4%
Line Loss	9.72%
Residential Energy Rate ($/kWh)	$0.0857

Table 2: See-Ya-Later
Annual Program Costs

	Program Costs	Utility Admin	Evaluation	Incentives	Total Utility Costs	Net Participant Incremental Cost
Refrigerators	$1,339,469	$31,726		$393,000	$1,764,195	$0
Freezers	$463,818	$10,986		$98,340	$573,143	$0
Kits	$1,701	$40		$0	$1,741	$0
Total	$1,804,988	$42,752		$491,340	$2,339,080	$0

Table 3: See-Ya-Later
Savings by Measure Type

	Gross kWh Savings	Realization Rate	Adjusted Gross Savings	Net to Gross Percentage	Net kWh Savings	Measure Life
Refrigerators	15,051,900	100%	15,051,900	33%	4,967,127	8
Freezers	5,212,020	100%	5,212,020	58%	3,022,972	8
Kits	1,254,285	100%	1,254,285	73%	915,628	8
Total	21,518,205		21,518,205		8,905,727	

Table 4: IRP 46% Load Factor Decrement

All Measures				AC: IRP 46% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0363	$1,847,740	$4,010,116	$2,162,376	2.170
Total Resource Cost Test (TRC) No Adder	0.0363	$1,847,740	$3,645,560	$1,797,820	1.973
Utility Cost Test (UCT)	0.0459	$2,339,080	$3,645,560	$1,306,480	1.559
Rate Impact Test (RIM)		$7,033,454	$3,645,560	($3,387,893)	0.518
Participant Cost Test (PCT)		($491,340)	$11,732,057	$12,223,397	NA
Lifecycle Revenue Impacts ($/kWh)				$0.0000938295	
Discounted Participant Payback (years)				NA	

Table 5: Refrigerators

			AC: IRP 46% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$1,371,195	$2,229,812	$858,617	1.626
Total Resource Cost Test (TRC) No Adder	$1,371,195	$2,027,102	$655,907	1.478
Utility Cost Test (UCT)	$1,764,195	$2,027,102	$262,907	1.149
Rate Impact Test (RIM)	$4,350,794	$2,027,102	($2,323,692)	0.466
Participant Cost Test (PCT)	($393,000)	$8,206,528	$8,599,528	NA
Discounted Participant Payback (years)			NA	

Table 6: Freezers

			AC: IRP 46% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$474,803	$1,357,054	$882,250	2.858
Total Resource Cost Test (TRC) No Adder	$474,803	$1,233,685	$758,882	2.598
Utility Cost Test (UCT)	$573,143	$1,233,685	$660,542	2.152
Rate Impact Test (RIM)	$2,181,824	$1,233,685	($948,139)	0.565
Participant Cost Test (PCT)	($98,340)	$2,841,674	$2,940,014	NA
Discounted Participant Payback (years)			NA	

Table 7: Kits

			AC: IRP 46% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$1,741	$423,250	$421,509	243.048
Total Resource Cost Test (TRC) No Adder	$1,741	$384,773	$383,032	220.953
Utility Cost Test (UCT)	$1,741	$384,773	$383,032	220.953
Rate Impact Test (RIM)	$500,836	$384,773	($116,063)	0.768
Participant Cost Test (PCT)	$0	$683,856	$683,856	NA
Discounted Participant Payback (years)			NA	

Process and Impact Evaluation

No process or impact evaluations were completed during 2009. The Company has initiated a process and impact evaluation for the program for years 2006 to 2008. Results of those evaluations are expected to be complete in the second quarter of 2010.

Low Income Weatherization – Schedule 118

The following tables outline the primary inputs and assumptions utilized in the cost effectiveness calculations for the Low Income Weatherization program.

Program Inputs - Low Income Weathization			
Gross kWh/Year Savings (at Site)		1,119,227	Annual results 2009 (Gross at Site) - Measure level evaluated (ex-post) savings * number of units installed.
Program Management and Administration Costs	$	11,178	Annual costs 2009
Incentives	$	151,174	Annual costs 2009
Total Utility Costs	$	162,352	Annual costs 2009
Total Participant Costs		NA	There are no participant costs for this program.
Net To Gross Ratio		1.00	Low income support. NTG assumed to be 1.0
Measure Life (Years)		10	Weighted average measure life from *Utah 2007 Low Income Weatherization Program Enahancements* analysis - Quantec 2007.
2008 IRP Decrement Load Shape			East Side Residential Whole House

Low Income Weatherization

All Measures				AC: IRP 46% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0179	$162,352	$652,493	$490,142	4.019
Total Resource Cost Test (TRC) No Adder	0.0179	$162,352	$593,176	$430,824	3.654
Utility Cost Test (UCT)	0.0179	$162,352	$593,176	$430,824	3.654
Rate Impact Test (RIM)		$881,517	$593,176	($288,342)	0.673
Participant Cost Test (PCT)		$0	$730,352	$730,352	NA
Lifecycle Revenue Impacts ($/kWh)				$0.0000062701	
Discounted Participant Payback (years)				NA	

Cool Cash – Schedule 113

The following tables outline the primary inputs and assumptions utilized in the cost effectiveness calculations for the Cool Cash program.

Reported kWh savings are calculated based on measure level evaluated savings values (ex post) multiplied by measure participation. Sources for the evaluated savings are included in the detailed table below.

Program Inputs - Cool Cash			
Gross kWh/Year Savings (at Site)		922,020	Annual results 2009 (Gross at Site) - Calculated as evaluated savings per unit (ex-post) * unit participation. Source - *2006 Evaporative Cooler and Central Air Conditioning Incentive Program* - Quantec 2006.
Program Management and Administration Costs	$	126,568	Annual costs 2009
Incentives	$	372,975	Annual costs 2009
Total Utility Costs	$	499,543	Annual costs 2009
Total Participant Costs	$	437,557	Deemed incremental cost per unit is estimated by the program administrator - Nexant based on market data and available customer cost data.
Net To Gross Ratio			Varies by measure - see below.
Measure Life			Varies by measure - see below.

Cool Cash

All Measures				AC: IRP 7% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0765	$244,348	$618,159	$373,811	2.530
Total Resource Cost Test (TRC) No Adder	0.0765	$244,348	$561,963	$317,615	2.300
Utility Cost Test (UCT)	0.1564	$499,543	$561,963	$62,420	1.125
Rate Impact Test (RIM)		$809,185	$561,963	($247,222)	0.694
Participant Cost Test (PCT)		($255,195)	$797,197	$1,052,391	NA
Lifecycle Revenue Impacts ($/kWh)				$0.0000036883	
Discounted Participant Payback (years)				NA	

Cool Cash Program Measure Group Inputs and Assumptions

Evaporative Cooler - Replacements	**Value**	**Source and Notes**
Gross kWh/Year Savings (at Site)	169,680	Annual results 2009 (Gross at Site) - Calculated as evaluated savings per unit (ex-post) * unit participation. Unit value is 1,212 kWh/yr.
Program Management and Administration Costs	$ 23,292	Allocated percentage (based on kWh contribution) of non -incentive costs for 2009.
Incentives	$ 14,742	Annual costs 2009
Total Utility Costs	$ 38,035	Annual costs 2009
Total Participant Costs	$ (304,220)	Deeemed incremental cost per unit is estimated by the program administrator - Nexant based on market data and available customer cost data. Value is ($2,173) per unit and is based on a baseline of code compliant compressor cooling system installation.
Net To Gross Ratio	0.44	2006 Evaporative Cooler and Central Air Conditioning Incentive Program - Quantec 2006.
Measure Life (Years)	15	2006 Evaporative Cooler and Central Air Conditioning Incentive Program - Quantec 2006.
2008 IRP Decrement Load Shape		East Side Residential Cooling
Evaporative Cooler - New	**Value**	**Source and Notes**
Gross kWh/Year Savings (at Site)	43,632	Annual results 2009 (Gross at Site) - Calculated as evaluated savings per unit (ex-post) * unit participation. Unit value is 1,212 kWh/yr.
Program Management and Administration Costs	$ 5,989	Allocated percentage (based on kWh contribution) of non -incentive costs for 2009.
Incentives	$ 11,373	Annual costs 2009
Total Utility Costs	$ 17,362	Annual costs 2009
Total Participant Costs	$ (78,228)	Same deemed cost estimate and methodology as evaporative cooler replacement.
Net To Gross Ratio	0.25	2006 Evaporative Cooler and Central Air Conditioning Incentive Program - Quantec 2006.
Measure Life (Years)	15	2006 Evaporative Cooler and Central Air Conditioning Incentive Program - Quantec 2006.
2008 IRP Decrement Load Shape		East Side Residential Cooling
Evaporative Cooler - Premium Only	**Value**	**Source and Notes**
Gross kWh/Year Savings (at Site)	81,204	Annual results 2009 (Gross at Site) - Calculated as evaluated savings per unit (ex-post) * unit participation. Unit value is 1,212 kWh/yr.
Program Management and Administration Costs	$ 11,147	Allocated percentage (based on kWh contribution) of non -incentive costs for 2009.
Incentives	$ 21,166	Annual costs 2009
Total Utility Costs	$ 32,313	Annual costs 2009
Total Participant Costs	$ (109,210)	Same deemed cost estimate and methodology as evaporative cooler replacement.
Net To Gross Ratio	0.75	2006 Evaporative Cooler and Central Air Conditioning Incentive Program - Quantec 2006.
Measure Life (Years)	15	2006 Evaporative Cooler and Central Air Conditioning Incentive Program - Quantec 2006.
2008 IRP Decrement Load Shape		East Side Residential Cooling

