CADMUS

Ameren Missouri Heating and Cooling Program Impact and Process Evaluation

PROGRAM YEAR 2018

July 13, 2019

Prepared for:

Ameren Missouri

1901 Chouteau Avenue

St. Louis, MO 63103

Prepared by:
Jeremy Eckstein
Shannon Donohue
John Walczyk
Joan Wang
Andrew Carollo
Sara Wist
Jane Colby
Apex Analytics

CADMUS

Table of Contents

Tables

Figures

Executive Summary

Ameren Missouri engaged Cadmus to perform annual process and impact evaluations of the Heating and Cooling program for a three-year period, from 2016 through 2018. This annual report covers the impact and process evaluation findings for Program Year 2018 (PY18), the period from March 1, 2018, through February 28, 2019—the third year of the three-year program cycle.

Program Description

Ameren Missouri's Heating and Cooling program provides its residential customers with rebates to install energy-efficient heating and cooling equipment. To participate, residential customers must have measures installed by a participating contractor. Program rebates partially cover the costs of retrofitting and/or replacing heating and cooling equipment.

In PY18, the Heating and Cooling program provided rebates for the following:

- Central air conditioners (CAC)
- Air source heat pumps (ASHP) (including ductless heat pumps)
- Geothermal or ground source heat pumps (GSHP)
- Dual fuel heat pumps (DFHP)
- Electronically Commutated Motors (ECM)
- Air-conditioner and heat pump tune ups (tune up)

For PY16–PY18, Ameren Missouri contracted with ICF International (ICF) to implement the program. ICF marketed the program, recruited contractors, and conducted program training sessions with contractors. ICF also took primary responsibility for maintaining a website for data reporting, receiving online applications, processing rebates, and conducting quality control checks.

On behalf of participants, participating contractors submit all required paperwork for processing rebates. To qualify as a participating contractor, an HVAC company representative must attend a training session conducted by ICF and sign a participation agreement. The training session covers program rules and lessons learned during the previous year

Key Impact Evaluation Findings

The following sections describe Cadmus' key findings for the PY18 evaluation period.

Program Data Adjustments

Through participant surveys and the participant tracking data, Cadmus verified whether program heating and cooling systems were installed, operating, and classified correctly in the program database. Cadmus analyzed the contractor measurements and found 96 (out of 12,857) CAC and 28 (out of 1,784) heat pumps were incorrectly classified as early retirement. Cadmus adjusted the percentage of early

retirement CACs rebates from 88% to 87% and ASHPs from 72% to 71%. This lowered gross savings for air conditioners and heat pumps by less than 1%.

Gross Impacts

Cadmus found that approximately 18% (N=52) of customers typically operated their ECM fan in continuous mode, independently of the mode set by contractors. Further, 60% (N=31) of ECM fan customers who reported using continuous mode operated their fans in the same manner before and after installing the new furnace and 40% (N=21) of customers reported changing the way they used continuous mode by increasing the number of hours that they operated their fans. Customers who reported changing the hours they use their furnace fan increased fan usage by an average of 2,000 hours per year. On average, this reduced gross energy savings for ECM measures relative to ex ante estimates by 31%, since customers are running the fan more than they were before installing ECM fans.

Measure category level results are shown in Table 1. Individual measure results are shown in Gross Impact Evaluation Results, Table 33.

Table 1. PY18 Summary: *Ex Post* Program Gross Savings Accounting for Verified Measures

Measure	PY18 Participation*	Average** Per-Unit *Ex Post* Savings (kWh/yr)	Verification Rate	Total *Ex Post* Savings (MWh/yr) ***
Air-Source Heat Pump	1,927	7,525	100%	14,502
Ductless Air-Source Heat Pump	334	6,082	100%	2,031
Dual Fuel Heat Pump	89	941	100%	84
Ground Source Heat Pump	343	17,405	100%	5,970
Central Air Conditioner	15,359	1,571	100%	24,122
Electronically Commutated Motor (ECM)	12,819	582	100%	7,456
Tune Ups	1,859	150	100%	279
Total* **	**32,730**		**100%**	**54,444**

* Participation is based on the application date rather than the date the rebate was invoiced to the program. PY18 total participation includes only measures occurring prior to March 1, 2019, although some of these measures were invoiced to the program after that date.
**Average values are rounded to whole kWh,
***May not sum due to rounding,

Net Savings

As shown in Table 2, the Heating and Cooling program has a savings-weighted net-to-gross (NTG) ratio of 76%. First year and 2023 NPSO savings are shown below. NPSO is added separately to net savings because it is made up of measures with different load shapes than the program and therefore will affect demand NTG differently than energy NTG. Due to delays from the PY17 stakeholder process, surveys for PY18 began fielding in the third quarter and response samples for measures other than heat pumps and CACs were too small to provide statistically valid responses. Cadmus applied PY17 NTG values to tune ups and PY16 NTG values to electronically commutated motors as the program made no significant changes to incentive levels or marketing between PY17 and PY18.

