

Program Cost Effectiveness - 2014 Actual

Unitil Electric Energy Efficiency

January 1, 2014 - December 31, 2014 Cost Effectiveness

revised 3-14-16

Summary of Program Cost Effectiveness - 2014 Actual

	Total Resource Benefit/Cost Ratio	Total Benefit (\$000)	Total Utility Costs (\$000)	Total Customer Costs (\$000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings ²	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
Residential Programs											
ENERGY STAR Homes	2.3	\$ 565	\$ 122	\$ 122	78	1,781	95	15	18	672	15,865
Home Performance with Energy Star	2.2	\$ 1,083	\$ 285	\$ 208	43	861	18	2	77	1,932	41,042
ENERGY STAR Lighting	1.3	\$ 660	\$ 218	\$ 277	646	9,157	236	79	32,190	-	-
ENERGY STAR Appliances	2.4	\$ 1,150	\$ 276	\$ 200	440	4,630	76	65	2,682	1,670	25,436
Home Energy Assistance	1.2	\$ 585	\$ 484	\$ -	60	932	8	5	59	1,081	21,093
Res K-12 Education & Code Training		\$ -	\$ 15	\$ -	-	-	-	-	-	-	-
Residential Financing		\$ -	\$ -	\$ -	-	-	-	-	-	-	-
ISO-Related Expenses Res/LI		\$ -	\$ 10	\$ -	-	-	-	-	-	-	-
Subtotal Residential	1.8	\$ 4,043	\$ 1,410	\$ 807	1,268	17,362	433	167	35,026	5,355.9	103,435
Commercial/Industrial Programs											
Large C&I Business	2.3	\$ 3,358	\$ 715	\$ 763	3,078	43,290	304	445	13	50	750
Small C&I Business ¹	2.1	\$ 1,728	\$ 505	\$ 331	1,612	21,279	171	308	89	-	-
Municipals	1.9	\$ 306	\$ 121	\$ 41	190	2,763	45	71	8	0	0
C&I Education, Codes & Audits		\$ -	\$ 4	\$ -	-	-	-	-	-	-	-
ISO-Related Expenses C&I		\$ -	\$ 5	\$ -	-	-	-	-	-	-	-
Subtotal C&I	2.2	\$ 5,392	\$ 1,350	\$ 1,134	4,880	67,332	520	824	110	50	750
Total	2.0	\$ 9,435	\$ 2,760	\$ 1,941	6,148	84,693	953	991	35,136	5,406	104,185

Note: Total Utility Costs do not include PI, which are a function of the sectors as a whole, therefore B/C ratios will not be identical to those on the PI Calculation worksheets.

Annual kWh Savings	6,147,623	79.5%	kWh > 55%
Annual MMBTU Savings (in kWh)	1,584,316	20.5%	
	7,731,938	100.0%	

Lifetime kWh Savings	84,693,224	73.5%	kWh > 55%
Lifetime MMBTU Savings (in kWh)	30,533,752	26.5%	
	115,226,976	100.0%	

¹ The Small Business Energy Solutions program as originally reported understated customer contribution and overstated benefits.

² An error in the excel model displayed the wrong values for Summer kW in both the Plan and Actual, however, associated benefits were calculated and displayed correctly.

Program Cost Effectiveness - 2014 Plan

Unitil Electric Energy Efficiency

January 1, 2014 - December 31, 2014 Cost Effectiveness

revised 3-14-16

Summary of Program Cost-Effectiveness - 2014 PLAN

	Total Resource Benefit/Cost Ratio	Total Benefit (\$000)	Total Utility Costs (\$000)	Total Customer Costs (\$000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings ¹	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
Residential Programs											
ENERGY STAR Homes	2.5	\$ 1,513	\$ 195	\$ 403	153	3,266	126	18	50	2,023	49,228
Home Performance with Energy Star	3.3	\$ 1,086	\$ 217	\$ 113	25	417	11	7	56	1,803	41,273
ENERGY STAR Lighting	1.1	\$ 344	\$ 225	\$ 99	554	5,188	217	58	32,339	-	-
ENERGY STAR Appliances	1.7	\$ 823	\$ 285	\$ 214	308	3,323	51	65	2,512	1,446	23,594
Home Energy Assistance	2.0	\$ 983	\$ 483	\$ -	73	856	13	13	92	1,848	36,614
Res K-12 Education & Code Training		\$ -	\$ 52	\$ -	-	-	-	-	-	-	-
Residential Financing		\$ -	\$ 65	\$ -	-	-	-	-	-	-	-
ISO-Related Expenses Res/LI		\$ -	\$ 7	\$ -	-	-	-	-	-	-	-
Subtotal Residential	2.0	\$ 4,749	\$ 1,529	\$ 829	1,113	13,050	418	160	35,049	7,120	150,709
Commercial/Industrial Programs											
Large C&I Business	1.6	\$ 2,386	\$ 725	\$ 771	2,202	30,549	362	386	25	(494)	(7,407)
Small C&I Business	1.7	\$ 1,338	\$ 457	\$ 319	1,083	14,076	185	304	74	-	-
Municipals	2.1	\$ 725	\$ 221	\$ 129	444	5,771	60	117	24	393	8,414
C&I Education, Codes & Audits		\$ -	\$ 19	\$ -	-	-	-	-	-	-	-
ISO-Related Expenses C&I		\$ -	\$ 11	\$ -	-	-	-	-	-	-	-
Subtotal C&I	1.7	\$ 4,448	\$ 1,432	\$ 1,219	3,729	50,396	607	807	123	(101)	1,007
Total	1.8	\$ 9,197	\$ 2,960	\$ 2,048	4,842	63,445	1,025	967	35,172	7,019	151,716