Evaporative Cooler - Premium Whole House (Ducted)	Value		Source and Notes
Gross kWh/Year Savings (at Site)		9,696	Annual results 2009 (Gross at Site) - Calculated as evaluated savings per unit (ex-post) * unit participation. Unit value is 1,212 kWh/yr.
Program Management and Administration Costs	$	1,331	Allocated percentage (based on kWh contribution) of non -incentive costs for 2009.
Incentives	$	8,999	Annual costs 2009
Total Utility Costs	$	10,330	Annual costs 2009
Total Participant Costs	$	-	Deemed incremental cost per unit is estimated by the program administrator - Nexant based on market data and available customer cost data. Assumes installation is same cost as code compliant compressor based coolign system.
Net To Gross Ratio		0.75	2006 Evaporative Cooler and Central Air Conditioning Incentive Program - Quantec 2006.
Measure Life (Years)		15	2006 Evaporative Cooler and Central Air Conditioning Incentive Program - Quantec 2006.
2008 IRP Decrement Load Shape			East Side Residential Cooling

Central AC Sizing and TXV	Value		Source and Notes
Gross kWh/Year Savings (at Site)		190,270	Annual results 2009 (Gross at Site) - Calculated as evaluated savings per unit (ex-post) * unit participation. Unit value is 265 kWh/yr.
Program Management and Administration Costs	$	26,119	Allocated percentage (based on kWh contribution) of non -incentive costs for 2009.
Incentives	$	59,680	Annual costs 2009
Total Utility Costs	$	85,799	Annual costs 2009
Total Participant Costs	$	-	Deemed value per unit based on program adminsitrator estimates. No additional participant costs for this measure
Net To Gross Ratio		0.31	2006 Evaporative Cooler and Central Air Conditioning Incentive Program - Quantec 2006.
Measure Life (Years)		15	2006 Evaporative Cooler and Central Air Conditioning Incentive Program - Quantec 2006.
2008 IRP Decrement Load Shape			East Side Residential Cooling

Central AC Charge and Airflow	Value		Source and Notes
Gross kWh/Year Savings (at Site)		65,593	Annual results 2009 (Gross at Site) - Calculated as evaluated savings per unit (ex-post) * unit participation. Unit value is 89 kWh/yr.
Program Management and Administration Costs	$	9,004	Allocated percentage (based on kWh contribution) of non -incentive costs for 2009.
Incentives	$	106,171	Annual costs 2009
Total Utility Costs	$	115,175	Annual costs 2009
Total Participant Costs	$	-	Deemed value per unit based on program adminsitrator estimates. No additional participant costs for this measure
Net To Gross Ratio		0.83	2006 Evaporative Cooler and Central Air Conditioning Incentive Program - Quantec 2006.
Measure Life (Years)		10	2006 Evaporative Cooler and Central Air Conditioning Incentive Program - Quantec 2006.
2008 IRP Decrement Load Shape			East Side Residential Cooling

Central Air Conditioning - 15+SEER/12.5EER	Value	Source and Notes
Gross kWh/Year Savings (at Site)	361,945	Annual results 2009 (Gross at Site) - Calculated as evaluated savings per unit (ex-post) * unit participation. Unit value is 379 kWh/yr.
Program Management and Administration Costs	$ 49,685	Allocated percentage (based on kWh contribution) of non -incentive costs for 2009.
Incentives	$ 150,845	Annual costs 2009
Total Utility Costs	$ 200,530	Annual costs 2009
Total Participant Costs	$ 929,215	Deemed incremental cost per unit is estimated by the program administrator - Nexant based on market data and available customer data. Value is $957 per unit.
Net To Gross Ratio	0.38	2006 Evaporative Cooler and Central Air Conditioning Incentive Program - Quantec 2006.
Measure Life (Years)	15	2006 Evaporative Cooler and Central Air Conditioning Incentive Program - Quantec 2006.
2008 IRP Decrement Load Shape		East Side Residential Cooling

The complete set of inputs and results of the cost effectiveness analysis, as conducted by The Cadmus Group are included on the following pages:

Date: **March 22, 2010**

To: **John Rush**
Don Jones Jr.

From: **Brian Hedman**

Re: **Utah Cool Cash 2009 Program Cost Effectiveness – Planning Based**

The tables below present the cost effectiveness findings of the Utah Cool Cash program based on 2009 costs and savings estimates provided by PacifiCorp in a spreadsheet entitled "UT 2009 Tables and Charts (Draft 3_22_10)". The Utility discount rate is from the 2008 PacifiCorp Integrated Resource Plan.
Cost effectiveness was tested using the 2008 IRP 7% east residential cooling load factor decrement. Table 1 lists modeling inputs.
The program is cost effective from the TRC, UCT and PCT perspectives. The benefit/cost ratio for the RIM test is less than 1, indicating the program will have an upward influence on rates.

Table 1: Cool Cash
Inputs

Parameter	Value
Discount Rate	7.4%
Line Loss	9.72%
Residential Energy Rate ($/kWh)	$0.0857

Table 2: Cool Cash
Annual Program Costs

	Program Costs	Utility Admin	Evaluation	Incentives	Total Utility Costs	Net Participant Incremental Cost
Evaporative Cooling - Replacements	$20,841	$2,452		$14,742	$38,035	($133,857)
Evaporative Cooling - New	$5,359	$630		$11,373	$17,362	($19,557)
Evaporative Cooling - Premium Only	$9,974	$1,173		$21,166	$32,313	($81,908)
Evaporative Cooling - Premium whole house ducted system	$1,191	$140		$8,999	$10,330	$0
Central Air Conditioning - Sizing + TXV	$23,370	$2,749		$59,680	$85,799	$0
Central Air Conditioning - Charge + Airflow	$8,056	$948		$106,171	$115,175	$0
Central Air Conditioning - 15+SEER/12.5EER	$44,456	$5,229		$150,845	$200,530	$353,102
Total	$113,246	$13,321	$0	$372,975	$499,543	$117,780

Table 3: Cool Cash
Savings by Measure Type

	Gross kWh Savings	Realization Rate	Adjusted Gross Savings	Net to Gross Percentage	Net kWh Savings	Measure Life
Evaporative Cooling - Replacements	169,680	100%	169,680	44%	74,659.20	15
Evaporative Cooling - New	43,632	100%	43,632	25%	10,908.00	15
Evaporative Cooling - Premium Only	81,204	100%	81,204	75%	60,903.00	15
Evaporative Cooling - Premium whole house ducted system	9,696	100%	9,696	75%	7,272.00	15
Central Air Conditioning - Sizing + TXV	190,270	100%	190,270	31%	58,983.70	15
Central Air Conditioning - Charge + Airflow	65,593	100%	65,593	83%	54,442.19	10
Central Air Conditioning - 15+SEER/12.5EER	361,945	100%	361,945	38%	137,539.10	15
Total	922,020		922,020		404,707	

Table 4: IRP 7% Load Factor Decrement

All Measures				AC: IRP 7% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0765	$244,348	$618,159	$373,811	2.530
Total Resource Cost Test (TRC) No Adder	0.0765	$244,348	$561,963	$317,615	2.300
Utility Cost Test (UCT)	0.1564	$499,543	$561,963	$62,420	1.125
Rate Impact Test (RIM)		$809,185	$561,963	($247,222)	0.694
Participant Cost Test (PCT)		($255,195)	$797,197	$1,052,391	NA
Lifecycle Revenue Impacts ($/kWh)				$0.0000036883	
Discounted Participant Payback (years)				NA	

Table 5: Evaporative Cooling - Replacements

			AC: IRP 7% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	($110,564)	$119,428	$229,992	NA
Total Resource Cost Test (TRC) No Adder	($110,564)	$108,571	$219,135	NA
Utility Cost Test (UCT)	$38,035	$108,571	$70,536	2.855
Rate Impact Test (RIM)	$101,178	$108,571	$7,393	1.073
Participant Cost Test (PCT)	($148,599)	$149,465	$298,064	NA
Discounted Participant Payback (years)			NA	

Table 6: Evaporative Cooling - New

			AC: IRP 7% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	($13,568)	$17,449	$31,016	NA
Total Resource Cost Test (TRC) No Adder	($13,568)	$15,863	$29,430	NA
Utility Cost Test (UCT)	$17,362	$15,863	($1,499)	0.914
Rate Impact Test (RIM)	$25,774	$15,863	($9,912)	0.615
Participant Cost Test (PCT)	($30,930)	$38,434	$69,363	NA
Discounted Participant Payback (years)			NA	

Table 7: Evaporative Cooling - Premium Only

			AC: IRP 7% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	($70,760)	$97,423	$168,183	NA
Total Resource Cost Test (TRC) No Adder	($70,760)	$88,566	$159,327	NA
Utility Cost Test (UCT)	$32,313	$88,566	$56,254	2.741
Rate Impact Test (RIM)	$83,733	$88,566	$4,833	1.058
Participant Cost Test (PCT)	($103,073)	$71,530	$174,603	NA
Discounted Participant Payback (years)			NA	

Table 8: Evaporative Cooling - Premium whole house ducted system

			AC: IRP 7% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$1,331	$11,633	$10,302	8.740
Total Resource Cost Test (TRC) No Adder	$1,331	$10,575	$9,244	7.945
Utility Cost Test (UCT)	$10,330	$10,575	$245	1.024
Rate Impact Test (RIM)	$16,024	$10,575	($5,449)	0.660
Participant Cost Test (PCT)	($8,999)	$8,541	$17,540	NA
Discounted Participant Payback (years)			NA	

Table 9: Central Air Conditioning - Sizing + TXV

			AC: IRP 7% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$26,119	$94,353	$68,234	3.612
Total Resource Cost Test (TRC) No Adder	$26,119	$85,775	$59,656	3.284
Utility Cost Test (UCT)	$85,799	$85,775	($24)	1.000
Rate Impact Test (RIM)	$131,844	$85,775	($46,068)	0.651
Participant Cost Test (PCT)	($59,680)	$167,602	$227,282	NA
Discounted Participant Payback (years)			NA	

Table 10: Central Air Conditioning - Charge + Airflow

			AC: IRP 7% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$9,004	$57,860	$48,856	6.426
Total Resource Cost Test (TRC) No Adder	$9,004	$52,600	$43,596	5.842
Utility Cost Test (UCT)	$115,175	$52,600	($62,574)	0.457
Rate Impact Test (RIM)	$142,765	$52,600	($90,165)	0.368
Participant Cost Test (PCT)	($106,171)	$42,803	$148,973	NA
Discounted Participant Payback (years)			NA	

Table 11: Central Air Conditioning - 15+SEER/12.5EER

			AC: IRP 7% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$402,787	$220,013	($182,773)	0.546
Total Resource Cost Test (TRC) No Adder	$402,787	$200,012	($202,775)	0.497
Utility Cost Test (UCT)	$200,530	$200,012	($517)	0.997
Rate Impact Test (RIM)	$307,866	$200,012	($107,854)	0.650
Participant Cost Test (PCT)	$202,257	$318,824	$116,566	1.576
Discounted Participant Payback (years)			8.25	

Process and Impact Evaluation

No process or impact evaluations were completed during 2009. The Company has initiated a process and impact evaluation for the program for program years 2006 to 2008. Results of those evaluations are expected to be complete in the second quarter of 2010.

