

Memorandum

To: Don Jones and Greg Stiles, PacifiCorp/Rocky Mountain Power
From: David Basak, Navigant
Date: 06/28/2012
Re: Utah Home Energy Savings Program Sensitivity Cost-Effectiveness Results

This memo presents the cost effectiveness findings for the analysis of the Utah Home Energy Savings (HES) Program. The memo addresses the following:

- **Avoided Costs:** The team performed an analysis using the *Residential Whole House* decrement cost scenario for “Medium” and “None” carbon streams provided in the 2011 PacifiCorp Integrated Resource Plan.
- **Modeling Inputs:** Navigant utilized individual measure savings and administration costs provided by PECEI in the file *UT HES State Savings Summary_06252012.xlsx*.
- **Pre/Post-Tariff Measures:** PacifiCorp defines the pre-tariff measures as the projected totals from January through August and the post-tariff are totals from September through December.
- **Program Level Results:** Navigant ran benefit-cost tests for both the pre and post-tariff measures and the program level results reflect a combination of both categories.
- **Measure Level Results:** The measure level results presented only include the post-tariff measures.
- **Multiple Scenario Combinations:**
 - “Medium” carbon with expected participation (Tables 2 - 7)
 - “Medium” carbon with 10% higher than expected participation (Tables 8 - 10)
 - “Medium” carbon with 10% lower than expected participation (Tables 11- 13)
 - “None” carbon with expected participation (Tables 14 - 16)

Table 1 details the parameters utilized to perform the cost-effectiveness analysis for the HES program.

Table 1 –Cost Effectiveness Analysis Inputs

Parameters	Values
Discount Rate for all B/C Tests	7.17%
Line Loss Factor - Energy (%)	9.85%
Residential Energy Rate (\$/kWh)	\$0.091
Inflation Rate	1.8%

This memo will address the program level results which include the complete list of measures (pre/post-tariff measures) included in the Utah HES program. The cost-effectiveness results for expected participation are as follows:

Table 2 – Utah HES Total Program Costs for Expected Participation – Medium Carbon

Utah Home Energy Savings (HES) Program Year 2012	Incentives (\$)	Program Labor (\$)	Program Direct (\$)	Program Marketing Direct (\$)	P-Corp Admin (\$)	Total Program (\$)
Non-Lighting Measures	\$2,771,090	\$3,788,451	\$334,494	\$125,925	\$422,529	\$7,442,490
Lighting Measures	\$3,075,154	\$308,350	\$71,036	\$88,734	\$422,529	\$3,965,804
Total Program Costs	\$5,846,245	\$4,096,801	\$405,530	\$214,659	\$845,059	\$11,408,293

Table 3 - Utah HES Total Program Savings for Expected Participation – Medium Carbon

Utah Home Energy Savings (HES) Program Year 2012	Gross Annual Energy Savings at site (kWh)	Net Annual Energy Savings at Site (kWh)
Non-Lighting Measures	4,433,320	3,693,812
Lighting Measures	69,073,101	51,420,868
Total Program Costs	73,506,422	55,114,680

Table 4 - Utah HES Total Program Cost-Effectiveness Summary for Expected Participation – Medium Carbon

Benefit/Cost Test Performed	Costs	Benefits	B/C Ratio
Total Resource Cost Test (PTRC)	\$17,763,691	\$27,287,294	1.54
Total Resource Cost Test (TRC)	\$17,763,691	\$24,806,631	1.40
Utility Cost Test (UCT)	\$11,408,293	\$24,806,631	2.17
Rate Impact Test (RIM)	\$37,522,484	\$24,806,631	0.66
Participant Cost Test (PCT)	\$6,355,397	\$40,238,529	6.33
Levelized Cost (\$/kWh)	\$267,945,194	\$17,763,691	0.07

The post-tariff measure level results before administration costs for program year 2012 are as follows:

Table 5: Post-Tariff Measure Level Results for Program Year 2012 with Expected Participation - Medium Carbon (Appliances)