Table 2. PY18 Net Impact Results Summary

Measure Group	*Ex Post* Gross Savings (MWh/yr)	Free Ridership	Participant Spillover	NTG	Net Energy Savings (MWh/yr)***	Net Demand Savings kW/yr	
						First Year	2023
Air-Source Heat Pump	14,502	22.0%	1.0%	79.0%	11,456	5,340	5,340
Ductless Air-Source Heat Pump	2,031	22.0%	1.0%	79.0%	1,605	748	748
Dual Fuel Heat Pump	84	22.0%	1.0%	79.0%	66	31	31
Ground Source Heat Pump	5,970	22.0%	1.0%	79.0%	4,716	2,198	2,198
Central Air Conditioner	24,122	36.0%	0.0%	64.0%	15,438	14,627	14,627
Electronically Commutated Motor*	7,456	31.8%	0.2%	68.4%	5,102	2,378	2,378
Tune Up**	279	32.0%	0.0%	68.0%	190	89	14
Nonparticipant Spillover					**2,814**	**1,597**	**1,597**
Program* **	**54,444**	**29.6%**	**0.4%**	**76.0%**	**41,388**	**27,008**	**26,933**

*PY16 results used for free ridership and spillover due to low PY18 survey responses.

**PY17 results used for free ridership and spillover due to low response rate. Two tune up participants completed a survey in PY18.

***May not sum due to rounding.

****Net savings may not match NTG multiplied by the ex post gross savings due to the rounding of NTG estimates.

As shown in Table 3, the PY18 program achieved 185% of its net energy savings target of 22,320 MWh, specified in Ameren Missouri's residential tariff.[1] Appendix A presents the energy to demand factors used to calculate demand savings for this program.

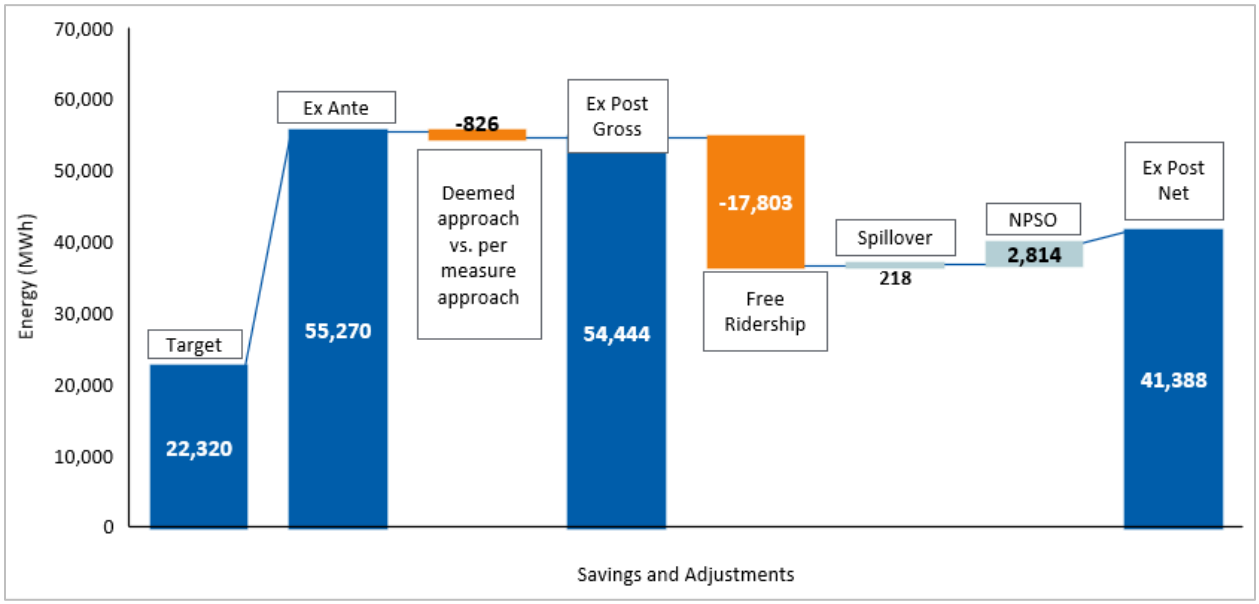
Table 3. PY18 Heating and Cooling Program Savings Comparisons

Metric	MPSC-Approved Target	*Ex Post* Gross Savings Determined by EM&V	*Ex Post* Net Savings Determined by EM&V	Percentage of Goal Achieved
Energy (MWh)	22,320	54,444	41,388	185%
Demand – First Year (kW)	14,193	36,987	27,008	190%
Demand – Year 2023	-	36,877	26,933	-

Figure 1 illustrates the program's energy impacts—from the target to the *ex post* net savings. The blue bars represent total savings (targets, *ex ante,* etc.), orange bars represent factors that decreased savings, and the light blue bars represent factors that increased savings.

[1] Union Electric Company. d/b/a Ameren Missouri's 2nd Filing to Implement Regulatory Changes in Furtherance of Energy File No. EO-2015-0055 Efficiency as Allowed by MEEIA. Appendix B.MEEIA 2016–2018 Summary

Figure 1. Waterfall Chart of PY18 Heating and Cooling Program Energy Savings



CSR Impact Evaluation Requirements

According to the Missouri Code of State Regulations (CSR), demand-side programs included as part of a utility's preferred resource plan are subject to ongoing process and impact evaluations that meet certain criteria.

Specifically, the CSR requires that an impact evaluation of a demand-side program must satisfy the requirements listed in Table 4. The table also provides data that Cadmus used to satisfy these impact CSR evaluation requirements for the Heating and Cooling program. At the end of the Process Evaluation section, this report provides a summary of the process CSR requirements in Table 5.