Energy Star New Homes – Schedule 110

The following tables outline the primary inputs and assumptions utilized in the cost effectiveness calculations for the Energy Star New Homes program.

Reported kWh savings are calculated based on measure level deemed savings values (ex ante) multiplied by measure participation. Sources for the deemed savings estimates are consistent with the estimates used in past program filings (Advice 08-01 and Advice 09-09).

Program Inputs - Energy Star New Homes		
Gross kWh/Year Savings (at Site)	3,362,115	Annual results 2009 (Gross at Site). Calculated as deemed savings per unit * unit participation. Deemed savings per unit is consistent with the measure level estimates utilized in past filings (Advice 08-01 and Advice 09-09).
Program Management and Administration Costs	$ 790,016	Annual costs 2009
Incentives	$ 656,375	Annual costs 2009
Total Utility Costs	$ 1,446,391	Annual costs 2009
Total Participant Costs	$ 874,272	Deemed costs per unit * unit participation. Deemed costs per unit is from Ecotope Residential New Construction Version 45 - 2008.
Net To Gross Ratio	0.8	Planning estimate from original program filings Advice 08-01 and Advice 09-09 and used for prior cost effectiveness assessments.
Measure Life		At program level, it is a weighted average of the measure group inputs.

Energy Star New Homes

All Measures				AC: IRP 46% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0874	$1,489,433	$1,794,656	$305,222	1.205
Total Resource Cost Test (TRC) No Adder	0.0874	$1,489,433	$1,631,505	$142,072	1.095
Utility Cost Test (UCT)	0.0849	$1,446,391	$1,631,505	$185,114	1.128
Rate Impact Test (RIM)		$2,999,050	$1,631,505	($1,367,545)	0.544
Participant Cost Test (PCT)		$43,043	$2,065,397	$2,022,355	47.985
Lifecycle Revenue Impacts ($/kWh)				$0.0000267717	
Discounted Participant Payback (years)				0.16	

For this cost effectiveness analysis, program savings were grouped into measure groups with similar characteristics and measure lives. The approach is consistent with the analysis provided with Advice Filing 09-09. The measure groups are Building Shell, Lighting, HVAC and Dishwashers. Savings from Whole House measures offered by the program (e.g., Tier 1, Tier 2, etc.) were distributed to Shell and Lighting based on the analysis completed by the program administrator for Advice Filing 09-09.

Energy Star New Homes Program Measure Group Inputs and Assumptions

Building Shell	**Value**	**Source and Notes**
Gross kWh/Year Savings (at Site)	389,431	Annual results 2009 (Gross at Site) for Whole House Measures attributable to Building Shell based on analysis by program administrator ECOS.
Program Management and Administration Costs	$ 88,799	Allocated percentage (based on kWh contribution) of non -incentive costs for 2009.
Incentives	$ 78,735	Annual Incentives for 2009 for Whole House Measures attributable to Building Shell based on analysis by program administrator ECOS.
Total Utility Costs	$ 167,534	Sum of Program Management and Incentives
Total Participant Costs	$ 79,298	Incremental costs for 2009 for Whole House Measures attributable to Building Shell based on analysis by program administrator ECOS.
Net To Gross Ratio	0.8	Planning estimate from original program filings Advice 08-01 and Advice 09-09 and used for prior cost effectiveness assessments.
Measure Life (Years)	44	Consistent with Advice Filing 09-09
2008 IRP Decrement		East Side Residential Whole House

Lighting	**Value**	**Source and Notes**
Gross kWh/Year Savings (at Site)	2,473,638	Annual results 2009 (Gross at Site) for Whole House Measures attributable to Lighting based on analysis by program administrator ECOS plus Lighting specific measures.
Program Management and Administration Costs	$ 579,370	Allocated percentage (based on kWh contribution) of non -incentive costs for 2009.
Incentives	$ 484,796	Annual Incentives for 2009 for Whole House Measures attributable to Lighting based on analysis by program administrator ECOS plus Lighting specific measure incentives.
Total Utility Costs	$ 1,064,166	Sum of Program Management and Incentives
Total Participant Costs	$ 492,704	Incremental costs for 2009 for Whole House Measures attributable to Lighting based on analysis by program administrator ECOS plus Lighting specific measure costs.
Net To Gross Ratio	0.8	Planning estimate from original program filings Advice 08-01 and Advice 09-09 and used for prior cost effectiveness assessments.
Measure Life (Years)	6	Consistent with Advice Filing 09-09
2008 IRP Decrement		East Side Residential Whole House

Air Conditioning	**Value**	**Source and Notes**
Gross kWh/Year Savings (at Site)	459,656	Annual results (# of units) * Deemed savings per unit (Gross At Site) for Air Conditioning specific measures for 2009.
Program Management and Administration Costs	$ 118,579	Allocated percentage (based on kWh contribution) of non -incentive costs for 2009.
Incentives	$ 79,167	Annual AC Measure Incentives 2009
Total Utility Costs	$ 197,745	Sum of Program Management and Incentives
Total Participant Costs	$ 269,445	Deemed costs per unit * unit participation. Deemed costs per unit is from Ecotope Residential New Construction Version 45 - 2008.
Net To Gross Ratio	0.8	Planning estimate from original program filing (2006) and used for prior annual reports cost effectiveness assessments.
Measure Life (Years)	15	Consistent with Advice Filing 09-09
2008 IRP Decrement		East Side Residential Whole House

Dishwasher	Value	Source and Notes
Gross kWh/Year Savings (at Site)	39,390	Annual results (# of units) * Deemed savings per unit (Gross At Site) for Energy Star Dishwasher measure for 2009.
Program Management and Administration Costs	$ 3,269	Allocated percentage (based on kWh contribution) of non -incentive costs for 2009.
Incentives	$ 13,677	Annual costs 2009
Total Utility Costs	$ 16,946	Annual costs 2009
Total Participant Costs	$ 32,825	Deemed costs per unit * unit participation. Deemed costs per unit is from Ecotope Residential New Construction Version 45 - 2008.
Net To Gross Ratio	0.8	Planning estimate from original program filing (2006) and used for prior annual reports cost effectiveness assessments.
Measure Life (Years)	12	Average life. Combination of RTF and Energy Star
2008 IRP Decrement		East Side Residential Whole House

The complete set of inputs and results of the cost effectiveness analysis, as conducted by The Cadmus Group are included on the following pages:

Date: **March 22, 2010**

To: **John Rush**
Don Jones Jr.

From: **Brian Hedman**

Re: **Utah Energy Star New Homes 2009 Program Cost Effectiveness with 2009 Measure Categories**

The tables below present the cost effectiveness findings of the Utah Energy Star New Homes program based on 2009 costs and savings estimates provided by PacifiCorp in a spreadsheet entitled "ESNH w 09-09 categories and lives (3_22_10)". The Utility discount rate is from the 2008 PacifiCorp Integrated Resource Plan.

Cost effectiveness was tested using the 2008 IRP 46% east residential whole house load factor decrement. Table 1 lists modeling inputs.

The program is cost effective from the TRC perspective. The benefit/cost ratio for the RIM test is less than 1, indicating the program will have an upward influence on rates.

Table 1: Energy Star New Homes
Inputs

Parameter	Value
Discount Rate	7.4%
Line Loss	9.72%
Residential Energy Rate ($/kWh)	$0.0857

Table 2: Energy Star New Homes
Annual Program Costs

	Program Costs	Utility Admin	Evaluation	Incentives	Total Utility Costs	Net Participant Incremental Cost
Shell	$84,820	$3,978		$78,735	$167,534	$63,438
AC	$113,883	$4,696		$79,167	$197,745	$215,556
Lighting	$554,099	$25,271		$484,796	$1,064,166	$394,163
Dishwasher	$2,866	$402		$13,677	$16,946	$26,260
Total	$755,668	$34,347		$656,375	$1,446,391	$699,418

Table 3: Energy Star New Homes
Savings by Measure Type

	Gross kWh Savings	Realization Rate	Adjusted Gross Savings	Net to Gross Percentage	Net kWh Savings	Measure Life
Shell	389,431	100%	389,431	80%	311,545	44
AC	459,656	100%	459,656	80%	367,725	15
Lighting	2,473,638	100%	2,473,638	80%	1,978,911	6
Dishwasher	39,390	100%	39,390	80%	31,512	12
Total	3,362,115		3,362,115		2,689,692	

Table 4: IRP 46% Load Factor Decrement

All Measures				AC: IRP 46% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0874	$1,489,433	$1,794,656	$305,222	1.205
Total Resource Cost Test (TRC) No Adder	0.0874	$1,489,433	$1,631,505	$142,072	1.095
Utility Cost Test (UCT)	0.0849	$1,446,391	$1,631,505	$185,114	1.128
Rate Impact Test (RIM)		$2,999,050	$1,631,505	($1,367,545)	0.544
Participant Cost Test (PCT)		$43,043	$2,065,397	$2,022,355	47.985
Lifecycle Revenue Impacts ($/kWh)				$0.0000267717	
Discounted Participant Payback (years)				0.16	

Table 5: Shell

			AC: IRP 46% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$152,237	$693,190	$540,953	4.553
Total Resource Cost Test (TRC) No Adder	$152,237	$630,173	$477,936	4.139
Utility Cost Test (UCT)	$167,534	$630,173	$462,639	3.761
Rate Impact Test (RIM)	$615,017	$630,173	$15,156	1.025
Participant Cost Test (PCT)	($15,297)	$573,783	$589,080	NA
Discounted Participant Payback (years)			NA	

