



Date: May 18, 2009

To: Don Jones Jr.

From: Brian Hedman

Re: Utah FinAnswer Express 2009 HVAC and Motor Cost Effectiveness

The tables below present the cost effectiveness findings of the Utah FinAnswer Express HVAC and motor cost effectiveness based on 2009 costs and savings estimates provided by PacifiCorp in a spreadsheet entitled “support for CE assessment of UT FE code changes filing 051810”. The Utility discount rate is from the 2008 PacifiCorp Integrated Resource Plan.

Cost effectiveness was tested using the 2008 IRP 16% commercial cooling and 65% system load factor decrements. Table 1 lists modeling inputs.

**Table 1: FinAnswer Express
 Inputs**

Parameter	Value
Discount Rate	7.4%
Commercial Line Loss	9.353%
Commercial Energy Rate (\$/kWh)	\$0.0713
Measure Life	13
Net-to-Gross Ratio	80%

**Table 2: FinAnswer Express
 Annual Program Costs and Savings**

	Program Costs	Incentives	Total Utility Costs	Net Participant Incremental Cost	Net kWh Savings
Unitary - Tier 2 - weighted average		\$75	\$75	\$120	154
Unitary - Tier 3 - weighted average		\$100	\$100	\$211	185
Heat pump - Tier 2 - weighted average		\$75	\$75	\$120	283
Heat pump - Tier 3 - weighted average		\$100	\$100	\$230	349
Motors Year 1		\$39,030	\$39,030	\$60,227	271,949

**Table 3: IRP 16% Commercial Cooling Load Factor Decrement
 Unitary - Tier 2 - weighted average**

			AC: IRP 16% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$112	\$170	\$58	1.521
Total Resource Cost Test (TRC) No Adder	\$112	\$155	\$43	1.383
Utility Cost Test (UCT)	\$70	\$155	\$85	2.213
Rate Impact Test (RIM)	\$167	\$155	(\$12)	0.926
Participant Cost Test (PCT)	\$42	\$137	\$95	3.264
Discounted Participant Payback (Years)			3.48	

**Table 4: IRP 16% Commercial Cooling Load Factor Decrement
 Unitary - Tier 3 - weighted average**

			AC: IRP 16% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$196	\$204	\$8	1.041
Total Resource Cost Test (TRC) No Adder	\$196	\$186	(\$10)	0.946
Utility Cost Test (UCT)	\$93	\$186	\$92	1.993
Rate Impact Test (RIM)	\$209	\$186	(\$23)	0.888
Participant Cost Test (PCT)	\$103	\$164	\$61	1.596
Discounted Participant Payback (Years)			7.83	

**Table 5: IRP 65% System Load Factor Decrement
 Heat Pump - Tier 2 - weighted average**

			AC: IRP 65% LF Decrement	
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$112	\$217	\$105	1.944
Total Resource Cost Test (TRC) No Adder	\$112	\$197	\$86	1.767
Utility Cost Test (UCT)	\$70	\$197	\$128	2.828
Rate Impact Test (RIM)	\$253	\$197	(\$55)	0.782
Participant Cost Test (PCT)	\$42	\$252	\$210	6.008
Discounted Participant Payback (Years)			1.82	

**Table 5: IRP 65% System Load Factor Decrement
 Heat Pump - Tier 3 - weighted average**

	AC: IRP 65% LF Decrement			
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$214	\$268	\$54	1.252
Total Resource Cost Test (TRC) No Adder	\$214	\$243	\$30	1.138
Utility Cost Test (UCT)	\$87	\$243	\$157	2.808
Rate Impact Test (RIM)	\$318	\$243	(\$74)	0.766
Participant Cost Test (PCT)	\$121	\$310	\$190	2.569
Discounted Participant Payback (Years)			4.53	

**Table 6: IRP 65% System Load Factor Decrement
 Motors Year 1**

	AC: IRP 65% LF Decrement			
	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$56,077	\$208,598	152,521	3.720
Total Resource Cost Test (TRC) No Adder	\$56,077	\$189,635	133,557	3.382
Utility Cost Test (UCT)	\$36,341	\$189,635	153,294	5.218
Rate Impact Test (RIM)	\$213,907	\$189,635	-24,273	0.887
Participant Cost Test (PCT)	\$19,736	\$241,745	222,008	12.249
Discounted Participant Payback (Years)			0.87	