Table 4. Summary Responses to CSR Impact Evaluation Requirements

CSR Requirement[1]	Method Used	Description of Program Method
Approach: The evaluation must use one or both of the following comparisons to determine the program impact:		
Comparisons of pre-adoption and post-adoption loads of program participants, corrected for weather effects and other intertemporal differences	✓	The team developed heating and cooling loads using multiple data sources, including; direct-load monitoring of CAC s(from PY13) and HPs (PY16), and billed usage corrected to normalized weather. Savings are estimated from normalized loads using the increased efficiency of installed system performance.
Comparisons between loads for program participants and an appropriate control group over the same period		
Data: The evaluation must use one or more of the following data types to assess program impacts:		
Monthly billing data	✓	PY16 billing data were used to verify baseline energy consumption.
Hourly load data	✓	PY16 daily load data were analyzed for 250 participants to verify post-installation usage characteristics.
Load research data		
End-use load metered data	✓	PY13–PY16 metered load data from CAC, ASHPs, and GSHPs were used to verify heating and cooling consumption.
Building and equipment simulation models		
Survey responses	✓	PY13–PY18 survey responses were used to verify measures' installation, operation, and disposition.
Audit and survey data on equipment type/size efficiency	✓	The evaluation team gathered equipment information on participating homes.
Audit and survey data on household or business characteristics	✓	The evaluation team collected household characteristics from participating homes.
Audit and survey data on energy-related building characteristics	✓	The evaluation team collected survey data on heating and cooling systems in the participating homes.

[1] State of Missouri. "Administrative Rules: Missouri Code of State Regulations." Missouri 4 CSR 240-22.070(8)(B). Revised May 2011. Available online: https://www.sos.mo.gov/cmsimages/adrules/csr/current/4csr/4c240-22.pdf

Key Process Evaluation Findings

As program delivery has not changed significantly, Cadmus did not report detailed process evaluation results unless identifying a significant area of difference or concern. As in past years, participants and contractors expressed high satisfaction with the program.

Consistent with last year's findings, most participants heard about the Heating and Cooling program from a contractor, and participants most frequently contacted contractors to resolve technical issues with their existing equipment. Participants also learned about the program via Ameren Missouri's marketing, and contacted their contractors for reasons other than addressing maintenance issues (e.g., lowering their energy consumption, taking advantage of rebates).

Ameren Missouri's pool of registered contractors effectively promoted the Heating and Cooling program to participants, especially when customers contacted them to address maintenance issues. Contractors

served as key drivers in promoting the Heating and Cooling program, although participant survey data suggested limitations existed with contractors' marketing efforts: most participants selected their contractors because they knew them or they received a referral from a trusted source; only a small portion of participants selected their contractors based on marketing materials.

CSR Process Evaluation Requirements

As previously discussed, the Missouri CSR requires that demand-side programs, operating as part of a utility's preferred resource plan, must be subject to ongoing process and impact evaluations that meet certain criteria. Process evaluations must address, at a minimum, the five questions listed in Table 5, which provides a summary response for each specified CSR process requirement.

Table 5. Summary Responses to CSR Process Evaluation Requirements

CSR Process Evaluation Requirement Number[1]	CSR Requirement Description	Summary Response
1	What are the primary market imperfections common to the target market segment?	The target market revealed a primary market imperfection: lack of consumer information about the cost-saving benefits of high-efficiency HVAC systems for cooling, electric heating, and expenses of a new HVAC unit. These imperfections can deter customers from purchasing high-efficiency and cost-savings equipment, even if costs are recovered over the equipment's life though lower operating costs.
2	Is the target market segment appropriately defined, or should it be further subdivided or merged with other market segments?	The target market did not change from prior years, and was defined as customers living in single-family homes, multifamily buildings of four units or fewer, or row houses. This market definition continues to be appropriate for a residential Heating and Cooling program designed to encourage property owners to choose high-efficiency equipment.
3	Does the mix of end-use measures included in the program appropriately reflect the diversity of end-use energy service needs and existing end-use technologies within the target market segment?	The program targeted the heating and cooling end use appropriately. Within this end use, measures offered a range of energy-saving heating and cooling technologies, available at different price points to customers. The program also correctly accounts for market and federal codes changes in its program design, phasing out program offerings when they are no longer effective under evolved market conditions.
4	Are the communication channels and delivery mechanisms appropriate for the target market segment?	Heating and Cooling communication and program delivery mechanisms did not change from prior years and continued to be appropriate for the target market. Contractors serve as a critical interface with participants and can provide important, timely program information while customers are engaged in the decision-making process. The program also conducts broader marketing efforts to provide customers with information to encourage them to replace their existing equipment before it experiences problems.
5	What can be done to more effectively overcome identified market imperfections and to increase the rate of customer acceptance and implementation of each end-use measure included in the program?	The program could adjust marketing materials to focus on the long-term cost savings benefits of replacing inefficient heating and cooling equipment prior to experiencing issues. Additionally, the program could reduce customers' initial barriers regarding purchasing equipment by increasing incentives or providing financing options.