Utah Home Energy Savings Program (HES) Appliances	TRC Benefits (\$)	TRC Costs (\$)	TRC Test	P-TRC Benefits (\$)	P-TRC Costs (\$)	P-TRC Test	Utility PV Benefits (\$)	Utility PV Costs (\$)	Utility Cost Test	Part. PV Benefits (\$)	Part. PV Cost (\$)	Part. Cost Test	Ratepayer PV Benefits (\$)	Ratepayer PV Costs (\$)	RIM Test
Clothes Washers - 2.2-2.59	\$53.24	\$104.72	0.5	\$58.57	\$104.72	0.6	\$53.24	\$35.00	1.5	\$96.11	\$69.72	1.4	\$53.24	\$88.77	0.6
2.2 -2.59: Electric DHW & Electric Dryer	\$115.21	\$104.72	1.1	\$126.73	\$104.72	1.2	\$115.21	\$35.00	3.3	\$167.22	\$69.72	2.4	\$115.21	\$151.35	0.8
2.2 -2.59: Electric DHW & Gas Dryer	\$56.62	\$104.72	0.5	\$62.28	\$104.72	0.6	\$56.62	\$35.00	1.6	\$99.98	\$69.72	1.4	\$56.62	\$92.18	0.6
2.2-2.59: Gas DHW & Electric Dryer	\$60.07	\$104.72	0.6	\$66.08	\$104.72	0.6	\$60.07	\$35.00	1.7	\$103.94	\$69.72	1.5	\$60.07	\$95.67	0.6
2.2 -2.59: Gas DHW & Gas Dryer	\$1.23	\$104.72	0.0	\$1.35	\$104.72	0.0	\$1.23	\$35.00	0.0	\$36.41	\$69.72	0.5	\$1.23	\$36.24	0.0
Clothes Washers - 2.6+	\$92.17	\$183.92	0.5	\$101.39	\$183.92	0.6	\$92.17	\$50.00	1.8	\$155.78	\$133.92	1.2	\$92.17	\$143.08	0.6
2.6 MEF: Electric DHW & Electric Dryer	\$185.16	\$183.92	1.0	\$203.68	\$183.92	1.1	\$185.16	\$50.00	3.7	\$262.50	\$133.92	2.0	\$185.16	\$237.00	0.8
2.6 MEF: Electric DHW & Gas Dryer	\$83.12	\$183.92	0.5	\$91.43	\$183.92	0.5	\$83.12	\$50.00	1.7	\$145.39	\$133.92	1.1	\$83.12	\$133.94	0.6
2.6 MEF: Gas DHW & Electric Dryer	\$105.34	\$183.92	0.6	\$115.87	\$183.92	0.6	\$105.34	\$50.00	2.1	\$170.89	\$133.92	1.3	\$105.34	\$156.38	0.7
2.6 MEF: Gas DHW & Gas Dryer	\$3.46	\$183.92	0.0	\$3.80	\$183.92	0.0	\$3.46	\$50.00	0.1	\$53.97	\$133.92	0.4	\$3.46	\$53.49	0.1
Clothes Washer Recycling	\$44.82	\$0.00	0.0	\$49.30	\$0.00	0.0	\$44.82	\$25.00	1.8	\$79.23	-\$25.00	0.0	\$44.82	\$72.72	0.6
Dishwasher	\$33.56	\$71.28	0.5	\$36.91	\$71.28	0.5	\$33.56	\$20.00	1.7	\$58.90	\$51.28	1.1	\$33.56	\$54.23	0.6
CEE Tier 1 (.75 EF) Electric DHW	\$26.32	\$71.28	0.4	\$28.95	\$71.28	0.4	\$26.32	\$20.00	1.3	\$50.51	\$51.28	1.0	\$26.32	\$46.85	0.6
CEE Tier 1 (.75 EF) Gas DHW	\$34.36	\$71.28	0.5	\$37.80	\$71.28	0.5	\$34.36	\$20.00	1.7	\$59.83	\$51.28	1.2	\$34.36	\$55.05	0.6
Refrigerators	\$87.99	\$67.72	1.3	\$96.79	\$67.72	1.4	\$87.99	\$40.00	2.2	\$141.44	\$27.72	5.1	\$87.99	\$129.27	0.7
Electric Water Heater	\$96.70	\$56.86	1.7	\$106.37	\$56.86	1.9	\$96.70	\$75.00	1.3	\$185.81	-\$18.14	0.0	\$96.70	\$172.51	0.6
Room AC	\$46.83	\$36.00	1.3	\$51.51	\$36.00	1.4	\$46.83	\$30.00	1.6	\$80.59	\$6.00	13.4	\$46.83	\$66.42	0.7
Evaporative Cooling - Portable	\$481.02	\$139.20	3.5	\$529.12	\$139.20	3.8	\$481.02	\$50.00	9.6	\$517.69	\$89.20	5.8	\$481.02	\$424.15	1.1
Freezers	\$96.81	\$22.01	4.4	\$106.49	\$22.01	4.8	\$96.81	\$20.00	4.8	\$131.61	\$2.01	65.4	\$96.81	\$118.22	0.8
Heat Pump Water Heaters	\$896.18	\$857.85	1.0	\$985.80	\$857.85	1.1	\$896.18	\$400.00	2.2	\$1,426.94	\$457.85	3.1	\$896.18	\$1,303.71	0.7
CFL Fixture	\$43.79	\$17.60	2.5	\$48.17	\$17.60	2.7	\$43.79	\$20.00	2.2	\$69.67	-\$2.40	0.0	\$43.79	\$63.71	0.7
LED Fixture	\$24.43	\$17.60	1.4	\$26.87	\$17.60	1.5	\$24.43	\$20.00	1.2	\$47.70	-\$2.40	0.0	\$24.43	\$44.38	0.6