Table 6: AC

			AC: IRP 46% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$334,135	$446,323	$112,188	1.336
Total Resource Cost Test (TRC) No Adder	$334,135	$405,748	$71,613	1.214
Utility Cost Test (UCT)	$197,745	$405,748	$208,003	2.052
Rate Impact Test (RIM)	$508,035	$405,748	($102,287)	0.799
Participant Cost Test (PCT)	$136,389	$404,894	$268,504	2.969
Discounted Participant Payback (years)			3.98	

Table 7: Lighting

			AC: IRP 46% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$973,533	$632,669	($340,864)	0.650
Total Resource Cost Test (TRC) No Adder	$973,533	$575,153	($398,380)	0.591
Utility Cost Test (UCT)	$1,064,166	$575,153	($489,012)	0.540
Rate Impact Test (RIM)	$1,836,576	$575,153	($1,261,423)	0.313
Participant Cost Test (PCT)	($90,633)	$1,057,166	$1,147,799	NA
Discounted Participant Payback (years)			NA	

Table 8: Dishwasher

			AC: IRP 46% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$29,529	$22,474	($7,054)	0.761
Total Resource Cost Test (TRC) No Adder	$29,529	$20,431	($9,098)	0.692
Utility Cost Test (UCT)	$16,946	$20,431	$3,485	1.206
Rate Impact Test (RIM)	$39,422	$20,431	($18,991)	0.518
Participant Cost Test (PCT)	$12,583	$29,555	$16,972	2.349
Discounted Participant Payback (years)			4.32	

Process and Impact Evaluation

No process or impact evaluations were completed during 2009. The Company has initiated a process and impact evaluation for the program for program years 2006 to 2008. Results of those evaluations are expected to be complete in the second quarter of 2010.

Energy FinAnswer – Schedule 125

The following tables outline the primary inputs and assumptions utilized in the cost effectiveness calculations for the program.

Program Inputs - Energy FinAnswer			
Gross kWh/Year Savings (at Site)		58,685,175	Annual results 2009 (Gross at Site)
Engineering Costs	$	2,210,122	Annual costs 2009
Utility Administration	$	530,323	Annual costs 2009
Program Management and Administration Costs	$	109,337	Annual costs 2009
Incentives	$	4,847,048	Annual costs 2009
Total Utility Costs	$	7,696,830	Annual costs 2009
Total Participant Costs	$	12,910,878	Incremental costs incurred by customers based on invoices and any necessary adjustments.
Net To Gross Ratio		0.80	Planning estimate utilized as part of the last program design changes filed in 2006. Source is *2006 Energy FinAnswer Market Characterization and Program Enhancements* - Nexant, November 15, 2006. The market characterization relied on third party data - DEER All Other non - Residential Programs, 2005. In 2007, the Company received draft evaluations prepared by ADM for the 2003 & 2004 programs. The combination effect of the realization rate and the net to gross ratio was estimated at 86%. To be conservative and to reflect the most current program design, the Company elected to use 80%
Measure Life (Years)		15	*2006 Energy FinAnswer Market Characterization and Program Enhancements* - Nexant, November 15, 2006. Consistent with analysis for the program in other markets.
2008 IRP Decrement Load Shape			East Side System

Savings Calculations and Reporting:

Energy FinAnswer program savings reported for 2009 are calculated for each completed (installed) project. The savings calculations are project specific and performed at a measure level. Preliminary engineering savings and costs estimates are completed prior to project installation, during a scoping phase by a pre-qualified third party energy engineering firm working under contract with the Company. If the customer indicates an interest in proceeding with the project, savings and costs are further refined during the preparation of an energy analysis by the same firm that did the original scoping work. The energy analysis work undergoes a peer review or quality assurance process by another third party engineering firm prior to being provided to the customer. After the customer installs and commissions (if required) the project, a post-installation inspection is conducted by the same firm and the final as installed savings are calculated for each project. Measure costs are based on invoices from the installing contractors to the customer. Any necessary adjustments to customer provided costs

occur at the final inspection stage and incentives are paid on final inspected savings and costs.

Program results were categorized by measure type for cost effectiveness analysis. Each measure type utilized the same Net To Gross ratio, same measure life and same load shape as outlined in the summary table above.

The complete set of inputs and results of the cost effectiveness analysis at the measure group level as conducted by The Cadmus Group are included on the following pages:

Date: **March 22, 2010**

To: **John Rush**
Don Jones Jr.

From: **Brian Hedman**

Re: **Utah Energy FinAnswer 2009 Program Cost Effectiveness**

The tables below present the cost effectiveness findings of the Utah Energy FinAnswer program based on 2009 costs and savings estimates provided by PacifiCorp in a spreadsheet entitled "UT 2009 Tables and Charts (Draft 3_22_10)". The Utility discount rate is from the 2008 PacifiCorp Integrated Resource Plan.
Cost effectiveness was tested using the 2008 IRP 65% east system load factor decrement. Table 1 lists modeling inputs.
The program is cost effective from all perspectives.

Table 1: Energy FinAnswer
Inputs

Parameter	Value
Discount Rate	7.4%
Commercial Line Loss	9.353%
Industrial Line Loss	6.330%
Commercial Energy Rate ($/kWh)	$0.0689
Industrial Energy Rate ($/kWh)	$0.0462

Table 2: Energy FinAnswer
Annual Program Costs

	Program Costs	Utility Admin	Evaluation	Incentives	Total Utility Costs	Net Participant Incremental Cost
Process	$870,232	$198,971		$2,392,944	$3,462,146	$3,989,202
Compressed Air	$608,644	$139,161		$437,016	$1,184,821	$875,614
Refrigeration	$374,876	$85,712		$727,812	$1,188,400	$1,486,241
HVAC	$267,810	$61,232		$771,150	$1,100,192	$2,650,318
Lighting	$115,413	$26,388		$260,342	$402,143	$476,821
Pumps	$68,259	$15,607		$206,325	$290,191	$496,970
Shell	$9,091	$2,078		$29,436	$40,605	$222,737
Other	$5,135	$1,174		$22,022	$28,331	$130,800
Total	$2,319,459	$530,323	$0	$4,847,047	$7,696,829	$10,328,702

Table 3: Energy FinAnswer
Savings by Measure Type

	Gross kWh Savings	Realization Rate	Adjusted Gross Savings	Net to Gross Percentage	Net kWh Savings	Measure Life
Process	22,017,933	100%	22,017,933	80%	17,614,346	15
Compressed Air	15,399,440	100%	15,399,440	80%	12,319,552	15
Refrigeration	9,484,829	100%	9,484,829	80%	7,587,863	15
HVAC	6,775,920	100%	6,775,920	80%	5,420,736	15
Lighting	2,920,093	100%	2,920,093	80%	2,336,074	15
Pumps	1,727,042	100%	1,727,042	80%	1,381,633	15
Shell	230,005	100%	230,005	80%	184,004	15
Other	129,913	100%	129,913	80%	103,930	15
Total	58,685,175		58,685,175		46,948,140	

Table 4: IRP 65% Load Factor Decrement

All Measures				AC: IRP 65% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0339	$13,178,485	$38,452,124	$25,273,640	2.918
Total Resource Cost Test (TRC) No Adder	0.0339	$13,178,485	$34,956,477	$21,777,992	2.653
Utility Cost Test (UCT)	0.0198	$7,696,829	$34,956,477	$27,259,647	4.542
Rate Impact Test (RIM)		$31,313,236	$34,956,477	$3,643,241	1.116
Participant Cost Test (PCT)		$5,481,655	$30,183,410	$24,701,755	5.506
Lifecycle Revenue Impacts ($/kWh)				($0.0000094176)	
Discounted Participant Payback (years)				2.06	

Table 5: Process

			AC: IRP 65% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$5,058,405	$14,093,468	$9,035,064	2.786
Total Resource Cost Test (TRC) No Adder	$5,058,405	$12,812,244	$7,753,840	2.533
Utility Cost Test (UCT)	$3,462,146	$12,812,244	$9,350,098	3.701
Rate Impact Test (RIM)	$12,283,146	$12,812,244	$529,098	1.043
Participant Cost Test (PCT)	$1,596,258	$11,324,433	$9,728,174	7.094
Discounted Participant Payback (years)			1.58	

Table 6: Compressed Air

			AC: IRP 65% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$1,623,419	$9,857,034	$8,233,615	6.072
Total Resource Cost Test (TRC) No Adder	$1,623,419	$8,960,940	$7,337,521	5.520
Utility Cost Test (UCT)	$1,184,821	$8,960,940	$7,776,120	7.563
Rate Impact Test (RIM)	$7,439,472	$8,960,940	$1,521,469	1.205
Participant Cost Test (PCT)	$438,598	$7,920,358	$7,481,760	18.058
Discounted Participant Payback (years)			0.61	

Table 7: Refrigeration

			AC: IRP 65% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$1,946,829	$6,071,148	$4,124,319	3.118
Total Resource Cost Test (TRC) No Adder	$1,946,829	$5,519,226	$3,572,397	2.835
Utility Cost Test (UCT)	$1,188,400	$5,519,226	$4,330,826	4.644
Rate Impact Test (RIM)	$5,009,166	$5,519,226	$510,060	1.102
Participant Cost Test (PCT)	$758,429	$4,878,310	$4,119,881	6.432
Discounted Participant Payback (years)			1.75	

Table 8: HVAC

	AC: IRP 65% LF Decrement			
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$2,979,360	$4,939,286	$1,959,926	1.658
Total Resource Cost Test (TRC) No Adder	$2,979,360	$4,490,260	$1,510,900	1.507
Utility Cost Test (UCT)	$1,100,192	$4,490,260	$3,390,068	4.081
Rate Impact Test (RIM)	$3,812,422	$4,490,260	$677,838	1.178
Participant Cost Test (PCT)	$1,879,168	$3,485,043	$1,605,876	1.855
Discounted Participant Payback (years)			6.79	