[1] State of Missouri. "Administrative Rules: Missouri Code of State Regulations." Missouri 4 CSR 240-22.070(8)(A) requirements 1 through 5. Revised May 2011. Available online: https://www.sos.mo.gov/cmsimages/adrules/csr/current/4csr/4c240-22.pdf

Key Conclusions and Recommendations

Cadmus offers the following conclusions and recommendations for program improvements. Overall the Heating and Cooling Program continues to function well, delivering significant energy savings to Ameren Missouri customers. Additionally, Ameren Missouri customers continue to indicate high satisfaction with

the Heating and Cooling program, which has traditionally resulted from high satisfaction with incentives, installed equipment, and program delivery.

Conclusion 1. Customers indicated that they do not continue to operate their furnace fans as set by the installing contractor. The contractor documented furnace fan setting (auto or continuous) is used by Ameren Missouri to estimate *ex ante* savings. Regardless of the contractor furnace fan setting (as recorded in the application), customers operated their furnace fans in continuous mode approximately 18% of the time. Additionally, customers categorized as continuous mode operation, reportedly operated only 70% of the year, less than the 100% assumed for those customers. Also, some customers (8%) increased their fan usage after they installed the new fan. Combined, these factors reduced PY18 realization rates for furnace fans. The federal standard change to increase fan efficiency took effect on July 3 2019. The standard raises the minimum effiicnecy of manufactured and imported furance fans significantly.

Recommendation 1. Monitor impacts of the new planned ECM standard and modify tracking approach for ECM fans. Cadmus recommends eliminating tracking and estimating savings by the two different ECM fan settings measures (auto and continuous) as most customers adjust the contractors' fan setting; and only segregate ECM measures by whether it is included with the HVAC equipment's AHRI rating. ECM's purchased or added to a system where the ECM is not already included in the AHRI rating save incrementally more than when included in a high efficiency system that assumes an ECM (an ECM with a high efficiency CAC system already assumes an ECM in its efficiency rating). Cadmus recommends eliminating ECM measures when legacy products are no longer avalaible in the market. Existing furnace fan retrofits are not impacted by the standard change as it applies to new HVAC equipment manufactured. Ameren Missouri should track ECM fans that are retrofitted into existing furnaces.

Conclusion 2. PY18 changes to program requirements for qualifying early retirement units successfully reduced discrepancies between reported and verified equipment. Ameren Missouri updated its rebate structure to provide the same incentives for new and early retirement units, required contractors to include qualifying conditions on applications, and provided training to educate contractors on program requirements. These efforts successfully reduced the number of early retirement measures that had to be reclassified during Cadmus' verification activities. In total, Cadmus reclassified 1% of the reported early retirement measures and the overall proportion of early retirement measures rebated through the program was consistent with early retirement rates verified by Cadmus in PY17.

Recommendation 2. Continue following up on contractor measurements that don't comply with the program rules and updating the tracking database with details. Where contractors report no delta-t and the system is applying for a rebate as an early retirement, continue follow up with contractors to reconcile the error in data tracking.

Conclusion 3. Contractors continue to serve as the key driver to successfully implementing the program and are a key source of customers' program awareness. As in previous years, customers indicated learning about the Heating and Cooling program incentives from their contractors, though a more limited portion of customers learned of the program directly through Ameren Missouri. In PY18,

the program's contractor network continued to increase, ensuring that the program had a sufficiently deep reach to contact potential customers within Ameren Missouri's service territory.

PY17 Recommendation Tracking

During the PY17 evaluation, the evaluation team provided recommendations for improving the delivery of the Heating and Cooling program and these recommendations were taken under consideration for PY18's program implementation. Table 6 summarizes the status of each recommendation.

Table 6. PY17 Evaluation Recommendation Tracking

PY17 Recommendation	Ameren Missouri Response	Explanation
Monitor PY18 verification surveys against temperature drop data to determine whether the implemented PY18 program changes have minimized differences between verification surveys and reported early retirement classifications to assess whether additional early retirement criteria may be warranted. There is no industry consensus on the best definition of early retirement, and the definition of "operable" or "operating" (as used below) remains subject to interpretation. A sample of other early retirement programs utilized the following criteria: • System must be operable and existing SEER of 10 or less (Ameren Illinois) • System must be in operating condition, at least 5 years old, with a maximum nominal SEER of 10 (KCP&L) • System must be operating or have a repair cost estimate of $1,500 or less (Xcel Energy)	Ongoing	Ameren Missouri required temperature drop data for early retirement systems, along with a cold weather rule, effective March 1, 2018. The program will use results from PY18 contractor data, as well as EMV contractor verification surveys, to inform program rules for early retirement eligibility and data reporting requirements for PY19 and beyond. Program tracking data under the new reporting requirements resulted in a 84% reported percentage of replaced systems as early retirements.
Encourage additional contractor training and requirements for minimum service offerings and documentation for tune ups. Consider incentivizing training opportunities for contractors. Contractors often have difficulties finding time for training. Consider timing offers to accommodate various schedules. Additional training could be suggested through local community colleges, North American Technician Excellence (NATE), or the Building Performance Institute (BPI).	Complete	Ameren Missouri introduced additional training components in PY18, specifically targeting technical training for a wider audience of high-volume, participating contractors. These trainings were held on-site with contractors to accommodate their schedules. On-demand training options continued to be offered through the online learning center.
Ameren Missouri should explore incremental cost differences among various system replacement tiers to determine if incentives align with those costs. With the lower market share found in the higher-tier systems, Cadmus recommends Ameren Missouri explore whether a realignment of incentives may drive higher participation in these tiers while remaining cost-effective.	Completed	Ameren Missouri explored options to drive higher participation in higher-efficiency tier systems, targeting implementation for PY19. Starting March 1, 2019, rebate tiers have evolved to include higher-efficiency tiers for CACs and ASHPs, while simultaneously removing the lowest tier (14 SEER) CAC rebate.