Note: Total Utility Costs do not include PI, which are a function of the sectors as a whole, therefore B/C ratios will not be identical to those on the PI Calculation worksheets.

¹ An error in the excel model displayed the wrong values for Summer kW in both the Plan and Actual, however, associated benefits were calculated and displayed correctly.

Lifetime kWh Savings	4,841,570	70.2%	kWh > 55%
Annual MMBTU Savings (in kWh)	<u>2,057,021</u>	<u>29.8%</u>	
	6,898,591	100.0%	

Lifetime kWh Savings	63,445,354	58.8%	kWh > 55%
Lifetime MMBTU Savings (in kWh)	<u>44,463,650</u>	<u>41.2%</u>	
	107,909,004	100.0%	

Program Benefits - 2014 Actual
 Unitil Electric Energy Efficiency
 January 1, 2014 - December 31, 2014 Benefits
 revised

2014 Actual Energy Benefits

	Total Benefits	CAPACITY				ENERGY				Non Electric Resource
		Summer Generation	Winter Generation	Transmission	Distribution	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	
Residential Programs										
ENERGY STAR Homes	\$564,801	\$33,774	\$0	\$5,171	\$17,162	\$43,046	\$61,135	\$2,962	\$2,430	\$399,121
Home Performance with ENERGY STAR	\$1,083,428	\$2,031	\$0	\$403	\$1,336	\$18,387	\$26,007	\$3,156	\$3,767	\$1,028,341
ENERGY STAR Lighting	\$660,344	\$85,578	\$0	\$15,133	\$50,221	\$148,673	\$199,332	\$70,574	\$90,833	\$0
ENERGY STAR Appliances	\$1,149,974	\$49,592	\$0	\$10,574	\$35,092	\$59,481	\$67,534	\$53,538	\$44,462	\$829,702
Home Energy Assistance	\$584,558	\$4,417	\$0	\$884	\$2,935	\$19,447	\$25,229	\$3,683	\$3,550	\$524,413
Subtotal Residential	\$4,043,105	\$175,392	\$0	\$32,165	\$106,747	\$289,034	\$379,238	\$133,912	\$145,041	\$2,781,577
Commercial/Industrial Programs										
Municipal Program	\$305,720	\$90,193	\$0	\$16,003	\$53,109	\$36,217	\$43,098	\$33,305	\$33,795	\$0
Large Business Energy Solutions	\$3,358,389	\$545,686	\$0	\$97,750	\$324,409	\$834,532	\$728,044	\$412,846	\$334,952	\$80,169
Small Business Energy Solutions ¹	\$1,727,706	\$340,060	\$0	\$63,034	\$209,193	\$399,869	\$323,052	\$221,822	\$170,676	\$0
Subtotal C&I	\$5,391,815	\$975,939	\$0	\$176,786	\$586,711	\$1,270,618	\$1,094,194	\$667,973	\$539,424	\$80,169
Total	\$9,434,920	\$1,151,331	\$0	\$208,951	\$693,458	\$1,559,652	\$1,473,432	\$801,885	\$684,464	\$2,861,746

¹ The Small Business Energy Solutions program as originally reported understated customer contribution and lifetime savings, and overstated net benefits.