Table 9: Lighting

	AC: IRP 65% LF Decrement			
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$618,622	$2,155,344	$1,536,722	3.484
Total Resource Cost Test (TRC) No Adder	$618,622	$1,959,403	$1,340,781	3.167
Utility Cost Test (UCT)	$402,143	$1,959,403	$1,557,260	4.872
Rate Impact Test (RIM)	$1,575,943	$1,959,403	$383,461	1.243
Participant Cost Test (PCT)	$216,479	$1,501,885	$1,285,406	6.938
Discounted Participant Payback (years)			1.62	

Table 10: Pumps

	AC: IRP 65% LF Decrement			
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$580,836	$1,105,463	$524,627	1.903
Total Resource Cost Test (TRC) No Adder	$580,836	$1,004,966	$424,131	1.730
Utility Cost Test (UCT)	$290,191	$1,004,966	$714,775	3.463
Rate Impact Test (RIM)	$980,809	$1,004,966	$24,158	1.025
Participant Cost Test (PCT)	$290,645	$888,266	$597,621	3.056
Discounted Participant Payback (years)			3.86	

Table 11: Shell

			AC: IRP 65% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$233,906	$147,224	($86,682)	0.629
Total Resource Cost Test (TRC) No Adder	$233,906	$133,840	($100,066)	0.572
Utility Cost Test (UCT)	$40,605	$133,840	$93,235	3.296
Rate Impact Test (RIM)	$132,446	$133,840	$1,394	1.011
Participant Cost Test (PCT)	$193,301	$118,298	($75,003)	0.612
Discounted Participant Payback (years)			-	

Table 12: Other

			AC: IRP 65% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$137,109	$83,156	($53,953)	0.606
Total Resource Cost Test (TRC) No Adder	$137,109	$75,596	($61,512)	0.551
Utility Cost Test (UCT)	$28,331	$75,596	$47,266	2.668
Rate Impact Test (RIM)	$79,833	$75,596	($4,236)	0.947
Participant Cost Test (PCT)	$108,778	$66,818	($41,960)	0.614
Discounted Participant Payback (years)			-	

Process and Impact Evaluation

No process or impact evaluations were completed during 2009. The Company has initiated a process and impact evaluation for the program for program years 2006 to 2008. Results of those evaluations are expected to be complete in the second quarter of 2010.

FinAnswer Express – Schedule 115

The following tables outline the primary inputs and assumptions utilized in the cost effectiveness calculations for the FinAnswer Express program.

Program Inputs - FinAnswer Express		
Gross kWh/Year Savings (at Site)	37,688,483	Annual results 2009 (Gross at Site)
Utility Administration	$ 133,769	Annual costs 2009
Program Management and Administration Costs	$ 1,143,894	Annual costs 2009
Incentives	$ 2,712,650	Annual costs 2009 adjusted by $43,494 for incentives paid during 2009 for savings in 2008.
Total Utility Costs	$ 3,990,314	Annual costs 2009
Total Participant Costs	$10,287,154	Actual customer costs incurred based on project close-out documentation (invoices) - less any adjustments (if necessary) for baseline equipment.
Net To Gross Ratio	0.80	Planning estimate utilized as part of the last program design changes filed in 2006. Source is *2006 FinAnswer Express Market Characterization and Program Enhancements* - Nexant, November 15, 2006. The market characterization relied on third party data - DEER All Other non Residential Programs, 2005. In 2007, the Company received draft evaluations prepared by ADM for the 2003 & 2004 programs. The combination effect of the realization rate and the net to gross ratio was estimated at 88%. To be conservative and to reflect the most current program design, the Company elected to use 80%
Measure Life	13	*2006 FinAnswer Express Market Characterization and Program Enhancements* - Nexant, November 14, 2006 which used 15 years overall. Life shortened to 13 year on program basis to account for some measures such as occupancy sensors with shorter life.
2008 IRP Decrement Load Shape		East Side System

(Note: For cost effectiveness, Total Utility Costs and Incentives were adjusted by ($43,490) to account for incentives booked to the balancing account that were not associated with 2009 savings)

Savings Calculations and Reporting:

There are several primary categories of FinAnswer Express measures that are eligible for prescriptive incentives. They include lighting, motors, HVAC equipment, mechanical and other energy efficiency measures. The “other” category includes; evaporative cooling, chillers, occupancy sensors for packaged HVAC units, solid door freezers, cool roofs, plug load occupancy sensors and beverage machine occupancy controls. In addition, the program includes a provision to calculate a custom incentive for measures without a prescriptive incentive.

Lighting savings contributed approximately 83% of the program results in 2009 and reported savings are calculated for each project using an Excel based calculation tool built and maintained by the program staff. The tool includes deemed wattages by fixture types for both baseline and replacement fixtures. Baseline (pre) and post fixture counts along with hours of operation are input on a project specific basis. For each project, the

lighting tool calculates energy and average demand savings, incentives, the value of energy and demand savings, simple paybacks with and without incentives, counts of replaced fixture by type and several other project specific metrics.

Savings from NEMA premium motors are calculated using a spreadsheet based tool which utilizes deemed energy and capacity values based on horsepower size and sector (i.e., commercial and industrial). Savings values are the product of efficiency improvements and operating hour per sector.

Savings from unitary HVAC equipment are calculated using a spreadsheet tool utilizing deemed savings values per ton (and efficiency level) combined with project specific inputs.

Savings from mechanical and other energy efficiency measures are calculated in comparable manner with either deemed savings values (solid door refrigerators, beverage machine occupancy sensor control) or simplified analysis (combination of deemed values and some project specific inputs); chillers, cool roofs.

Savings reported for custom incentive for measures without a prescriptive incentive are calculated in a manner comparable to the Energy FinAnswer program.

Many of the deemed savings values for this program were based on information provided in the *2006 FinAnswer Express Market Characterization and Program Enhancements,* dated November 14, 2006 and prepared by Nexant, Inc. This document was provided in Advice Filing 06-15 on November 17, 2006.

Cost effectiveness inputs included in this section are the aggregations of savings and expenditures in several categories – Lighting, HVAC, Food Service, Refrigeration, Building Shell, Motors and Other.

Each measure type utilized the same Net To Gross ratio, same measure life and same load shape as outlined in the summary table above.

The complete set of inputs and results of the cost effectiveness analysis at the measure group level as conducted by The Cadmus Group are included on the following pages:

Date: **March 22, 2010**

To: **John Rush**
Don Jones Jr.

From: **Brian Hedman**

Re: **Utah FinAnswer Express 2009 Program Cost Effectiveness**

The tables below present the cost effectiveness findings of the Utah FinAnswer Express program based on 2009 costs and savings estimates provided by PacifiCorp in a spreadsheet entitled "UT 2009 Tables and Charts (Draft 3_22_10)". The Utility discount rate is from the 2008 PacifiCorp Integrated Resource Plan.
Cost effectiveness was tested using the 2008 IRP 65% east system load factor decrement. Table 1 lists modeling inputs.
The program is cost effective from the all perspectives.

Table 1: FinAnswer Express
Inputs

Parameter	Value
Discount Rate	7.4%
Commercial Line Loss	9.353%
Industrial Line Loss	6.330%
Commercial Energy Rate ($/kWh)	$0.0689
Industrial Energy Rate ($/kWh)	$0.0462

Table 2: FinAnswer Express
Annual Program Costs

	Program Costs	Utility Admin	Evaluation	Incentives	Total Utility Costs	Net Participant Incremental Cost
Lighting	$952,134	$111,345		$2,214,125	$3,277,603	$7,406,460
HVAC	$150,642	$17,616		$357,918	$526,176	$664,288
Other	$11,669	$1,365		$28,587	$41,621	$70,020
Food Service	$10,895	$1,274		$28,568	$40,737	$164,440
Refrigeration	$8,298	$970		$14,699	$23,967	$24,400
Building Shell	$5,635	$659		$53,047	$59,341	$168,038
Motors	$4,621	$540		$15,707	$20,868	$40,692
Total	$1,143,894	$133,769	$0	$2,712,650	$3,990,314	$8,538,338

Table 3: FinAnswer Express
Savings by Measure Type

	Gross kWh Savings	Realization Rate	Adjusted Gross Savings	Net to Gross Percentage	Net kWh Savings	Measure Life
Lighting	31,370,457	100%	31,370,457	80%	25,096,366	13
HVAC	4,963,286	100%	4,963,286	80%	3,970,629	13
Other	384,470	100%	384,470	80%	307,576	13
Food Service	358,965	100%	358,965	80%	287,172	13
Refrigeration	273,401	100%	273,401	80%	218,721	13
Building Shell	185,658	100%	185,658	80%	148,527	13
Motors	152,243	100%	152,243	80%	121,795	13
Total	37,688,481		37,688,481		30,150,785	

Table 4: IRP 65% Load Factor Decrement

All Measures				AC: IRP 65% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0358	$9,507,387	$24,571,426	$15,064,039	2.584
Total Resource Cost Test (TRC) No Adder	0.0358	$9,507,387	$22,337,660	$12,830,273	2.350
Utility Cost Test (UCT)	0.0150	$3,990,314	$22,337,660	$18,347,345	5.598
Rate Impact Test (RIM)		$21,942,125	$22,337,660	$395,535	1.018
Participant Cost Test (PCT)		$5,517,073	$22,783,436	$17,266,363	4.130
Lifecycle Revenue Impacts ($/kWh)				($0.0000012139)	
Discounted Participant Payback (years)				2.51	

Table 5: Lighting

	AC: IRP 65% LF Decrement			
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$8,202,235	$20,584,221	$12,381,986	2.510
Total Resource Cost Test (TRC) No Adder	$8,202,235	$18,712,929	$10,510,693	2.281
Utility Cost Test (UCT)	$3,277,603	$18,712,929	$15,435,325	5.709
Rate Impact Test (RIM)	$18,223,024	$18,712,929	$489,905	1.027
Participant Cost Test (PCT)	$4,924,632	$18,964,065	$14,039,433	3.851
Discounted Participant Payback (years)			2.70	