Introduction

Ameren Missouri engaged Cadmus to perform annual process and impact evaluations of the Heating and Cooling program for a three-year period (2016 through 2018). This annual report covers impact and process evaluation findings for Program Year 2018 (PY18): the period from March 1, 2018, through February 28, 2019 – the final year of the three-year program cycle.

Program Description

Through the Heating and Cooling program and participating program contractors, Ameren Missouri offered incentives to customers living in single-family homes, condos, or townhomes for installing high-efficiency central air conditioners (CACs) or heat pumps (HPs). The program also offered incentives for installing electronically commutated fan motors (ECMs). As in PY17, the program offered an incentive for diagnostic testing and tuning of existing HVAC systems to manufacturer specifications (through the Tune Up plus Ameren Missouri Efficiency Analysis).

To participate in the program and to receive a rebate, a residential customer must have a qualifying measure installed or a tune up conducted by a participating contractor, who then submits all required paperwork to process the rebate. To become a participating contractor, an HVAC company representative must attend a program training session conducted by ICF International (ICF), the program implementer. Ameren Missouri and participating contractors market and promote the program to potential participants.

The Heating and Cooling program offers tiered incentives for installing efficient heating and cooling equipment that replaces electric-powered equipment or is installed in new construction (NC). Incentives vary by the equipment's efficiency level, by whether the customer replaces working or broken equipment, and by the type of equipment being replaced by an HP. Due to differences between baseline equipment types, the nature of baseline equipment, and the way new equipment types and efficiency levels interact, the program offers 38 different measures. Ameren Missouri also offers incentives for ECMs installed with new equipment or replacing existing fans. Table 7 shows measures addressed by the program.

Ameren Missouri requires that contractors observe a temperature drop (delta-t) across the coil or demonstrate the compressor is operational when weather falls below 65°C for an existing piece of equipment to qualify as working and be counted as an early retirement measure.

Table 7. PY18 Heating and Cooling Program Measures and Program Activity

Measure Category	Baseline Disposition	Baseline Equipment	Efficiency Level	Incentive	PY18 Participation
Air Source Heat Pump	Early Retirement	Elect Resistance Heat	SEER 16+	$900	478
	Replace at Fail	Elect Resistance Heat	SEER 16+	$900	60
	New Construction	N/A	SEER 16+	$650	122
	Early Retirement	ASHP	SEER 16+	$650	264
	Replace at Fail	ASHP	SEER 16+	$650	56
	Early Retirement	Elect Resistance Heat	SEER 15	$800	436
	Replace at Fail	Elect Resistance Heat	SEER 15	$800	98
	New Construction	N/A	SEER 15	$500	107
	Early Retirement	ASHP	SEER 15	$500	185
	Replace at Fail	ASHP	SEER 15	$500	121
Ductless Heat Pump	Early Retirement	ASHP	SEER 19+	$300	14
	Early Retirement	Elect Resistance Heat	SEER 19+	$500	51
	Replace at Fail	ASHP	SEER 19+	$300	1
	Replace at Fail	Elect Resist	SEER 19+	$500	268
Dual Fuel Heat Pump	Replacement	Non-Electric	SEER 15	$175	23
	Replacement	Non-Electric	SEER 16	$200	42
	Replacement	Non-Electric	SEER 17+	$200	23
	Replacement	Non-Electric	SEER 18+	$200	1
Ground Source Heat Pump	Early Retirement	ASHP	EER 14+	$2,000	40
	Early Retirement	Elect Resistance Heat	EER 14+	$2,000	47
	Replace at Fail	Elect Resistance Heat	EER 14+	$2,000	160
	Early Retirement	GSHP	EER 23+	$800	67
	Replace at Fail	GSHP	EER 23+	$800	29
Central Air Conditioner	Early Retirement	CAC	14 SEER	$300	4,442
	Replace at Fail	CAC	14 SEER	$300	911
	Early Retirement	CAC	15 SEER	$400	2,347
	Replace at Fail	CAC	15 SEER	$400	369
	Early Retirement	CAC	16 SEER	$500	6,683
	Replace at Fail	CAC	16 SEER	$500	607
Electronically Commutated Motor	Early Retirement	Continuous PSC* Fan	AHRI Rated	$50	849
	Early Retirement	Continuous PSC* Fan	non-AHRI Rated	$100	92
	Replace at Fail	Continuous PSC* Fan	AHRI Rated	$50	141
	Early Retirement	Continuous PSC* Fan	non-AHRI Rated	$100	5
	Early Retirement	Auto PSC* Fan	AHRI Rated	$50	9,856
	Early Retirement	Auto PSC* Fan	non-AHRI Rated	$100	791
	Replace at Fail	Auto PSC* Fan	AHRI Rated	$50	1,042
	Early Retirement	Auto PSC* Fan	non-AHRI Rated	$100	43
Tune Up	Existing System	CAC or ASHP	Tune Up	$75	867

*PSC = Permanent Split Capacitor Fan Motor

Program Activity

In PY18, the Heating and Cooling program delivered $9.2 million in rebates for products purchased by Ameren Missouri program participants, as shown in Table 8.