Table 6: Post-Tariff Measure Level Results for Program Year 2012 with Expected Participation - Medium Carbon (Weatherization)

Utah Home Energy Savings Program (HES) Weatherization	TRC Benefits (\$)	TRC Costs (\$)	TRC Test	P-TRC Benefits (\$)	P-TRC Costs (\$)	P-TRC Test	Utility PV Benefits (\$)	Utility PV Costs (\$)	Utility Cost Test	Part. PV Benefits (\$)	Part. PV Cost (\$)	Part. Cost Test	Ratepayer PV Benefits (\$)	Ratepayer PV Costs (\$)	RIM Test
Installed Insulation - Attic	\$1.70	\$0.84	2.0	\$1.88	\$0.84	2.2	\$1.70	\$0.65	2.6	\$2.30	\$0.19	12.1	\$1.70	\$2.30	0.7
Electric FAF Heating System	\$1.45	\$0.84	1.7	\$1.60	\$0.84	1.9	\$1.45	\$0.65	2.2	\$2.30	\$0.19	12.1	\$1.45	\$2.30	0.6
EFAF w/CAC	\$1.94	\$0.84	2.3	\$2.14	\$0.84	2.5	\$1.94	\$0.65	3.0	\$2.53	\$0.19	13.3	\$1.94	\$2.53	0.8
Heat Pump Heating System	\$1.06	\$0.84	1.3	\$1.17	\$0.84	1.4	\$1.06	\$0.65	1.6	\$1.74	\$0.19	9.1	\$1.06	\$1.74	0.6
Attic Insulation Gas Heat w/CAC	\$0.22	\$0.84	0.3	\$0.25	\$0.84	0.3	\$0.22	\$0.15	1.5	\$0.37	\$0.69	0.5	\$0.22	\$0.37	0.6
Self Install Insulation - Attic	\$1.70	\$0.42	4.1	\$1.88	\$0.42	4.5	\$1.70	\$0.40	4.3	\$2.05	\$0.02	102.5	\$1.70	\$2.05	0.8
Electric FAF Heating System	\$1.45	\$0.42	3.5	\$1.60	\$0.42	3.8	\$1.45	\$0.40	3.6	\$2.05	\$0.02	102.5	\$1.45	\$2.05	0.7
EFAF w/CAC	\$1.94	\$0.42	4.6	\$2.14	\$0.42	5.1	\$1.94	\$0.40	4.9	\$2.28	\$0.02	114.1	\$1.94	\$2.28	0.9
Heat Pump Heating System	\$1.06	\$0.42	2.5	\$1.17	\$0.42	2.8	\$1.06	\$0.40	2.7	\$1.49	\$0.02	74.3	\$1.06	\$1.49	0.7
Self Install Attic Insulation Gas Heat w/CAC	\$0.22	\$0.42	0.5	\$0.25	\$0.42	0.6	\$0.22	\$0.15	1.5	\$0.37	\$0.27	1.4	\$0.22	\$0.37	0.6
Installed Insulation - Floor	\$4.87	\$1.37	3.6	\$5.36	\$1.37	3.9	\$4.87	\$0.65	7.5	\$5.37	\$0.72	7.5	\$4.87	\$5.37	0.9
Electric FAF Heating System	\$4.51	\$1.37	3.3	\$4.97	\$1.37	3.6	\$4.51	\$0.65	6.9	\$5.77	\$0.72	8.0	\$4.51	\$5.77	0.8
EFAF w/CAC	\$5.28	\$1.37	3.9	\$5.81	\$1.37	4.2	\$5.28	\$0.65	8.1	\$5.76	\$0.72	8.0	\$5.28	\$5.76	0.9
Heat Pump Heating System	\$2.72	\$1.37	2.0	\$2.99	\$1.37	2.2	\$2.72	\$0.65	4.2	\$3.43	\$0.72	4.8	\$2.72	\$3.43	0.8
Self Install Insulation - Floor	\$4.87	\$0.69	7.1	\$5.36	\$0.69	7.8	\$4.87	\$0.25	19.5	\$4.97	\$0.44	11.4	\$4.87	\$4.97	1.0
Electric FAF Heating System	\$4.51	\$0.69	6.6	\$4.97	\$0.69	7.2	\$4.51	\$0.25	18.1	\$5.37	\$0.44	12.3	\$4.51	\$5.37	0.8