Table 6: HVAC

	AC: IRP 65% LF Decrement			
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$808,536	$3,216,318	$2,407,781	3.978
Total Resource Cost Test (TRC) No Adder	$808,536	$2,923,925	$2,115,389	3.616
Utility Cost Test (UCT)	$526,176	$2,923,925	$2,397,749	5.557
Rate Impact Test (RIM)	$2,890,246	$2,923,925	$33,679	1.012
Participant Cost Test (PCT)	$282,360	$3,000,405	$2,718,045	10.626
Discounted Participant Payback (years)			0.94	

Table 7: Other

	AC: IRP 65% LF Decrement			
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$80,523	$218,775	$138,252	2.717
Total Resource Cost Test (TRC) No Adder	$80,523	$198,886	$118,364	2.470
Utility Cost Test (UCT)	$41,621	$198,886	$157,266	4.779
Rate Impact Test (RIM)	$224,689	$198,886	($25,802)	0.885
Participant Cost Test (PCT)	$38,902	$232,420	$193,518	5.975
Discounted Participant Payback (years)			1.70	

Table 8: Food Service

			AC: IRP 65% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$170,665	$204,262	$33,597	1.197
Total Resource Cost Test (TRC) No Adder	$170,665	$185,693	$15,027	1.088
Utility Cost Test (UCT)	$40,737	$185,693	$144,955	4.558
Rate Impact Test (RIM)	$211,531	$185,693	($25,839)	0.878
Participant Cost Test (PCT)	$129,928	$217,001	$87,073	1.670
Discounted Participant Payback (years)			6.82	

Table 9: Refrigeration

			AC: IRP 65% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$32,787	$155,574	$122,787	4.745
Total Resource Cost Test (TRC) No Adder	$32,787	$141,431	$108,644	4.314
Utility Cost Test (UCT)	$23,967	$141,431	$117,463	5.901
Rate Impact Test (RIM)	$154,537	$141,431	($13,107)	0.915
Participant Cost Test (PCT)	$8,819	$165,277	$156,457	18.740
Discounted Participant Payback (years)			0.53	

Table 10: Building Shell

			AC: IRP 65% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$168,258	$105,645	($62,613)	0.628
Total Resource Cost Test (TRC) No Adder	$168,258	$96,041	($72,217)	0.571
Utility Cost Test (UCT)	$59,341	$96,041	$36,700	1.618
Rate Impact Test (RIM)	$145,040	$96,041	($48,999)	0.662
Participant Cost Test (PCT)	$108,917	$112,234	$3,317	1.030
Discounted Participant Payback (years)			12.48	

Table 11: Motors

			AC: IRP 65% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$44,382	$86,631	$42,249	1.952
Total Resource Cost Test (TRC) No Adder	$44,382	$78,755	$34,373	1.774
Utility Cost Test (UCT)	$20,868	$78,755	$57,888	3.774
Rate Impact Test (RIM)	$93,057	$78,755	($14,302)	0.846
Participant Cost Test (PCT)	$23,514	$92,034	$68,520	3.914
Discounted Participant Payback (years)			2.65	

Process and Impact Evaluation

No process or impact evaluations were completed during 2009. The Company has initiated a process and impact evaluation for the program for program years 2006 to 2008. Results of those evaluations are expected to be complete in the second quarter of 2010.

Re-Commissioning – Schedule 126

The following tables outline the primary inputs and assumptions utilized in the cost effectiveness calculations for the Re-Commissioning program.

Program Inputs - Recommissioning			
Gross kWh/Year Savings (at Site)		9,869,355	Annual results 2009 (Gross at Site)
Utility Administration	$	11,119	Annual costs 2009
Program Management and Administration Costs	$	936,331	Annual costs 2009
Incentives	$	-	Annual costs 2009
Total Utility Costs	$	947,450	Annual costs 2009
Total Participant Costs	$	232,422	Incremental costs incurred by consumers based on receipts provided.
Net To Gross Ratio		1.00	Consistent with initial program filing - Advice Filing 05-04, February 14, 2005.
Measure Life (Years)		7	Consistent with initial program filing Advice Filing 05-04, February 14, 2005.
2008 IRP Decrement Load Shape			East Side Commercial Cooling

Savings Calculations and Reporting:

Savings reported for the Re-Commissioning program are calculated on a project specific basis. These calculations are completed by a Re-Commissioning Service Provider (RSP) in a manner similar to that outlined in the Energy FinAnswer section. For this program, the program administrator performs the quality assurance functions for each project prior to reporting savings.

The complete set of inputs and results of the cost effectiveness analysis at the measure group level as conducted by The Cadmus Group are included on the following pages:

Date: **March 22, 2010**

To: **John Rush**
Don Jones Jr.

From: **Brian Hedman**

Re: **Utah Recommissioning 2009 Program Cost Effectiveness**

The tables below present the cost effectiveness findings of the Utah Recommissioning program based on 2009 costs and savings estimates provided by PacifiCorp in a spreadsheet entitled "UT 2009 EE CE Inputs (3_15_10)". The Utility discount rate is from the 2008 PacifiCorp Integrated Resource Plan.
Cost effectiveness was tested using the 2008 IRP 16% east commercial cooling load factor decrement. Table 1 lists modeling inputs.
The program is cost effective from the all perspectives.

Table 1: Recommissioning Inputs

Parameter	Value
Discount Rate	7.4%
Line Loss	9.353%
Commercial Energy Rate ($/kWh)	$0.0689

Table 2: Recommissioning Annual Program Costs

	Program Costs	Utility Admin	Evaluation	Incentives	Total Utility Costs	Net Participant Incremental Cost
Commercial	$936,331	$11,119		$0	$947,450	$232,422

Table 3: Recommissioning Savings by Measure Type

	Gross kWh Savings	Realization Rate	Adjusted Gross Savings	Net to Gross Percentage	Net kWh Savings	Measure Life
Commercial	9,869,355	100%	9,869,355	100%	9,869,355	7

Table 4: IRP 16% Load Factor Decrement

All Measures				AC: IRP 16% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0217	$1,179,872	$5,451,948	$4,272,076	4.621
Total Resource Cost Test (TRC) No Adder	0.0217	$1,179,872	$4,956,317	$3,776,444	4.201
Utility Cost Test (UCT)	0.0174	$947,450	$4,956,317	$4,008,866	5.231
Rate Impact Test (RIM)		$4,751,652	$4,956,317	$204,665	1.043
Participant Cost Test (PCT)		$232,422	$3,869,482	$3,637,060	16.649
Lifecycle Revenue Impacts ($/kWh)				($0.0000012652)	
Discounted Participant Payback (years)				0.37	

Process and Impact Evaluation

No process or impact evaluations were completed during 2009. The Company has initiated a process and impact evaluation for the program for program years 2006 to 2008. Results of those evaluations are expected to be complete in the second quarter of 2010.

Self Direction – Schedule 192

The following table outlines the primary inputs and assumptions utilized in the cost effectiveness calculations for the Self Direction program.

Program Inputs - Self Direction			
Gross kWh/Year Savings (at Site)		8,838,067	Annual results 2009 (Gross at Site) - Based on engineering evaluated savings for each project.
Engineering Costs	$	39,043	Annual costs 2009
Utility Administration	$	33,110	Annual costs 2009
Program Management and Administration Costs	$	52,379	Annual costs 2009
Incentives	$	1,666,560	Incentive costs for projects completed in 2009
Total Utility Costs	$	1,791,090	Annual costs 2009
Total Participant Costs	$	2,083,200	Incremental costs incurred by consumers based on receipts provided.
Net To Gross Ratio		0.80	Planning estimate selected to provide consistency with Energy FinAnswer program which is the commonly evaluated alternative for projects. Various analyses for this program have utilized 1.0 (original filing), 70% (prior self direction reports).
Measure Life (Years)		15	Estimate selected to be consistent with Energy FinAnswer. Various other analyses of this program have utilized 10 to 13 year measure lives.
2008 IRP Decrement Load Shape			East Side System

(Note: For cost effectiveness, only the incentives associated with projects completed in 2009 are included. Total incentives paid during 2009 were $2,271,941. This amount includes ongoing incentive credits from projects completed in prior years.)

Savings Calculations and Reporting

Savings reported for the Self Direction program are based on project and measure specifics as installed and validated savings. Savings estimates are provided by the customer typically using an outside firm, vendor analysis or their own staff. Customers provide this information to the program administrator who performs a quality assurance function including comparing baselines, analysis approaches and cost documentation with Energy FinAnswer and FinAnswer Express guidelines for the same work. Final reporting savings from the project are based on calculations approved by the program administrator, including a post installation inspection and review of the commissioning results (if commissioning is required). Reported measure costs are based on customer costs in a manner comparable to the Energy FinAnswer program.

The complete set of inputs and results of the cost effectiveness analysis at the measure group level as conducted by The Cadmus Group are included on the following pages:

Date: **March 22, 2010**

To: **John Rush**
Don Jones Jr.

From: **Brian Hedman**

Re: **Utah Self Direction 2009 Program Cost Effectiveness**

The tables below present the cost effectiveness findings of the Utah Self Direction program based on 2009 costs and savings estimates provided by PacifiCorp in a spreadsheet entitled "UT 2009 Tables and Charts (Draft 3_22_10)". The Utility discount rate is from the 2008 PacifiCorp Integrated Resource Plan.
Cost effectiveness was tested using the 2008 IRP 65% east system load factor decrement. Table 1 lists modeling inputs.
The program is cost effective from all perspectives.