Program Benefits - 2014 Planned

Unitil Electric Energy Efficiency

January 1, 2014 - December 31 2014 Planned Benefits

unchanged since original filing

2014 Planned Energy Benefits

	Total Benefits	CAPACITY				ENERGY				Non Electric Resource
		Summer Generation	Winter Generation	Transmission	Distribution	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	
Residential Programs										
ENERGY STAR Homes	\$1,512,698	\$36,771	\$0	\$5,585	\$18,535	\$78,594	\$113,081	\$5,884	\$4,821	\$1,249,428
Home Performance with ENERGY STAR	\$1,086,146	\$6,907	\$0	\$1,302	\$4,322	\$8,738	\$12,767	\$1,813	\$1,160	\$1,049,137
ENERGY STAR Lighting	\$343,870	\$40,153	\$0	\$8,041	\$26,686	\$78,977	\$105,917	\$36,637	\$47,458	\$0
ENERGY STAR Appliances	\$822,822	\$49,761	\$0	\$10,640	\$35,312	\$41,158	\$42,513	\$44,893	\$35,526	\$563,020
Home Energy Assistance	\$983,473	\$9,388	\$0	\$2,032	\$6,744	\$14,405	\$16,978	\$6,429	\$6,175	\$921,323
Subtotal Residential	\$4,749,009	\$142,979	\$0	\$27,600	\$91,598	\$221,872	\$291,256	\$95,655	\$95,140	\$3,782,908
Commercial/Industrial Programs										
Municipal Program	\$724,621	\$126,034	\$0	\$23,648	\$78,482	\$120,088	\$85,949	\$59,786	\$39,882	\$190,752
Large Business Energy Solutions	\$2,385,858	\$443,998	\$0	\$81,484	\$270,424	\$579,401	\$608,062	\$233,293	\$217,402	-\$48,206
Small Business Energy Solutions	\$1,337,637	\$326,969	\$0	\$61,338	\$203,566	\$293,392	\$208,661	\$146,292	\$97,419	\$0
Subtotal C&I	\$4,448,116	\$897,002	\$0	\$166,470	\$552,472	\$992,881	\$902,672	\$439,371	\$354,703	\$142,546
Total	\$9,197,125	\$1,039,981	\$0	\$194,070	\$644,070	\$1,214,752	\$1,193,928	\$535,027	\$449,844	\$3,925,453

Performance Incentive Calculation - 2014 Annual Report

Unitil Electric Energy Efficiency

January 1, 2014 - December 31, 2014

revised

	<u>Planned</u>	<u>Actual</u>
Commercial/Industrial Incentive		
1. Benefit/Cost Ratio	1.6	2.1
2. Threshold Benefit / Cost Ratio	1.0	1.0
3. Lifetime kWh Savings	50,395,627	67,331,562
4. Threshold Lifetime kWh Savings	32,757,158	
5. Budget / Actual not including PI	\$1,431,949	\$1,349,892
6. Cost Effective Percentage	3.75%	4.80%
7. Lifetime kWh Percentage	3.75%	5.00%
8. C&I Incentive	\$107,396	\$132,289
9. Cap (10%)	\$143,195	\$134,989
Residential Incentive		
10. Benefit / Cost Ratio	1.9	1.7
11. Threshold Benefit / Cost Ratio ¹	1.0	1.0
12. Lifetime kWh Savings	13,049,727	17,361,661
13. Threshold Lifetime kWh Savings (65%) ²	8,482,323	
14. Budget / Actual not including PI	\$1,528,540	\$1,409,966
15. Benefit / Cost Percentage of Budget	3.75%	3.38%
16. Lifetime kWh Percentage of Budget	3.75%	4.99%
17. Residential Incentive	\$109,765	\$118,014
18. Cap (10%)	\$146,354	\$140,997
	\$217,162	\$250,304

Notes

1. Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.
2. Actual Lifetime kWh Savings for each sector must be greater than or equal to 65% of projected energy savings, when converted to common units.
3. Planned Residential PI excludes the funds that were earmarked for the Revolving Loan Fund; in fact, no new funds were expended for that initiative
4. The calculated performance incentive based on (for planning) 7.5% of total program costs, and (for actual) the earned % of total program costs based on two components. The BCR component of earned PI is calculated by comparing the actual benefit/cost ratio (BCR) to the planned BCR. The kWh component is calculated by comparing actual kWh savings to planned kWh savings. Detailed calculations are included on the following pages of this Annual Performance Report.
5. The earned C&I incentive was amended after the initial filing to cap it at 10% of the actual expenditures rather than 10% of the planned expenditures.

Note on Revisions: Subsequent to the June 2015 filing, several errors were discovered within the Small Business Energy Solutions program that have subsequently been corrected. These corrections resulted in lower lifetime savings and benefits, and a reduction in calculated PI. In addition, inconsistent rounding of the PI calculation and a mis-statement of planned B/C for the Commercial and Industrial Sector resulted in other adjustments. All changes from the original filing of the UES Annual Report for 2014 have been highlighted in yellow.