EFAF w/CAC	\$5.28	\$0.69	7.7	\$5.81	\$0.69	8.5	\$5.28	\$0.25	21.1	\$5.36	\$0.44	12.3	\$5.28	\$5.36	1.0
Heat Pump Heating System	\$2.72	\$0.69	4.0	\$2.99	\$0.69	4.4	\$2.72	\$0.25	10.9	\$3.03	\$0.44	7.0	\$2.72	\$3.03	0.9
Installed Insulation - Wall - Electric	\$7.00	\$0.97	7.2	\$7.70	\$0.97	7.9	\$7.00	\$0.65	10.8	\$7.42	\$0.32	23.2	\$7.00	\$7.42	0.9
Electric FAF Heating System	\$6.16	\$0.97	6.3	\$6.77	\$0.97	7.0	\$6.16	\$0.65	9.5	\$7.64	\$0.32	23.9	\$6.16	\$7.64	0.8
EFAF w/CAC	\$7.73	\$0.97	8.0	\$8.50	\$0.97	8.8	\$7.73	\$0.65	11.9	\$8.13	\$0.32	25.4	\$7.73	\$8.13	1.0
Heat Pump Heating System	\$4.49	\$0.97	4.6	\$4.94	\$0.97	5.1	\$4.49	\$0.65	6.9	\$5.24	\$0.32	16.4	\$4.49	\$5.24	0.9
Installed Insulation - Wall - Gas	\$0.69	\$0.97	0.7	\$0.76	\$0.97	0.8	\$0.69	\$0.30	2.3	\$0.97	\$0.67	1.4	\$0.69	\$0.97	0.7
Self-Install Insulation - Wall - Electric	\$7.00	\$0.49	14.4	\$7.70	\$0.49	15.9	\$7.00	\$0.45	15.6	\$7.22	\$0.04	206.3	\$7.00	\$7.22	1.0
Electric FAF Heating System	\$6.16	\$0.49	12.7	\$6.77	\$0.49	14.0	\$6.16	\$0.45	13.7	\$7.44	\$0.04	212.5	\$6.16	\$7.44	0.8
EFAF w/CAC	\$7.73	\$0.49	15.9	\$8.50	\$0.49	17.5	\$7.73	\$0.45	17.2	\$7.93	\$0.04	226.6	\$7.73	\$7.93	1.0
Heat Pump Heating System	\$4.49	\$0.49	9.3	\$4.94	\$0.49	10.2	\$4.49	\$0.45	10.0	\$5.04	\$0.04	143.9	\$4.49	\$5.04	0.9
Self-Install Insulation - Wall - Gas	\$0.69	\$0.49	1.4	\$0.76	\$0.49	1.6	\$0.69	\$0.20	3.4	\$0.87	\$0.29	3.0	\$0.69	\$0.87	0.8
Insulation "Spiff"	\$0.00	\$0.00	0.0	\$0.00	\$0.00	0.0	\$0.00	\$300.00	0.0	\$300.00	-\$300.00	0.0	\$0.00	\$300.00	0.0
Windows Tier 1 (U-0.30)	\$1.58	\$0.89	1.8	\$1.74	\$0.89	2.0	\$1.58	\$0.50	3.2	\$2.03	\$0.39	5.2	\$1.58	\$2.03	0.8
Gas Heat w/CAC	\$1.58	\$0.89	1.8	\$1.74	\$0.89	2.0	\$1.58	\$0.50	3.2	\$2.03	\$0.39	5.2	\$1.58	\$2.03	0.8
Windows Tier 2 (U-0.22)	\$3.60	\$2.25	1.6	\$3.96	\$2.25	1.8	\$3.60	\$2.00	1.8	\$5.49	\$0.25	21.9	\$3.60	\$5.49	0.7
Electric FAF Heating System	\$2.46	\$2.25	1.1	\$2.71	\$2.25	1.2	\$2.46	\$2.00	1.2	\$4.79	\$0.25	19.2	\$2.46	\$4.79	0.5
EFAF w/CAC	\$4.47	\$2.25	2.0	\$4.92	\$2.25	2.2	\$4.47	\$2.00	2.2	\$6.33	\$0.25	25.3	\$4.47	\$6.33	0.7
Heat Pump Heating System	\$3.12	\$2.25	1.4	\$3.43	\$2.25	1.5	\$3.12	\$2.00	1.6	\$5.18	\$0.25	20.7	\$3.12	\$5.18	0.6
Gas Heat w/CAC	\$1.66	\$2.25	0.7	\$1.83	\$2.25	0.8	\$1.66	\$1.00	1.7	\$2.61	\$1.25	2.1	\$1.66	\$2.61	0.6

