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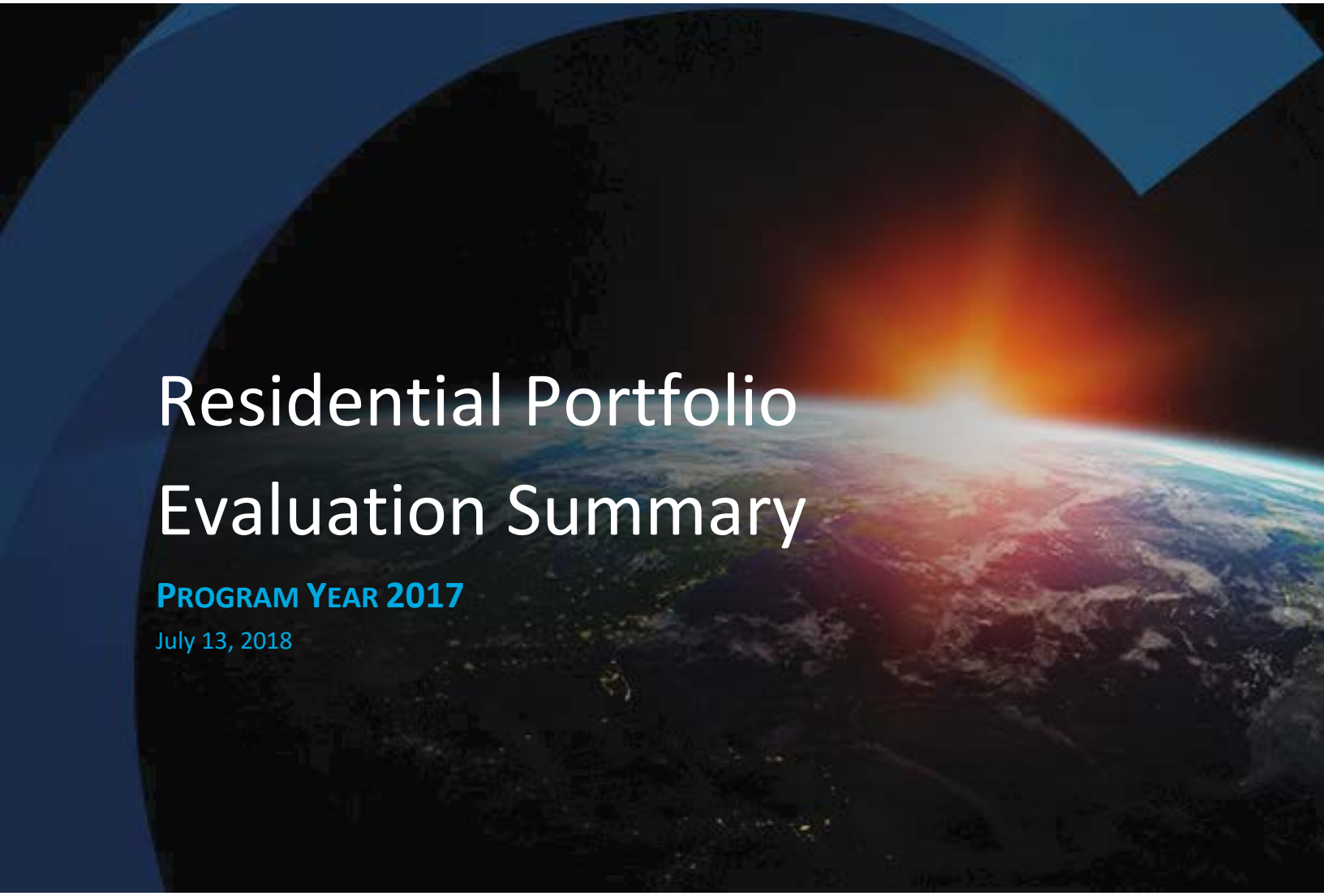

Residential Portfolio Evaluation Summary

PROGRAM YEAR 2017

July 13, 2018

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Introduction

Ameren Missouri engaged Cadmus to perform annual process and impact evaluations of the following residential energy efficiency programs over a three-year period, from 2016 through 2018:

- Heating and Cooling
- Lighting
- Efficient Products (including an evaluation of smart thermostats)
- Energy Efficiency Kits
- Home Energy Reports (HER)

This annual summary report presents key energy savings, demand reduction, and cost-effectiveness results for Program Year 2017 (PY17), the period from March 1, 2016, through February 28, 2017. While Cadmus evaluated smart thermostats as a part of the Efficient Products program, this summary report presents findings specific to smart thermostats independently throughout the document.