Table 1: Self Direction
Inputs

Parameter	Value
Discount Rate	7.4%
Commercial Line Loss	9.353%
Industrial Line Loss	6.330%
Commercial Energy Rate ($/kWh)	$0.0689
Industrial Energy Rate ($/kWh)	$0.0462

Table 2: Self Direction
Annual Program Costs

	Program Costs	Utility Admin	Evaluation	Incentives	Total Utility Costs	Net Participant Incremental Cost
Commercial	$35,624	$17,186		$141,024	$193,834	$141,024
Industrial	$55,797	$15,924		$1,525,536	$1,597,256	$1,525,536
Total	$91,421	$33,110	$0	$1,666,560	$1,791,090	$1,666,560

Table 3: Self Direction
Savings by Measure Type

	Gross kWh Savings	Realization Rate	Adjusted Gross Savings	Net to Gross Percentage	Net kWh Savings	Measure Life
Commercial	523,490	100%	523,490	80%	418,792	15
Industrial	8,314,577	100%	8,314,577	80%	6,651,661	15

Total	8,838,067		8,838,067		7,070,454	

Table 4: IRP 65% Load Factor Decrement

All Measures				AC: IRP 65% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0231	$1,791,090	$5,692,087	$3,900,997	3.178
Total Resource Cost Test (TRC) No Adder	0.0231	$1,791,090	$5,174,625	$3,383,534	2.889
Utility Cost Test (UCT)	0.0231	$1,791,090	$5,174,625	$3,383,534	2.889
Rate Impact Test (RIM)		$5,122,897	$5,174,625	$51,727	1.010
Participant Cost Test (PCT)		$0	$4,319,019	$4,319,019	NA
Lifecycle Revenue Impacts ($/kWh)				($0.0000001337)	
Discounted Participant Payback (years)				NA	

Table 5: Commercial

			AC: IRP 65% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$193,834	$395,476	$201,641	2.040
Total Resource Cost Test (TRC) No Adder	$193,834	$359,523	$165,689	1.855
Utility Cost Test (UCT)	$193,834	$359,523	$165,689	1.855
Rate Impact Test (RIM)	$477,061	$359,523	($117,538)	0.754
Participant Cost Test (PCT)	($0)	$370,727	$370,727	NA
Discounted Participant Payback (years)			(0.00)	

Table 6: Industrial

			AC: IRP 65% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$1,597,256	$5,296,611	$3,699,355	3.316
Total Resource Cost Test (TRC) No Adder	$1,597,256	$4,815,101	$3,217,845	3.015
Utility Cost Test (UCT)	$1,597,256	$4,815,101	$3,217,845	3.015
Rate Impact Test (RIM)	$4,645,836	$4,815,101	$169,265	1.036
Participant Cost Test (PCT)	$0	$3,948,292	$3,948,292	NA
Discounted Participant Payback (years)			NA	

Process and Impact Evaluation

No process or impact evaluations were completed during 2009. The Company has initiated a process and impact evaluation for the program for program years 2006 to 2008. Results of those evaluations are expected to be complete in the second quarter of 2010.

Irrigation Load Control Program – Schedules 96 and 96A

The following tables outline the primary inputs and assumptions utilized in the cost effectiveness calculations for the Irrigation Load Control program.

Program Inputs - Irrigation Load Control	Value		Source and Notes
Total kW Under Load Control (All contracts)		40,490	2009 Program Results
Average kW Dispatched during irrigation season (At Site)		40,154	2009 Average Dispatch
Average kW Dispatched during irrigation season (At Gen)		42,696	Calculation - Gross up for Line Losses at 6.33%
Benefit Value of Dispatched kW (At Site)	$	73.09	Value based on 2008 IRP Analysis
Benefit Value = Avg kW Dispatched multiplied by $73.09	$	3,120,641	Calculation ($73.09 $/kW * 42,695.87 kW-Yr)
Program Management and Administration Costs	$	1,616,415	Annual costs 2009
Incentives	$	1,115,394	Annual costs 2009
Total Utility Costs	$	2,731,809	Annual costs 2009
Total Participant Costs		NA	There were no participant costs for the program in 2009.
Net To Gross Ratio		1.00	Assume 1.0 Net To Gross
Measure Life (Years)		10	Benefit value is NPV of 10 year benefits from avoided

Notes:

For cost effectiveness calculations, utilized Utah Industrial Line Losses of 6.33%.

2009 Irrigation Load Control

	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder		$ 1,616,415	$ 3,432,705	$ 1,816,290	2.124
Total Resource Cost Test (TRC) No Adder		$ 1,616,415	$ 3,120,641	$ 1,504,226	1.931
Utility Cost Test (UCT)		$ 2,731,809	$ 3,120,641	$ 88,832	1.142
Rate Impact Test (RIM)		$ 1,616,415	$ 3,120,641	$ 1,504,226	1.931
Participant Cost Test (PCT)			$ 1,115,394	$ 1,115,394	NA
Lifecycle Revenue Impacts ($/kWh)				NA	

Cost Effectiveness Inputs

Program kW savings are calculated based on the aggregation of individual meters with load control equipment (both scheduled and dispatchable). Baseline capacity under control at each participating site is calculated in accordance with the methodology stated in the applicable program tariff (Schedule 96 or Schedule 96A) and used in the calculation of grower participation credits (site value) and in the calculation of the

weighted average kW dispatch value or program performance achieved (value at generator). Curtailments/dispatch events are documented and time stamped by hour and month during the control season to arrive at total loads curtailed during each event for purposes of program analysis and reporting.

For benefit determination, the Company analyzed the value of kW savings from the program utilizing the 2008 IRP model. The valuation methodology is consistent with the valuation that was used for the initial program filing and with program valuation in other jurisdictions. The value for 2009 is $73.09/kW-yr at site.

The 2009 kW savings is the weighted average monthly dispatch for the irrigation season (40,154 kW at site or 42,696 kW at generation). This amount is then multiplied by the $73.09 value per kW to determine benefits for the current program year.

Cool Keeper – Schedule 114

Savings Calculations and Reporting

Load under management reported for the Cool Keeper program is based on metered results from the previous program year, multiplied by the average number of participating units in the report year. Metered results are derived from a representative sample of participating sites, what is referred to as the measurement and verification (M&V) group. The M&V group is broken down into two groups, the control group and experimental groups. The control group equipment is allowed to operate in its normal duty cycle whereas the experimental group is controlled as if part of the general population of participating sites. The metered results from these two groups are compared and the delta kW is used in determining program performance for a given dispatch event and in aggregate are averaged to determine the performance during a given control year. The M&V group was constructed and is maintained to be representative of the larger participating network of sites, from average equipment tonnage and housing types to temperature zones. Twenty percent of the M&V sites are rotated each year to maintain robustness of the random sampling and to adjust for any changes needed to preserve a representative metered sample. While reported performance results are based on prior year M&V results multiplied by current participation (lag actual results one year) vendor payments are reconciled at the end of each control season based on the current year's M&V results to preserve the pay for performance nature of the resource.

Cost Effectiveness

Cost effectiveness analysis of the Cool Keeper program was conducted on a program lifecycle basis for program years 2003 to 2013 in order to remove the cost differences from year to year associated with the contractual payment schedule under the pay for performance contract with the program delivery vendor where the cost of the program varies by program year. Looking at the program from an overall contract period perspective is consistent with the method used to evaluate the program when initially approved.

The $/kW-year value used for program benefit determination was $100.62/kW-year in 2010 dollars. This value was determined based on a 10 year discounted 110 MW decrement to the 2008 IRP preferred portfolio. The value includes $23/kW-year associated with deferral of transmission and distribution infrastructure, consistent with the 2008 IRP findings and assumptions.

Annual costs and benefits (historic and future) were adjusted to 2010 dollars for the analysis. The program lifecycle costs and benefits are included in the table below. As a general rule load management programs do not perform as well from a UTC perspective as a result of how customer incentives are treated in the calculation.

2009 Air Conditioning Load Control

	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder		$48,272,036	$106,911,606	$58,639,570	2.215
Total Resource Cost Test (TRC) No Adder		$48,272,036	$97,192,369	$48,920,333	2.013
Utility Cost Test (UCT)		$64,869,434	$97,192,369	$32,322,936	1.498
Rate Impact Test (RIM)		$64,869,434	$97,192,369	$32,322,936	1.498
Participant Cost Test (PCT)			$16,597,398	$16,597,398	NA
Lifecycle Revenue Impacts ($/kWh)				NA	

Cost Effectiveness Results with Avoided Costs as Approved

The Commission order dated October 7, 2009 in Docket No. 09-035-27 directed that, "…the Company shall perform the tests assuming its most recent IRP avoided costs, subject to any Commission order with respect to the IRP avoided costs, in addition to the avoided costs used when the program was approved." (p. 14)

The results of the five cost effectiveness tests using the 2008 IRP avoided costs (the most recent values) have been provided in summary fashion in the body of the Demand-Side Management Annual Report and in further detail in Appendix 1. This section provides the results of the five cost effectiveness tests utilizing the avoided costs at the time each program was last modified and approved by the Commission.

No other assumptions or inputs were modified between the results provided in the Annual Report and previous sections of this Appendix 1 and the results in this section.

Approach to analysis:

The Company identified the appropriate avoided costs that were utilized at the time each program was last modified and approved. When specific analyses were included with the program filing, then the same avoided costs were used in this analysis.

This analysis used the 2009 avoided cost values from historic avoided cost analyses as the starting point for this analysis. For example, if the "as approved" avoided costs for a program utilized the 2007 IRP, the analyses provided in this section would utilize the 2009 avoided cost value from the 2007 IRP stream of avoided costs and subsequent values in the avoided cost stream for future years.

It is important to note that the cost effectiveness results will be different than those provided during the last program approval process. While the change in the avoided costs used in this analysis contributes to those changes, there are several other assumptions and inputs that may be different between the 2009 results and the last program approval process. Those differences include gross savings (both at a program level and on a measure level), incentive and non-incentive costs, retail energy rates, measure lives, net to gross ratios and discount rates.

Cool Cash
Last Approved Filing – Advice 09-05, Filed April 7, 2009.
Avoided Costs Used – 2007 IRP – 7% Residential Cooling Load Factor decrement

Results of the five cost effectiveness tests using 2009 program performance and utilizing the 2007 IRP avoided costs are included in the following table.

2007 IRP 7% Load Factor Decrement

All Measures				AC: IRP 7% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0765	$244,348	$643,457	$399,108	2.633
Total Resource Cost Test (TRC) No Adder	0.0765	$244,348	$584,960	$340,612	2.394
Utility Cost Test (UCT)	0.1564	$499,543	$584,960	$85,417	1.171
Rate Impact Test (RIM)		$809,185	$584,960	($224,225)	0.723
Participant Cost Test (PCT)		($255,195)	$797,197	$1,052,391	NA
Lifecycle Revenue Impacts ($/kWh)				$0.0000033452	
Discounted Participant Payback (years)				NA	

Home Energy Savings
Last Approved Filing – Advice 09-04, Filed March 24, 2009.
Avoided Costs Used – 2007 IRP – 46% Residential Whole House Load Factor decrement.