Table 7: Post-Tariff Measure Level Results for Program Year 2012 with Expected Participation - Medium Carbon (HVAC /Lighting)

Utah Home Energy Savings Program (HES) HVAC/Lighting	TRC Benefits (\$)	TRC Costs (\$)	TRC Test	P-TRC Benefits (\$)	P-TRC Costs (\$)	P-TRC Test	Utility PV Benefits (\$)	Utility PV Costs (\$)	Utility Cost Test	Part. PV Benefits (\$)	Part. PV Cost (\$)	Part. Cost Test	Ratepayer PV Benefits (\$)	Ratepayer PV Costs (\$)	RIM Test
Evaporative Cooling—Replacement	\$1,162.86	-\$1,282.07	0.0	\$1,279.14	-\$1,282.07	0.0	\$1,162.86	\$125.00	9.3	\$1,611.99	-\$1,407.07	0.0	\$1,162.86	\$1,002.32	1.2
Evaporative Cooling—New	\$1,497.91	-\$1,651.48	0.0	\$1,647.71	-\$1,651.48	0.0	\$1,497.91	\$325.00	4.6	\$1,811.99	-\$1,976.48	0.0	\$1,497.91	\$1,455.11	1.0
Evaporative Cooling—Premium Only	\$1,557.04	-\$1,287.70	0.0	\$1,712.75	-\$1,287.70	0.0	\$1,557.04	\$650.00	2.4	\$2,136.99	-\$1,937.70	0.0	\$1,557.04	\$1,824.72	0.9
Evaporative Cooling—Premium Whole-House Ducted	\$1,557.05	-\$1,287.70	0.0	\$1,712.75	-\$1,287.70	0.0	\$1,557.05	\$1,300.00	1.2	\$2,786.99	-\$2,587.70	0.0	\$1,557.05	\$2,474.72	0.6
Central Air Conditioning—15+SEER/12.5 EER	\$317.26	\$338.92	0.9	\$348.98	\$338.92	1.0	\$317.26	\$150.00	2.1	\$473.94	\$188.92	2.5	\$317.26	\$389.72	0.8
CAC Tune-Up	\$31.67	\$225.00	0.1	\$34.84	\$225.00	0.2	\$31.67	\$20.00	1.6	\$45.66	\$205.00	0.2	\$31.67	\$45.66	0.7
CAC Proper Sizing	\$232.89	\$0.00	0.0	\$256.18	\$0.00	0.0	\$232.89	\$75.00	3.1	\$312.44	-\$75.00	0.0	\$232.89	\$250.71	0.9
CAC Best Practice Installation	\$57.12	\$0.00	0.0	\$62.83	\$0.00	0.0	\$57.12	\$125.00	0.5	\$184.63	-\$125.00	0.0	\$57.12	\$169.13	0.3
Heat Pump Tune-Up	\$171.11	\$198.00	0.9	\$188.22	\$198.00	1.0	\$171.11	\$125.00	1.4	\$347.78	\$73.00	4.8	\$171.11	\$321.05	0.5
Duct Sealing & Insulation - Electric	\$2,579.23	\$711.04	3.6	\$2,837.15	\$711.04	4.0	\$2,579.23	\$350.00	7.4	\$3,263.19	\$361.04	9.0	\$2,579.23	\$2,913.61	0.9
DS/I Electric FAF Heating System	\$2,074.61	\$711.04	2.9	\$2,282.07	\$711.04	3.2	\$2,074.61	\$350.00	5.9	\$3,097.67	\$361.04	8.6	\$2,074.61	\$2,767.95	0.7