Separate, program-specific PY17 evaluation reports offer more detail regarding impact methodologies used and results as well as key process evaluation findings, conclusions, and recommendations.

Energy Savings

Table 1 summarizes *ex ante* gross, *ex post* gross, and *ex post* net energy savings (MWh/year) for each program and for the overall residential portfolio in PY17. The table also compares Cadmus' *ex post* net energy savings to program-specific and residential portfolio net energy savings targets, approved by Missouri Public Service Commission (MPSC).

As the table shows, the residential portfolio achieved 109% of its energy savings target for PY17 when HER is included and 170% when HER is not included.

Table 1. Summary of PY17 Residential Programs' Energy Savings (MWh/Year)

Program	MPSC-Approved Target	*Ex Ante* Net Savings Utility Reported	*Ex Post* Gross Savings Determined by EM&V[1]	*Ex Post* Net Savings Determined by EM&V[2]	Percent of Goal Achieved[3]
Efficient Products	4,760	4,641	4,732	3,668	77%
Smart Thermostats	2,087	5,214	5,224	3,998	192%
Energy Efficiency Kits	6,214	6,032	5,367	5,004	81%
Home Energy Reports	33,750	0[4]	9,021[5]	9,021	27%
Heating and Cooling	22,320	48,086	44,089	42,640	191%
Lighting	10,266	21,806	22,733	22,256	217%
Portfolio w/ HER	**79,397**	**85,779**	**91,166**	**86,587**	**109%**
Portfolio w/o HER	**45,647**	**85,779**	**82,145**	**77,566**	**170%**

[1]MWh were calculated by multiplying verified program participation by Cadmus' evaluated per-unit savings values. For Home Energy Reports, Cadmus set the *ex post* gross savings equal to *ex post* net savings.

[2]Calculated by multiplying Cadmus' evaluated gross savings and evaluated net-to-gross (NTG) ratio, and adding program-level nonparticipant spillover to each program.

[3]Compares MPSC-approved target and *ex post* net savings, determined by evaluation, measurement, and verification (EM&V).

[4]Filed value.

[5] NTG equal to 1.

Demand Reduction

Table 2 summarizes *ex ante* gross, *ex post* gross, and *ex post* net demand reduction (kW) for each program and for the residential portfolio overall. It also compares Cadmus' *ex post* net demand reductions to MPSC-approved targets.

Energy savings and demand reductions do not perfectly correlate (as the measure mix for some programs generates greater peak savings). For PY17, the portfolio met 119% of its demand reduction target with HER and 190% without HER.

Table 2. Summary of PY17 Residential Program Demand Reductions (kW)[1]

Program	MPSC-Approved Target[1]	*Ex Ante* Net Savings Utility Reported	*Ex Post* Gross Savings Determined by EM&V[2]	*Ex Post* Net Reduction Determined by EM&V (First Year)[3]	Percent of Goal Achieved (First Year)[4]	*Ex Post* Net Reduction Determined by EM&V (Year 2023)[5]	Percent of Goal Achieved (Year 2023)[4]
Efficient Products	1,612	1,278	1,372	1,024	64%	928	58%
Smart Thermostats	1,982	4,940	4,949	3,775	190%	3,716	188%
Energy Efficiency Kits	1,046	1,737	1,044	1,017	97%	989	95%
Home Energy Reports	15,774	0[6]	N/A	4,269	27%	N/A	N/A
Heating and Cooling	14,245	32,050	30,436	29,324	206%	25,208	177%
Lighting	1,533	3,255	3,421	3,618	236%	3,309	216%
Portfolio w/ HER	**36,192**	**43,259**	**41,221**	**43,028**	**119%**	**34,150**	**94%**
Portfolio w/o HER	**20,418**	**43,259**	**41,221**	**38,759**	**190%**	**34,150**	**167%**