Planned v Actual BCR - 2014 Annual Report

Unitil Electric Energy Efficiency

January 1, 2014 - December 31, 2014

revised

Planned Versus Actual Benefit / Cost Ratio by Sector

Commercial & Industrial:

	<u>Planned</u>	<u>Actual</u>
1. Benefits (Value) From Eligible Programs	\$ 4,448,116	\$ 5,391,815
2. Implementation Expenses	\$ 1,431,949	\$ 1,349,892
3. Customer Contribution	\$ 1,218,563	\$ 1,134,446
4. Performance Incentive	\$ 107,396	\$ 132,289
5. Total Costs	\$ 2,757,908	\$ 2,616,627
6. Benefit/Cost Ratio - C&I Sector	1.61	2.06

Residential:

7. Benefits (Value) From Eligible Programs	\$ 4,749,009	\$ 4,043,105
8. Implementation Expenses	\$ 1,528,540	\$ 1,409,966
9. Customer Contribution	\$ 828,991	\$ 806,654
10. Performance Incentive	\$ 109,765	\$ 118,014
11. Total Costs	\$ 2,467,296	\$ 2,334,634
12. Benefit/Cost Ratio - Residential Sector	1.92	1.73

Line No. Notes:

- 1) Line 1 = the lifetime dollar value of all energy and non-energy benefit resulting from program activity based on
- 2) Line 2 = the Company's total energy efficiency expenditures in 2014, not including PI.
- 3) Line 3 = the share of energy efficiency project costs born by participating customers.
- 4) Line 4 = the calculated performance incentive is based on (for planning) 7.5% of total program costs, and (for actual) the earned % of actual implementation costs based on two components. The BCR component of earned PI is calculated by comparing the actual benefit/cost ratio (BCR) to the planned BCR. The kWh component is calculated by comparing the actual kWh savings to the planned kWh savings. Detailed calculations are included on the following pages of this Annual Performance Report.
- 5) Line 5 = Sum of Lines 3, 4 and 5.
- 6) Line 6 = Line 7 ÷ Line 11, or the ratio of Total Resource Benefits to Total Resource Costs.
- 7) Lines 7-12 see explanation for Lines 1 - 6.

Planned v Actual Lifetime kWh by Program - 2014 Annual Report

Unitil Electric Energy Efficiency

January 1, 2014 - December 31, 2014

revised

Actual Lifetime Energy Savings by Sector and Program

	Lifetime kWh Savings		
	<u>Planned</u>	<u>Actual</u>	
Commercial & Industrial:			
Large Business Energy Solutions	30,549,034	43,289,566	
Small Business Energy Solutions	14,075,640	21,279,278	
Municipal Program	5,770,953	2,762,718	
Total C&I Lifetime kWh	50,395,627	67,331,562	134%
Residential:			
ENERGY STAR Homes Program	3,265,778	1,780,964	
Home Performance with ENERGY STAR	417,410	861,242	
ENERGY STAR Appliance Program	3,323,237	4,630,494	
ENERGY STAR Lighting Program	5,187,643	9,156,554	
Home Energy Assistance Program	855,658	932,408	
Total Residential (incl LI) Lifetime kWh	13,049,727	17,361,661	133%
Total	63,445,354	84,693,224	133%

2014 Annual Report Reconciliation

Unitil Electric Energy Efficiency

January 1, 2014 - December 31, 2014

revised

Unitil Electric 2014 Electric Revenue and Expense Reconciliation

		<u>Actual</u>	<u>Budgeted</u>
1. Beginning Balance: 1/1/2014		\$ (756,881)	
Revenues			
2. System Benefits Charge Revenue		\$ 2,205,552	
3. FCM Revenue		\$ 257,907	
4. RGGI Proceeds		\$ 505,891	
5. Interest		\$ 31,363	
6. Total Funding	lines 2 - 5	\$ 3,000,713	
Expenses			
7. Program Expenses		\$ 2,759,858	
8. 2014 Actual PI / Estimated PI		\$ 250,304	\$ 217,162
9. 2014 Adjustment to prior year PI		\$ (67,611)	
10. Total Expenses	lines 7 - 9	\$ 2,942,550	
11. Ending Balance: 12/31/2014	1 - 6 + 10	\$ (815,044)	\$ (848,185)

Notes:

1. As a result of the PUC's fiscal audit of the 2013 program year, Unitil began (beginning on January 1, 2014), compounding the interest earned within its electric energy efficiency program, as is done with all other New Hampshire CORE energy efficiency programs with an interest calculation.
2. Line 8 Shows the Actual PI as calculated in this Annual Report, as well as the amount of PI that was budgeted for in the Company's 2014 Plan.