DS/IEFAF w/CAC	\$2,781.25	\$711.04	3.9	\$3,059.38	\$711.04	4.3	\$2,781.25	\$350.00	7.9	\$3,491.38	\$361.04	9.7	\$2,781.25	\$3,114.41	0.9
DS/I Heat Pump Heating System	\$2,318.90	\$711.04	3.3	\$2,550.79	\$711.04	3.6	\$2,318.90	\$350.00	6.6	\$3,113.04	\$361.04	8.6	\$2,318.90	\$2,781.48	0.8
DS/IGas Heat w/CAC	\$297.28	\$711.04	0.4	\$327.01	\$711.04	0.5	\$297.28	\$200.00	1.5	\$535.77	\$511.04	1.0	\$297.28	\$495.48	0.6
Duct Sealing Only - Pre-Insulated Ducts	\$1,158.77	\$473.44	2.4	\$1,274.64	\$473.44	2.7	\$1,158.77	\$250.00	4.6	\$1,558.81	\$223.44	7.0	\$1,158.77	\$1,401.75	0.8
DS Electric FAF Heating System	\$938.22	\$473.44	2.0	\$1,032.04	\$473.44	2.2	\$938.22	\$250.00	3.8	\$1,492.60	\$223.44	6.7	\$938.22	\$1,343.49	0.7
DS EFAF w/CAC	\$1,258.21	\$473.44	2.7	\$1,384.03	\$473.44	2.9	\$1,258.21	\$250.00	5.0	\$1,671.13	\$223.44	7.5	\$1,258.21	\$1,500.59	0.8
DS Heat Pump Heating System	\$1,004.16	\$473.44	2.1	\$1,104.58	\$473.44	2.3	\$1,004.16	\$250.00	4.0	\$1,446.49	\$223.44	6.5	\$1,004.16	\$1,302.91	0.8
95% Gas Furnace w/ECM Blower	\$434.55	\$352.00	1.2	\$478.00	\$352.00	1.4	\$434.55	\$250.00	1.7	\$831.06	\$102.00	8.1	\$434.55	\$761.33	0.6
HVAC/Weatherization Super Bundle	\$1,317.92	\$2,205.28	0.6	\$1,449.71	\$2,205.28	0.7	\$1,317.92	\$950.00	1.4	\$2,445.29	\$1,255.28	1.9	\$1,317.92	\$2,265.85	0.6
LEDs	\$15.38	\$25.17	0.6	\$16.92	\$25.17	0.7	\$15.38	\$14.00	1.1	\$33.41	\$11.17	3.0	\$15.38	\$29.52	0.5
LED General Purpose Lamp	\$15.04	\$25.17	0.6	\$16.55	\$25.17	0.7	\$15.04	\$14.00	1.1	\$32.98	\$11.17	3.0	\$15.04	\$29.19	0.5
LED Specialty Lamp	\$10.41	\$22.27	0.5	\$11.45	\$22.27	0.5	\$10.41	\$14.00	0.7	\$27.13	\$8.27	3.3	\$10.41	\$24.51	0.4
LED Downlight	\$22.70	\$28.06	0.8	\$24.97	\$28.06	0.9	\$22.70	\$14.00	1.6	\$42.64	\$14.06	3.0	\$22.70	\$36.91	0.6
CFL General Purpose Lamp	\$3.91	\$1.60	2.4	\$4.30	\$1.60	2.7	\$3.91	\$1.63	2.4	\$8.85	-\$0.03	0.0	\$3.91	\$5.82	0.7
CFL Specialty Lamp	\$4.47	\$2.91	1.5	\$4.92	\$2.91	1.7	\$4.47	\$2.29	2.0	\$10.55	\$0.62	17.0	\$4.47	\$7.08	0.6