[1]The Non-Unanimous Stipulation and Agreement in File No. EO-2015-0055 states: "Only measures that are expected to deliver energy savings in 2023 and beyond are counted towards the demand goal in the EO included in Appendix A." Cadmus referenced the Ameren Missouri Technical Resource Manual (TRM) for secondary data on measure expected useful life to assess whether or not measures proved sufficiently long-lived to apply the stipulated energy-to-demand ratio to determine 2023-persistent kW savings. Demand savings resulting from Smart Thermostats and HER were not counted toward this goal.

[2]Demand reductions (kW) were calculated by applying coincident factors from the Ameren Missouri 2016–2018 Energy Efficiency Plan, MPSC file number EO-2015-0055, Appendix E to evaluated energy savings.

[3]Calculated by multiplying Cadmus' evaluated gross savings and evaluated NTG ratio.

[4]Calculated by dividing MPSC Approved Target by Ex Post Net Savings Determined by EM&V.

[5]Demand savings persisting to 2023.

[6]As filed.

Cost-Effectiveness

Using final PY17 program participation and implementation data as well as *ex post* gross and net savings estimates presented in this report, Ameren Missouri determined cost-effectiveness for the PY17 programs and the residential portfolio using DSMore (a financial analysis tool designed to evaluate costs, benefits, and risks from demand-side management [DSM] programs and services). As shown in the Cost-Effectiveness Details section, Ameren Missouri assessed cost-effectiveness using all five of DSMore's standard perspectives:

- Utility Cost Test (UCT)
- Total Resource Cost (TRC)
- Ratepayer Impact Test (RIM)

- Societal Cost Test (SCT)
- Participant Cost Test (PART)

All cost-effectiveness results shown include the program's share of portfolio-level or indirect costs, determined using the present value of each program's UCT lifetime benefits (i.e., present value 2016 dollars of avoided generation costs as well as deferral of capacity costs for capital, transmission, and distribution). The Cost-Effectiveness Details section provides further details.

As shown in Table 3, the five residential programs collectively resulted in UCT and TRC cost-effective ratios of 4.57 and 3.19, respectively, at a portfolio level. In total, the residential portfolio generated just over $69.5 million dollars in annual net shared benefits, as shown in Table 4.[1]

Table 3. Summary of PY17 Residential Program Cost-Effectiveness

Program	UCT	TRC	RIM	SCT	PART[1]
Efficient Products	1.82	1.48	0.44	1.76	4.91
Smart Thermostats	2.08	1.51	0.61	1.78	2.57
Energy Efficiency Kits	3.65	9.27	0.43	12.26	N/A
Home Energy Reports	0.59	0.59	0.30	0.59	N/A
Heating and Cooling	5.11	3.09	0.81	4.09	4.46
Lighting	6.22	6.22	0.47	9.25	N/A
Portfolio	**4.57**	**3.19**	**0.67**	**4.29**	**6.19**

[1]HERs and Kits do not have participant costs. The Lighting program's lifetime participant costs were lower over the lifetime, even though upfront costs were higher.

Table 4 details program benefits and costs used to determine annual net shared benefits for the UCT, in 2016 dollars. Annual net shared benefits are net of costs borne by the utility, but not costs borne by other parties. For example, the report includes the incentive cost, which the utility accrued, but does not include remaining incremental measure costs if the incentive did not fully cover these (hence the participant paid the costs).

Table 4. Summary of PY17 Annual Net Shared Benefits (2016 Dollars)

Program	UCT Net Lifetime Benefits[1]	Program Costs[2]	Annual Net Shared Benefits[3]
Efficient Products	$1,803,102	$988,834	$814,267
Smart Thermostats	$3,925,755	$1,883,874	$2,041,881
Energy Efficiency Kits	$2,711,473	$742,702	$1,968,771
Home Energy Reports	$478,584	$812,665	($334,081)
Heating and Cooling	$62,106,479	$12,162,989	$49,943,489
Lighting	$17,901,507	$2,876,562	$15,024,944
Portfolio[4]	**$88,926,898**	**$19,467,627**	**$69,459,272**

[1] Annual net shared benefits, as defined in 4 CSR 240-20.093(1), equal the utility's avoided costs, measured and documented through EM&V reports for approved demand-side programs, less the sum of the programs' costs (including design, administration, delivery, end-use measures, incentives, EM&V, utility market potential studies, and TRMs) on an annual basis. Annual net shared benefits equal lifetime benefits (based on evaluated net savings), less program costs.