Table 8. PY18 Heating and Cooling Program Activity Summary

Measure	PY18 Rebate Totals
Air Source Heat Pump	$1,405,200
Central Air Conditioner*	$6,334,850
Ductless Heat Pump	$17,225
Electronically Commutated Motor	$687,500
Dual Fuel Heat Pump	$164,000
Ground Source Heat Pump	$570,800
Tune Up	$65,025
Total	**$9,244,600**

*11 CAC's were rebated under the PY17 rebate structure in early PY18

Evaluation Methodology

In evaluating Ameren Missouri's Heating and Cooling program, Cadmus identified the following objectives for PY18:

- Determine heating and cooling savings for heat pumps, ECMs, tune ups
- Determine cooling savings for CACs
- Evaluate baseline assumptions about equipment usage
- Determine measure-specific net-to-gross (NTG) estimates, including participant and nonparticipant spillover (NPSO)
- Measure customers' satisfaction with the program, along with customers' sources of awareness about the Program
- Assess program design implementation and improvement opportunities

Table 9 lists evaluation activities and briefly explains the purpose of each activity; descriptions of each activity follow the table.

Table 9. PY18 Process and Impact Evaluation Activities and Rationale

Evaluation Activity	Process	Impact	Rationale
Data Tracking Review and Engineering Analysis	✓	✓	Provide assurance that all necessary program data are tracked accurately and incorporated into savings estimates. Update gross kWh savings estimates.
Participant Surveys	✓	✓	Collect customer feedback about program processes, satisfaction, and information sources about the program. Confirm measure baseline equipment and equipment disposition. Evaluate program free ridership and spillover.
Nonparticipant Surveys		✓	Cadmus estimated NPSO using a cross-cutting general population survey.
Estimate NTG		✓	Cadmus estimated NTG to determine the portion of gross energy savings influenced by and attributable to the Heating and Cooling program, free of other influences.
Key Progress Indicators	✓		Update key progress indicators developed in PY16.
Cost-Effectiveness Analysis		✓	Measure the program's cost-effectiveness using five standard perspectives: total resource cost, utility cost, societal cost test, participant cost test, and ratepayer impact test.

Data Tracking Review and Engineering Analysis

Cadmus reviewed the program-tracking data recorded in the Vision database to determine accuracy and to identify variables necessary for impact calculations. Specifically, the team assessed data quality and completeness to determine whether ICF had gathered the data necessary for an accurate evaluation.

The continually updated Vision database contained the following information:

- Incentive amount
- Measure type
- Customer information
- New HVAC equipment information
- Existing (replaced) equipment information
- Installed system efficiency
- HVAC system type (AC or HP)
- HVAC system model number
- AHRI certificate number
- HVAC system size in tons
- Tune up activities conducted
- Tune up measurements
- Temperature measurements for early retirements

Cadmus updated the engineering analysis variables based on PY18 customer data.

Participant Surveys

Cadmus conducted two online surveys with participating customers. Customers were invited to participate in one of the online surveys via email if their contractors provided an email address in the tracking data. Surveys began to be administered in September 2018. The first survey was administered shortly after a customer installed a measure (the immediate survey, see Appendix E) and the second survey was administered six months after installation (the follow-up survey, see Appendix F):

- The immediate survey included questions about program satisfaction, program free ridership, baseline equipment types and dispositions, information sources about the program, and demographics.
- The follow-up survey included satisfaction and demographics questions from the immediate survey, as well as questions used determine program spillover.

Customers were surveyed only once, receiving an invitation to only one of the two surveys. When customers installed multiple measures, the team randomly selected measures that their surveys would address. Table 10 shows participant survey response rates, results are provide in Appendix H and Appendix I.

Table 10. Participant Survey Response Rates

Survey Type	Measure	Number of Invitations	Number of Responses	Response Rates
Immediate Email Survey	All	1,481	458	31%
	Central Air Conditioner	1,210	387	32%
	Air-Source Heat Pump	90	40	44%
	Tune up	29	9	31%
	Dual-Fuel Heat Pump	9	2	22%
	Ductless Heat Pump	16	2	13%
	Ground-Source Heat Pump	35	12	34%
	Furnace Fan	92	6	7%
Follow-up Email Survey	All	3,614	844	23%
	Central Air Conditioner	3,079	727	24%
	Air-Source Heat Pump	172	53	31%
	Tune up	222	41	18%
	Dual-Fuel Heat Pump	13	5	38%
	Ductless Heat Pump	25	9	36%
	Ground-Source Heat Pump	36	7	19%
	Furnace Fan	67	2	3%

Nonparticipant Surveys

In PY18, Cadmus conducted 2,323 online and 57 phone surveys with Ameren Missouri customers who did not participate in any Ameren Missouri energy efficiency programs in PY17 or PY18. Cadmus conducted the surveys to calculate NPSO. The evaluation team drew a random sample of 60,000 Ameren Missouri customers, fielding the survey until reaching a quota of at least 2,250 nonparticipant customers. The team asked respondents if they adopted energy-efficiency measures and about the influence of Ameren Missouri's marketing campaign on their decisions to adopt the measures. The survey instrument is provided in Appendix G.