The cost-effectiveness results for high participation (+10%) with a medium carbon stream are as follows:

Table 8 – Utah HES Total Program Costs for High Participation (+10%) – Medium Carbon

Utah Home Energy Savings (HES) Program Year 2012	Incentives (\$)	Program Labor (\$)	Program Direct (\$)	Program Marketing Direct (\$)	P-Corp Admin (\$)	Total Program (\$)
Non-Lighting Measures	\$3,048,199	\$3,788,451	\$334,494	\$125,925	\$422,529	\$7,719,599
Lighting Measures	\$3,382,670	\$308,350	\$71,036	\$88,734	\$422,529	\$4,273,319
Total Program Costs	\$6,430,869	\$4,096,801	\$405,530	\$214,659	\$845,059	\$11,992,918

Table 9 - Utah HES Total Program Savings for High Participation (+10%) – Medium Carbon

Utah Home Energy Savings (HES) Program Year 2012	Gross Annual Energy Savings at site (kWh)	Net Annual Energy Savings at Site (kWh)
Non-Lighting Measures	4,876,652	4,063,193
Lighting Measures	75,980,412	56,562,954
Total Program Costs	80,857,064	60,626,148

Table 10 - Utah HES Total Program Cost-Effectiveness Summary for High Participation (+10%) – Medium Carbon

Benefit/Cost Test Performed	Costs	Benefits	B/C Ratio
Total Resource Cost Test (PTRC)	\$18,983,855	\$30,016,023	1.58
Total Resource Cost Test (TRC)	\$18,983,855	\$27,287,294	1.44
Utility Cost Test (UCT)	\$11,992,918	\$27,287,294	2.28
Rate Impact Test (RIM)	\$40,718,527	\$27,287,294	0.67
Participant Cost Test (PCT)	\$6,990,937	\$44,262,382	6.33
Levelized Cost (\$/kWh)	\$294,739,713	\$18,983,855	0.06