[1]UCT Net Lifetime Benefits equal the value (in 2016 dollars) of utility-avoided costs over the measure's lifetime, based on evaluated net savings applied at the measure level.
[2]Program costs at the portfolio level include costs in addition to program-level costs.
[3]Annual net shared benefits, as defined in 4 CSR 240-20.094(1)(C), are the same as UCT net lifetime benefits minus costs when using avoided costs or avoided utility costs defined in 4 CSR 240-20.094(1)(D).
[4] May not sum exactly due to rounding.

By program, Table 5 details costs and benefits pertaining to TRC test results, which include all costs paid either by the utility or by the participant. For example, this includes incentive costs and incremental measure costs. Though TRC costs are higher than UCT costs (as they include more costs), benefits remain the same.

Table 5. Summary of TRC Benefits and Costs (2016 Dollars)

Program	TRC Net Lifetime Benefits	Costs[1]	TRC Net Lifetime Benefits Less Costs[2]
Efficient Products	$1,803,102	$1,218,504	$584,598
Smart Thermostats	$3,925,755	$2,597,365	$1,328,390
Energy Efficiency Kits	$2,711,473	$292,563	$2,418,909
Home Energy Reports	$478,584	$812,665	($334,081)
Heating and Cooling	$62,106,479	$20,105,306	$42,001,172
Lighting	$17,901,507	$2,876,563	$15,024,944
Portfolio[2]	**$88,926,898**	**$27,902,967**	**$61,023,932**

[1]This table's program costs include the portion of portfolio costs distributed across programs (see Table 7 for details on program and portfolio spending).
[2]May not sum exactly due to rounding.

This report focuses the most analysis on UCT and TRC, given they are the most common cost-effectiveness tests used. Cadmus, however, also reports on the RIM, SCT, and PCT. Table 6 shows costs included in each test reviewed in this report.

Table 6. Costs Associated with Each Cost-Effectiveness Test

Test	Costs Included
UCT	All costs paid by the utility directly.
TRC	All costs paid by the utility or the participant.
RIM	All costs paid by the utility or the participant, and includes revenue loss associated with reduced sales
SCT	All costs paid by the utility or the participant.
PCT	All costs paid by the participant.

Cost-Effectiveness Details

Methodology

As discussed, Ameren Missouri assessed cost-effectiveness using five tests, as defined by the California Standard Practice Manual[2] (i.e., TRC, UCT, RIM, SCT, and PART).

DSMore takes hourly prices and hourly energy savings from specific measures installed through the Residential Portfolio, and correlates prices and savings to 33 years of historic weather data. Using long-term weather ensures that the model captures low-probability, high-consequence weather events, and appropriately values these. As a result, the model produces an accurate evaluation of a demand-side efficiency measure relative to other alternative supply options.

Ameren Missouri used evaluated results for model inputs (e.g., PY17 program-specific participation counts, per-unit gross savings, NTG, and nonparticipant spillover).

Measure load shapes particularly drove model assumptions, as indicated when the model applied savings during the day. This ensured that an end use's load shape matched system peak impacts for that end use and provided the correct summer coincident savings. Ameren Missouri used measure lifetime assumptions and incremental costs, based on the program database, the Ameren Missouri TRM, or the original Batch Tool.

A key step in the analysis process required PY17 Ameren Missouri program-spending data: actual spending, broken down into contractor administration, incentives, and marketing costs. Ameren Missouri applied contractor administration, marketing, incentives, and other costs—including research and development, EM&V, educational outreach, portfolio administration, potential study, and data tracking—at the program level.

Table 7 summarizes PY17 electric spending by program and by other portfolio-related activities, including residential portfolio general expense and marketing costs.