Estimate NTG

Cadmus estimated participant free ridership and spillover ratios using participant surveys completed during PY18. At the request of the independent auditor, Cadmus used a new questionnaire and scoring approach to determine free ridership in PY18. The free ridership methodology used for PY18 followed the 2019 Illinois Statewide Technical Reference Manual[2] (IL TRM) for NTG evaluation of a residential prescriptive rebate program. The free ridership methodology produces a No-Program (NP) score and a Program Influence (PI) score, both ranging from 0 to 10. The final free ridership score for a participant is

[2] 2019 Illinois Statewide Technical Reference Manual for Energy Efficiency. Version 7.0. Volume 4: Cross-Cutting Measures and Attachments. Section 4.4. http://ilsagfiles.org/SAG_files/Technical_Reference_Manual/Version_7/Final_9-28-18/IL-TRM_Effective_010119_v7.0_Vol_4_X-Cutting_Measures_and_Attach_092818_Final.pdf

the arithmetic mean of the NP and PI scores. A flow chart demonstrating the Illinois NTG process is presented in Appendix J.

Stakeholder Interviews

In December 2018, Cadmus interviewed Heating and Cooling program stakeholders. The team designed the interview guide to achieve the following:

- Understand program successes and challenges
- Gain insights into program marketing processes
- Identify key quality assurance processes utilized by the program
- Understand any program updates since 2017

Cadmus spoke with two stakeholders at Ameren Missouri and ICF, as shown in Table 11. Appendix D provides the stakeholder interview guide.

Table 11. PY18 Completed Stakeholder Interviews

Stakeholder Group	Interviews Conducted
Ameren Missouri Program Management	1
ICF Program Management	1
Total	**2**

In addition, Cadmus conducted an interview with the Ameren Missouri Marketing Manager, addressing marketing strategies and messaging for all programs, including Heating and Cooling.

Throughout PY18, the team regularly spoke with Ameren Missouri program staff to discuss program operations and to coordinate evaluation activities.

Key Progress Indicators

Cadmus tracks the following key progress indicators for the Heating and Cooling program across the three-year program cycle:

- Program year electric savings
- Number of contractors registered
- Customer satisfaction with the Heating and Cooling program and with Ameren Missouri

Cost-Effectiveness Analysis

Using the final PY18 Heating and Cooling program participation and implementation data as well as *ex post* gross and net savings estimates presented in this report, the Cadmus team determined the program's cost-effectiveness using DSMore (a financial analysis tool designed to evaluate the costs, benefits, and risks of demand-side management [DSM] programs and services). As shown in the Cost-

Effectiveness section, the Cadmus team assessed cost-effectiveness using all five of the standard perspectives produced by DSMore:

- Total Resource Cost
- Utility Cost Test
- Societal Cost Test
- Participant Cost Test
- Ratepayer Impact Test

Process Evaluation Findings

This section presents Cadmus' process evaluation findings for Ameren Missouri's Heating and Cooling program. The report organizes the findings in four sections:

- Program Design
- Program Delivery
- Participant Experience
- Contractor Experience

As the program has achieved high participant satisfaction levels in the past and program changes have been minimal, Cadmus conducted a limited process evaluation for PY18.

Program Design

The Heating and Cooling program seeks to achieve energy and demand savings by encouraging residential customers to purchase efficient CACs, HPs, and ECMs, and to improve the operation of their existing equipment. The program targets residential customers in Ameren Missouri's service territory with CACs, HPs (e.g., GSHPs, DFHPs, and ASHPs—including ductless), or electric furnaces, incentivizing customers to replace existing or broken equipment with efficient units. The program also provides residential customers with incentives to install efficient equipment in NC and to conduct AC or HP tune ups.

Ameren Missouri's Heating and Cooling program is designed to reduce administrative burdens for residential customers by requiring that participating contractors, on the customers' behalf, submit all required paperwork for rebates. Participants receive rebates directly from Ameren Missouri after equipment installation, or they may opt to receive the rebate from the contractor at the time of sale in the form of a credit.

From PY16 through PY18, Ameren Missouri contracted with ICF to implement the program. ICF recruited and trained contractors and maintained a website for receiving online applications, conducting quality control checks, and processing rebates. Table 12 illustrates Ameren Missouri's rebate expenditures for the Heating and Cooling program's measures.

Table 12. Rebated Measures

Qualifying Products	Total Rebate Amount (Thousands) Paid
Air Source Heat Pump	$1,405
Central Air Conditioner	$6,335
Ductless Heat Pump	$17
Electronically Commutated Motor	$688
Dual Fuel Heat Pump	$164
Ground Source Heat Pump	$571
Tune Up	$65
Total	**$9,245**

Program Delivery

This section presents information shared by program stakeholders during interviews with the evaluation team regarding program management, program changes, quality assurance processes, and successes and challenges. The section also reviews the tracking data.

PY18 Program Changes

The program's design did not change significantly; measure configurations, rebate levels, contractor engagement and communication mechanisms, and marketing strategies largely stayed the same. The program did adjust CAC rebates, raising the offered amounts for replace-at fail-measures to the same levels as CAC early retirement rebates. In addition, the program introduced requirements for classifying equipment as early retirement. Under most conditions, contractors were required to report the inlet and outlet temperature of the CAC and provide reasoning for classifying the system as early retirement. Under the "cold weather rule," which applies when the temperature falls below 65°C, contractors were required to verify that equipment was functioning. Contractors were required to report the results of these tests to demonstrate whether systems had failed or were repairable.