The cost-effectiveness results for low participation (-10%) with a medium carbon stream are as follows:

Table 11 – Utah HES Total Program Costs for Low Participation (-10%) – Medium Carbon

Utah Home Energy Savings (HES) Program Year 2012	Incentives (\$)	Program Labor (\$)	Program Direct (\$)	Program Marketing Direct (\$)	P-Corp Admin (\$)	Total Program (\$)
Non-Lighting Measures	\$2,493,981	\$3,788,451	\$334,494	\$125,925	\$422,529	\$7,165,381
Lighting Measures	\$2,767,639	\$308,350	\$71,036	\$88,734	\$422,529	\$3,658,288
Total Program Costs	\$5,261,620	\$4,096,801	\$405,530	\$214,659	\$845,059	\$10,823,669

Table 12 - Utah HES Total Program Savings for Low Participation (-10%) – Medium Carbon

Utah Home Energy Savings (HES) Program Year 2012	Gross Annual Energy Savings at site (kWh)	Net Annual Energy Savings at Site (kWh)
Non-Lighting Measures	3,989,988	3,324,431
Lighting Measures	62,165,791	46,278,781
Total Program Costs	66,155,780	49,603,212

Table 13 - Utah HES Total Program Cost-Effectiveness Summary for Low Participation (-10%) – Medium Carbon

Benefit/Cost Test Performed	Costs	Benefits	B/C Ratio
Total Resource Cost Test (PTRC)	\$16,543,527	\$24,558,565	1.48
Total Resource Cost Test (TRC)	\$16,543,527	\$22,325,968	1.35
Utility Cost Test (UCT)	\$10,823,669	\$22,325,968	2.06
Rate Impact Test (RIM)	\$34,326,440	\$22,325,968	0.65
Participant Cost Test (PCT)	\$5,719,858	\$36,214,676	6.33
Levelized Cost (\$/kWh)	\$241,150,675	\$16,543,527	0.07

The cost-effectiveness results for expected participation with a “none” carbon stream are as follows:

Table 14 – Utah HES Total Program Costs for Expected Participation – None Carbon

Utah Home Energy Savings (HES) Program Year 2012	Incentives (\$)	Program Labor (\$)	Program Direct (\$)	Program Marketing Direct (\$)	P-Corp Admin (\$)	Total Program (\$)
Non-Lighting Measures	\$2,771,090	\$3,788,451	\$334,494	\$125,925	\$422,529	\$7,442,490
Lighting Measures	\$3,075,154	\$308,350	\$71,036	\$88,734	\$422,529	\$3,965,804
Total Program Costs	\$5,846,245	\$4,096,801	\$405,530	\$214,659	\$845,059	\$11,408,293

Table 15 - Utah HES Total Program Savings for Expected Participation – None Carbon

Utah Home Energy Savings (HES) Program Year 2012	Gross Annual Energy Savings at site (kWh)	Net Annual Energy Savings at Site (kWh)
Non-Lighting Measures	4,433,320	3,693,812
Lighting Measures	69,073,101	51,420,868
Total Program Costs	73,506,422	55,114,680

Table 16 - Utah HES Total Program Cost-Effectiveness Summary for Expected Participation – None Carbon

Benefit/Cost Test Performed	Costs	Benefits	B/C Ratio
Total Resource Cost Test (PTRC)	\$17,763,691	\$25,741,284	1.45
Total Resource Cost Test (TRC)	\$17,763,691	\$23,401,167	1.32
Utility Cost Test (UCT)	\$11,408,293	\$23,401,167	2.05
Rate Impact Test (RIM)	\$37,522,484	\$23,401,167	0.62
Participant Cost Test (PCT)	\$6,355,397	\$40,238,529	6.33
Levelized Cost (\$/kWh)	\$267,945,194	\$17,763,691	0.07