Table 7. Ameren Missouri PY17 Spending Data

2017 Residential Program Costs	Non-Incentive Costs	Incentive Costs	Total Costs
Efficient Products	$528,776	$496,330	$1,025,106
Smart Thermostats	$358,614	$1,586,850	$1,945,464
Energy Efficiency Kits	$269,947	$479,217	$749,164
Home Energy Reports	$857,836		$857,836
Heating and Cooling	$4,175,341	$ 7,822,450	$11,997,791
Lighting	$1,374,172	$1,414,121	$2,788,294
Total Residential Programs[1]	**$7,564,685**	**$11,798,968**	**$19,363,654**

[2] *California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects*. October 2001.

2017 Other Portfolio Costs			
Evaluation, Measurement, and Verification	$1,066,772		$1,066,705
Educational Outreach	$7,656		$7,611
Portfolio Administration	$82,295		$81,810
Potential Studies	$2,513		$2,498
Data Tracking	$28,634		$28,465
Other	$203,769		$203,769
R&D / Emerging Technologies	$37,917		$37,917
Total Other[1]	**$1,429,555**		**$1,429,555**
Total Portfolio Costs[1]	**$8,994,240**	**$11,798,968**	**$20,793,209**

[1]May not sum exactly due to rounding.

Table 8 summarizes benefit and cost inputs for each cost-effectiveness test.

Table 8. Summary of Benefits and Costs Included in Each Cost-Effectiveness Test

Test	Benefits	Costs
UCT	**Perspective of utility, government agency, or third-party program implementer**	
	• Energy-related avoided costs • Capacity-related costs avoided by the utility, including generation, transmission, and distribution	• Program overhead costs • Utility/program administrator incentive costs • Utility/program administrator installation costs
TRC	**Perspective of all utility customers (participants and nonparticipants) in the utility service territory**	
	• Energy-related avoided costs • Capacity-related avoided costs, including generation, transmission, and distribution • Additional resource savings • Applicable tax credits	• Program overhead costs • Program installation costs • Incremental measure costs (whether paid by customer or utility)[1]
RIM	**Impact of the efficiency measure on nonparticipating ratepayers overall**	
	• Energy-related avoided costs • Capacity-related avoided costs, including generation, transmission, and distribution	• Program overhead costs • Utility/program administrator incentives • Utility/program administrator installation costs • Lost revenue due to reduced energy bills
SCT	**Perspective of all utility customers (participants and nonparticipants) in the utility service territory (using a societal discount rate)**	
	• Energy-related avoided costs • Capacity-related avoided costs, including generation, transmission, and distribution • Additional resource savings • Applicable tax credits • Non-energy benefits	• Program overhead costs • Program installation costs • Incremental measure costs (whether paid by the customer or utility)[1]
PCT	**Perspective of the customers installing the measures**	
	• Bill savings • Incremental installation costs • Applicable tax credits or incentives	• Incentive payments • Incremental equipment costs

[1]Incentives are considered in the incremental measure costs.

As the report presents the majority of costs and savings on a net basis, Cadmus applied the NTG ratio to account for free ridership and spillover.[3] The report, however, presents participant-borne costs (as applied to the PCT) on a gross basis.

Residential Portfolio

Table 9, Table 10, Table 11, Table 12, and Table 13 provide total benefits and costs for the residential portfolio, along with benefit/cost ratios for each cost-effectiveness test. As shown, applying the residential portfolio to the UCT, TRC, PART, and SCT tests generated more than $89 million in UCT gross lifetime benefits.

Table 9. Utility Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$41,740,848	
Avoided Electric Capacity	$37,208,573	
Avoided T&D Electric	$9,977,477	
Incentives		$9,754,694
Program Overhead Costs		$9,712,933
Total	**$88,926,898**	**$19,467,627**
UCT Benefit/Cost Ratio	**4.57**	

Table 10. Total Resource Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$41,740,848	
Avoided Electric Capacity	$37,208,573	
Avoided T&D Electric	$9,977,477	
Participant Costs (Net)		$18,190,034
Program Overhead Costs		$9,712,933
Total	**$88,926,898**	**$27,902,967**
TRC Benefit/Cost Ratio	**3.19**	

[3] Spillover for the Heating and Cooling and Lighting programs includes non-participant spillover as assessed through the evaluations.