Results of the five cost effectiveness tests using 2009 program performance and utilizing the 2007 IRP avoided costs are included in the following table.

2007 IRP 46% Load Factor Decrement

All Measures				AC: IRP 46% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0637	$30,472,425	$45,707,884	$15,235,459	1.500
Total Resource Cost Test (TRC) No Adder	0.0637	$30,472,425	$41,552,622	$11,080,197	1.364
Utility Cost Test (UCT)	0.0532	$25,439,423	$41,552,622	$16,113,199	1.633
Rate Impact Test (RIM)		$71,997,604	$41,552,622	($30,444,982)	0.577
Participant Cost Test (PCT)		$5,033,002	$60,388,739	$55,355,736	11.999
Lifecycle Revenue Impacts ($/kWh)				$0.0005409396	
Discounted Participant Payback (years)				0.73	

Energy Star New Homes
Last Approved Filing – Advice 09-09, Filed June 24, 2009.
Avoided Costs Used – 2007 IRP – 46% Residential Whole House Load Factor decrement.

Results of the five cost effectiveness tests using 2009 program performance and utilizing the 2007 IRP avoided costs are included in the following table.

2007 IRP 46% Load Factor Decrement

All Measures				AC: IRP 46% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0874	$1,489,433	$1,720,641	$231,208	1.155
Total Resource Cost Test (TRC) No Adder	0.0874	$1,489,433	$1,564,219	$74,786	1.050
Utility Cost Test (UCT)	0.0849	$1,446,391	$1,564,219	$117,829	1.081
Rate Impact Test (RIM)		$2,999,050	$1,564,219	($1,434,831)	0.522
Participant Cost Test (PCT)		$43,043	$2,065,397	$2,022,355	47.985
Lifecycle Revenue Impacts ($/kWh)				$0.0000280889	
Discounted Participant Payback (years)				0.16	

See ya later, refrigerator
Last Approved Filing – Advice 07-17, Filed June 29, 2007.
Avoided Costs Used – August 2007 update to the 2005 IRP 65% east residential system load factor decrement.

Results of the five cost effectiveness tests using 2009 program performance and utilizing the 2005 IRP Update avoided costs are included in the following table.

2005 Updated IRP 65% Load Factor Decrement

All Measures				AC: IRP 65% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0363	$1,847,740	$3,101,858	$1,254,118	1.679
Total Resource Cost Test (TRC) No Adder	0.0363	$1,847,740	$2,819,871	$972,131	1.526
Utility Cost Test (UCT)	0.0459	$2,339,080	$2,819,871	$480,791	1.206
Rate Impact Test (RIM)		$7,033,454	$2,819,871	($4,213,583)	0.401
Participant Cost Test (PCT)		($491,340)	$11,732,057	$12,223,397	NA
Lifecycle Revenue Impacts ($/kWh)				$0.0001166974	

Discounted Participant Payback (years)				NA	

Low Income Weatherization
Last Approved Filing – Advice 07-08, Filed February 14, 2007.
Avoided Costs Used – August 2005 updated to the 2004 IRP 65% east system load factor decrement.

Results of the five cost effectiveness tests using 2009 program performance and utilizing the 2004 IRP Update avoided costs are included in the following table.

2005 update to 2004 IRP 65% Load Factor Decrement

All Measures				AC: IRP 65% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0179	$162,352	$464,875	$302,523	2.863
Total Resource Cost Test (TRC) No Adder	0.0179	$162,352	$422,614	$260,262	2.603
Utility Cost Test (UCT)	0.0179	$162,352	$422,614	$260,262	2.603
Rate Impact Test (RIM)		$881,517	$422,614	($458,904)	0.479
Participant Cost Test (PCT)		$0	$730,352	$730,352	NA
Lifecycle Revenue Impacts ($/kWh)				$0.0000099791	
Discounted Participant Payback (years)				NA	

Energy FinAnswer
Last Approved Filing – Advice 06-15, Filed November 17, 2006.
Avoided Costs Used – August 2005 updated to the 2004 IRP 65% east system load factor decrement.

Results of the five cost effectiveness tests using 2009 program performance and utilizing the 2004 IRP Update avoided costs are included in the following table.

2005 Updated IRP 65% Load Factor Decrement

All Measures				AC: IRP 65% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0339	$13,178,485	$26,270,088	$13,091,603	1.993
Total Resource Cost Test (TRC) No Adder	0.0339	$13,178,485	$23,881,898	$10,703,414	1.812
Utility Cost Test (UCT)	0.0198	$7,696,829	$23,881,898	$16,185,069	3.103
Rate Impact Test (RIM)		$31,313,236	$23,881,898	($7,431,338)	0.763
Participant Cost Test (PCT)		$5,481,655	$30,183,410	$24,701,755	5.506
Lifecycle Revenue Impacts ($/kWh)				$0.0000192096	
Discounted Participant Payback (years)				2.06	

FinAnswer Express

Last Approved Filing – Advice 06-15, Filed November 17, 2006.
Avoided Costs Used – August 2005 updated to the 2004 IRP 65% east system load factor decrement.

Results of the five cost effectiveness tests using 2009 program performance and utilizing the 2004 IRP Update avoided costs are included in the following table.

2005 Updated IRP 65% Load Factor Decrement

All Measures				AC: IRP 65% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0358	$9,507,387	$17,115,179	$7,607,792	1.800
Total Resource Cost Test (TRC) No Adder	0.0358	$9,507,387	$15,559,253	$6,051,866	1.637
Utility Cost Test (UCT)	0.0150	$3,990,314	$15,559,253	$11,568,939	3.899
Rate Impact Test (RIM)		$21,942,125	$15,559,253	($6,382,872)	0.709
Participant Cost Test (PCT)		$5,517,073	$22,783,436	$17,266,363	4.130
Lifecycle Revenue Impacts ($/kWh)				$0.0000195898	
Discounted Participant Payback (years)				2.51	

Re-Commissioning

Last Approved Filing – Advice 05-04, Filed November 17, 2006.
Avoided Costs Used – 2004 IRP 12% east commercial cooling load factor decrement

Results of the five cost effectiveness tests using 2009 program performance and utilizing the 2004 IRP avoided costs are included in the following table.

Table 4: 2005 IRP 12% Load Factor Decrement

All Measures	AC: IRP 12% LF Decrement

	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0217	$1,179,872	$3,803,631	$2,623,759	3.224
Total Resource Cost Test (TRC) No Adder	0.0217	$1,179,872	$3,457,847	$2,277,974	2.931
Utility Cost Test (UCT)	0.0174	$947,450	$3,457,847	$2,510,396	3.650
Rate Impact Test (RIM)		$4,751,652	$3,457,847	($1,293,805)	0.728
Participant Cost Test (PCT)		$232,422	$3,869,482	$3,637,060	16.649
Lifecycle Revenue Impacts ($/kWh)				$0.0000079979	
Discounted Participant Payback (years)				0.37	

Self Direction
Last Approved Filing – Docket No 02-035-T12, Approved March 16, 2004.
Avoided Costs Used – 2003 IRP 300 MW 60% Load Factor Decrement

Results of the five cost effectiveness tests using 2009 program performance and utilizing the 2003 IRP avoided costs are included in the following table.

IRP 300 MW 60% Load Factor Decrement

All Measures				AC: IRP 60% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	0.0231	$1,791,090	$4,199,829	$2,408,739	2.345
Total Resource Cost Test (TRC) No Adder	0.0231	$1,791,090	$3,818,026	$2,026,936	2.132
Utility Cost Test (UCT)	0.0231	$1,791,090	$3,818,026	$2,026,936	2.132
Rate Impact Test (RIM)		$5,122,897	$3,818,026	($1,304,871)	0.745
Participant Cost Test (PCT)		$0	$4,319,019	$4,319,019	NA
Lifecycle Revenue Impacts ($/kWh)				$0.0000033730	
Discounted Participant Payback (years)				NA	

Irrigation Load Control

Last Approved Filing – Advice 08-11, Filed December 17, 2008.
Avoided Costs Used – $/kW-year value of $59.43 based on estimate at time of filing.

Results of the five cost effectiveness tests using 2009 program performance and utilizing the $59.43 benefit value are included in the following table.

Irrigation Load control @ $59.43/kW

All Measures				AC:	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	NA	$1,616,415	$2,791,157	$1,174,742	1.727
Total Resource Cost Test (TRC) No Adder	NA	$1,616,415	$2,537,415	$921,000	1.570
Utility Cost Test (UCT)	NA	$2,731,809	$2,537,415	($194,394)	0.929
Rate Impact Test (RIM)		$2,731,809	$2,537,415	($194,394)	0.929
Participant Cost Test (PCT)		$0	$1,115,394	$1,115,394	NA
Lifecycle Revenue Impacts ($/kWh)				NA	
Discounted Participant Payback (years)				NA	

Air Conditioner Load Management (Cool Keeper)

Last Approved Filing – Advice 03-03, Filed May 12, 2003.
Avoided Costs Used – 2003 IRP – 100 MW 1% Load Factor Decrement

Results of the five cost effectiveness tests using 2009 program performance and utilizing the 2003 IRP benefit value are included in the following table.

IRP 100 MW 1% Load Factor Decrement

All Measures				AC: IRP 1% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	NA	$48,272,036	$133,435,691	$85,163,655	2.764
Total Resource Cost Test (TRC) No Adder	NA	$48,272,036	$121,305,174	$73,033,138	2.513
Utility Cost Test (UCT)	NA	$64,869,434	$121,305,174	$56,435,740	1.870
Rate Impact Test (RIM)		$64,869,434	$121,305,174	$56,435,740	1.870
Participant Cost Test (PCT)			$16,597,398	$16,597,398	NA
Lifecycle Revenue Impacts ($/kWh)				NA	
Discounted Participant Payback (years)				NA	