Table 11. Ratepayer Impact Measure Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$41,740,848	
Avoided Electric Capacity	$37,208,573	
Avoided T&D Electric	$9,977,477	
Program Overhead Costs		$9,712,933
Incentives		$9,754,694
Lost Revenue		$113,877,099
Total	**$88,926,898**	**$133,344,726**
RIM Benefit/Cost Ratio	**0.67**	

Table 12. Societal Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$58,939,854	
Avoided Electric Capacity	$51,584,761	
Avoided T&D Electric	$13,088,595	
Program Overhead Costs		$10,039,212
Participant Costs (Net)		$18,801,078
Total	**$123,613,210**	**$28,840,290**
SCT Benefit/Cost Ratio	**4.29**	

Table 13. Participant Cost Test Inputs and Results

	Benefits	Costs
Participant Bill Savings (Electric, Gross)	$130,289,052	
Incentives	$9,754,694	
Participant Costs (Gross)		$22,642,015
Total	**$140,043,746**	**$22,642,015**
PCT Benefit/Cost Ratio	**6.19**	

Efficient Products

Table 14, Table 15, Table 16, Table 17, and Table 18 show total benefits and costs for the Efficient Products program (excluding smart thermostats), along with benefit/cost ratios for each cost-effectiveness test. The following section shows smart thermostats separately.

Table 14. Utility Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$1,127,394	
Avoided Electric Capacity	$514,531	
Avoided T&D Electric	$161,176	
Incentives		$466,213
Program Overhead Costs		$522,622
Total	**$1,803,102**	**$988,834**
UCT Benefit/Cost Ratio	**1.82**	

Table 15. Total Resource Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$1,127,394	
Avoided Electric Capacity	$514,531	
Avoided T&D Electric	$161,176	
Participant Costs (Net)		$695,882
Program Overhead Costs		$522,622
Total	**$1,803,102**	**$1,218,504**
TRC Benefit/Cost Ratio	**1.48**	

Table 16. Ratepayer Impact Measure Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$1,127,394	
Avoided Electric Capacity	$514,531	
Avoided T&D Electric	$161,176	
Program Overhead Costs		$522,622
Incentives		$466,213
Lost Revenue		$3,074,022
Total	**$1,803,102**	**$4,062,857**
RIM Benefit/Cost Ratio	**0.44**	

Table 17. Societal Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$1,387,370	
Avoided Electric Capacity	$642,303	
Avoided T&D Electric	$192,752	
Program Overhead Costs		$540,178
Participant Cost (net)		$719,259
Total	**$2,222,424**	**$1,259,436**
SCT Benefit/Cost Ratio	**1.76**	

Table 18. Participant Cost Test Inputs and Results

	Benefits	Costs
Participant Bill Savings (Electric, Gross)	$4,051,677	
Participant Bill Savings (Natural Gas, Gross)	$0	
Incentives	$466,213	
Participant Costs (Gross)		$920,187
Total	**$4,517,890**	**$920,187**
PCT Benefit/Cost Ratio	**4.91**	

Smart Thermostats

Table 19, Table 20, Table 21, Table 22, and Table 23 show total benefits and costs for smart thermostats provided through the Efficient Products program, along with benefit/cost ratios for each cost-effectiveness test.

Table 19. Utility Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$1,284,562	
Avoided Electric Capacity	$1,928,908	
Avoided T&D Electric	$712,285	
Incentives		$1,490,560
Program Overhead Costs		$393,314
Total	**$3,925,755**	**$1,883,874**
UCT Benefit/Cost Ratio	**2.08**	

Table 20. Total Resource Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$1,284,562	
Avoided Electric Capacity	$1,928,908	
Avoided T&D Electric	$712,285	
Participant Costs (Net)		$2,204,051
Program Overhead Costs		$393,314
Total	**$3,925,755**	**$2,597,365**
TRC Benefit/Cost Ratio	**1.51**	

Table 21. Ratepayer Impact Measure Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$1,284,562	
Avoided Electric Capacity	$1,928,908	
Avoided T&D Electric	$712,285	
Program Overhead Costs		$393,314
Incentives		$1,490,560
Lost Revenue		$4,568,604
Total	**$3,925,755**	**$6,452,478**
RIM Benefit/Cost Ratio	**0.61**	

Table 22. Societal Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$1,543,411	
Avoided Electric Capacity	$2,394,617	
Avoided T&D Electric	$847,626	
Program Overhead Costs		$406,527
Participant Cost (Net)		$2,278,090
Total	**$4,785,655**	**$2,684,617**
SCT Benefit/Cost Ratio	**1.78**	

Table 23. Participant Cost Test Inputs and Results

	Benefits	Costs
Participant Bill Savings (Electric, Gross)	$6,063,437	
Participant Bill Savings (Natural Gas, Gross)		
Incentives	$1,490,560	
Participant Costs (Gross)		$2,938,734
Total	**$7,553,997**	**$2,938,734**
PTC Benefit/Cost Ratio	**2.57**	

Energy Efficiency Kits

Table 24, Table 25, Table 26, Table 27, and Table 28 show total benefits and costs for the Energy Efficiency Kits program, along with benefit/cost ratios for each cost-effectiveness test.

Table 24. Utility Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$1,898,966	
Avoided Electric Capacity	$586,365	
Avoided T&D Electric	$226,142	
Incentives		$450,138
Program Overhead Costs		$292,563
Total	**$2,711,473**	**$742,702**
UCT Benefit/Cost Ratio	**3.65**	

Table 25. Total Resource Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$1,898,966	
Avoided Electric Capacity	$586,365	
Avoided T&D Electric	$226,142	
Participant Costs (Net)		$0
Program Overhead Costs		$292,563
Total	**$2,711,473**	**$292,563**
TRC Benefit/Cost Ratio	**9.27**	

Table 26. Ratepayer Impact Measure Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$1,898,966	
Avoided Electric Capacity	$586,365	
Avoided T&D Electric	$226,142	
Program Overhead Costs		$292,563
Incentives		$450,138
Lost Revenue		$5,564,073
Total	**$2,711,473**	**$6,306,775**
RIM Benefit/Cost Ratio	**0.43**	

Table 27. Societal Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$2,605,823	
Avoided Electric Capacity	$810,312	
Avoided T&D Electric	$292,367	
Program Overhead Costs		$302,391
Participant Cost (Net)		$0
Total	**$3,708,503**	**$302,391**
SCT Benefit/Cost Ratio	**12.26**	

Table 28. Participant Cost Test Inputs and Results

	Benefits	Costs
Participant Bill Savings (Electric, Gross)	$6,124,068	
Participant Bill Savings (Natural Gas, Gross)	N/A	
Incentives	$450,138	
Participant Costs (Gross)		$0
Total	**$6,574,206**	
PCT Benefit/Cost Ratio	**N/A**	

Home Energy Report

Table 29, Table 30, Table 31, Table 32, and Table 33 show total benefits and costs for the Home Energy Report program, along with benefit/cost ratios for each cost-effectiveness test. For cost-effectiveness purposes, Ameren Missouri set *ex post* gross savings equal to *ex post* net savings.

Table 29. Utility Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$299,481	
Avoided Electric Capacity	$80,259	
Avoided T&D Electric	$98,845	
Incentives		
Program Overhead Costs		$812,665
Total	**$478,584**	**$812,665**
UCT Benefit/Cost Ratio	**0.59**	

Table 30. Total Resource Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$299,481	
Avoided Electric Capacity	$80,259	
Avoided T&D Electric	$98,845	
Participant Costs (Net)		
Program Overhead Costs		$812,665
Total	$478,584	$812,665
TRC Benefit/Cost Ratio	**0.59**	

Table 31. Ratepayer Impact Measure Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$299,481	
Avoided Electric Capacity	$80,259	
Avoided T&D Electric	$98,845	
Program Overhead Costs		$812,665
Incentives		
Lost Revenue		$780,293
Total	**$478,584**	**$1,592,958**
RIM Benefit/Cost Ratio	**0.30**	

Table 32. Societal Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$309,541	
Avoided Electric Capacity	$82,955	
Avoided T&D Electric	$102,165	
Program Overhead Costs		$839,964
Participant Cost (Net)		
Total	**$494,661**	**$839,964**
SCT Benefit/Cost Ratio	**0.59**	

Table 33. Participant Cost Test Inputs and Results

	Benefits	Costs
Participant Bill Savings (Electric, Gross)	$780,293	
Incentives		
Participant Costs (Gross)		
Total	**$780,293**	
PCT Benefit/Cost Ratio	**N/A**	

Heating and Cooling

Table 34, Table 35, Table 36, Table 37, and Table 38 show total benefits and costs for the Heating and Cooling program, along with benefit/cost ratios for each cost-effectiveness test.

Table 34. Utility Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$22,656,747	
Avoided Electric Capacity	$31,363,504	
Avoided T&D Electric	$8,086,227	
Incentives		$7,347,783
Program Overhead Costs		$4,815,206
Total	$62,106,479	$12,162,989
UCT Benefit/Cost Ratio	**5.11**	

Table 35. Total Resource Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$22,656,747	
Avoided Electric Capacity	$31,363,504	
Avoided T&D Electric	$8,086,227	
Participant Costs (Net)		$15,290,100
Program Overhead Costs		$4,815,206
Total	**$62,106,479**	**$20,105,306**
TRC Benefit/Cost Ratio	**3.09**	

Table 36. Ratepayer Impact Measure Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$22,656,747	
Avoided Electric Capacity	$31,363,504	
Avoided T&D Electric	$8,086,227	
Program Overhead Costs		$4,815,206
Incentives		$7,347,783
Lost Revenue		$64,559,895
Total	**$62,106,479**	**$76,722,884**
RIM Benefit/Cost Ratio	**0.81**	

Table 37. Societal Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$30,778,877	
Avoided Electric Capacity	$43,475,895	
Avoided T&D Electric	$10,653,461	
Program Overhead Costs		$4,976,960
Participant Cost (Net)		$15,803,729
Total	**$84,908,233**	**$20,780,688**
SCT Benefit/Cost Ratio	**4.09**	

Table 38. Participant Cost Test Inputs and Results

	Benefits	Costs
Participant Bill Savings (Electric, Gross)	$76,498,526	
Incentives	$7,347,783	
Participant Costs (Gross)		$18,783,093
Total	**$83,846,309**	**$18,783,093**
PCT Benefit/Cost Ratio	**4.46**	

Lighting

Table 39, Table 40, Table 41, Table 42, and Table 43 show total benefits and costs for the Lighting program, along with benefit/cost ratios for each cost-effectiveness test.

Table 39. Utility Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$14,473,698	
Avoided Electric Capacity	$2,735,007	
Avoided T&D Electric	$692,801	
Incentives		
Program Overhead Costs		$2,876,562
Total	**$17,901,507**	**$2,876,562**
UCT Benefit/Cost Ratio	**6.22**	

Table 40. Total Resource Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$14,473,698	
Avoided Electric Capacity	$2,735,007	
Avoided T&D Electric	$692,801	
Participant Costs (Net)		$1
Program Overhead Costs		$2,876,562
Total	**$17,901,507**	**$2,876,563**
TRC Benefit/Cost Ratio	**6.22**	

Table 41. Ratepayer Impact Measure Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$14,473,698	
Avoided Electric Capacity	$2,735,007	
Avoided T&D Electric	$692,801	
Program Overhead Costs		$2,876,562
Incentives		
Lost Revenue		$35,330,211
Total	**$17,901,507**	**$38,206,773**
RIM Benefit/Cost Ratio	**0.47**	

Table 42. Societal Cost Test Inputs and Results

	Benefits	Costs
Avoided Electric Production	$22,314,833	
Avoided Electric Capacity	$4,178,679	
Avoided T&D Electric	$1,000,223	
Program Overhead Costs		$2,973,192
Participant Cost (net)		$1
Total	**$27,493,735**	**$2,973,193**
SCT Benefit/Cost Ratio	**9.25**	

Table 43. Participant Cost Test Inputs and Results

	Benefits	Costs
Participant Bill Savings (Electric, Gross)	$36,771,051	
Incentives		
Participant Costs (Gross)		$1
Total	**$36,771,051**	**$1**
PCT Benefit/Cost Ratio	**N/A**	