Contractor Engagement

Contractors serve as a critical element in delivering the Heating and Cooling program. Contractors install energy-efficient equipment, complete and submit customer rebate applications, and market the program. In PY16, 398 unique contractors installed program measures, increasing to 404 in PY17, and finally 448 in PY18. Continuing with prior trends, higher-volume contractors continued to install most program measures, with 8% of contractors (7% in PY17) having installed 60% of all measures.[3] In PY18, 39% (43% in PY16 and 39% in PY17) of program contractors installed 10 or less measures, collectively installing 2% of the total program measures.

Training

As in PY16 and PY17, the Heating and Cooling program required two types of mandatory training for participating contractors: an initial enrollment training session; and an annual refresher training at the beginning of each program year. In PY18, the program leveraged this annual training to provide contractors with updates about system classification data requirements and the "cold weather rule." In addition to annual mandatory training, the program offered additional, individual training to contractors that requested additional assistance, as well as ride-alongs.

Communication

As in PY16 and PY17, the Heating and Cooling program remained actively engaged with contractors through multiple mechanisms:

- Contractor advisory group
- Dedicated program account managers

[3] In PY16, 5% of contractors installed 50% of all measures.

- Regular email communications and newsletters
- Notices about program activity posted on an online contractor portal

Quality Assurance Processes

ICF continued to conduct quality assurance through PY18, by reviewing applications, surveying customers after equipment installations and tune ups, and conducting post-installation site visits at customers' residences. Specific quality assurance process elements included the following:

- Reviewing applications submitted by contractors.
- Sending post-installation surveys to customers via email during the winter, with customers verifying that contractors installed the equipment recorded, the home's heating source, and any equipment removed. With the completed surveys, ICF asked customers to send photographs of the installed equipment's model and serial numbers.
- Conducting site visits at 200 customer homes to verify equipment installations and to test system performance in comparison to manufacturers' specifications.

Delivery Successes and Program Achievements

Stakeholders reported that two elements worked particularly well in PY18: increasing program participation and continuing to grow the contractor network. The program implementer also noted that the program continued to receive high customer satisfaction scores in the post-installation surveys.

Program Implementation Challenges and Potential Changes

Stakeholders noted that introducing additional training for and monitoring the correct classification of failed or early retirement systems posed a challenge by introducing new program elements in PY18, though they noted that they addressed these challenges successfully. Another challenge arose in controlling the program's growth, ensuring it did not exceed its budget. Stakeholders reported that they were able to successfully address both challenges.

Marketing and Outreach

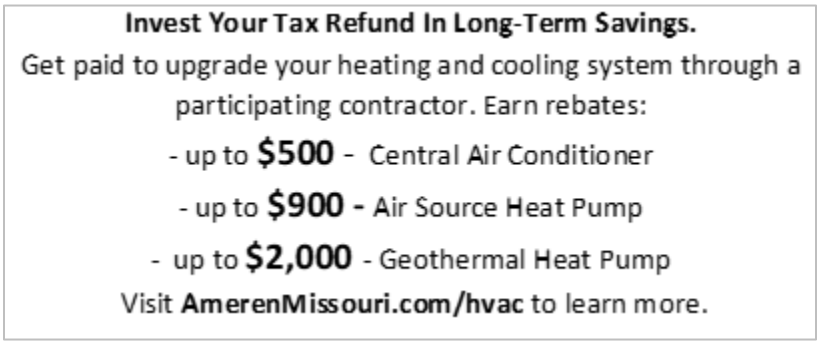
As in PY16 and PY17, Ameren Missouri provided materials and co-branding opportunities to help participating contractors market the program during PY18 and advertised the rebates by direct-mail, radio and television ads, digital advertisements, and and messaging on billing statments.

Messaging

Ameren Missouri developed a series of advertisements for social media and other platforms that included program-specific messages and more general conservation messages. All advertisements were designed to drive traffic to the website. Ameren Missouri issued the program-specific messaging earlier in the year and during critical seasons, depending the program. As the programs approached their participation goals, Ameren Missouri switched to more general conservation messaging. This approach was designed to maintain the importance of efficiency behaviors, without overwhelming the program budgets.

Figure 2. shows seasonal messaging specific to the Heating and Cooling program, targeted to homeowners receiving their tax refunds and potentially poised to make major purchases. The messages accompanied monthly billing statements. Figure 3. shows an ad posted to Facebook and Twitter in October 2018, timed to coincide with changing weather.

Figure 2. Example of Seasonal Messaging for Heating and Cooling



Source: Ameren Missouri

Figure 3. Example of Seasonal Heating and Cooling Advertisement

Source: Ameren Missouri

Participant Experience

Cadmus asked program participants about their satisfaction with the Heating and Cooling program and with Ameren Missouri as their utility. Additionally, Cadmus asked participants about their reasons for selecting their equipment and how they learned about the Heating and Cooling program.

Overall Satisfaction

Cadmus asked participants about their satisfaction levels with the Heating and Cooling program overall. Similarly, to PY16 and PY17, participants expressed very high satisfaction levels with the program. Unlike PY16 and PY17, however, PY18 satisfaction with the program fell over time—from immediately after installation to approximately six months after installation (i.e., between the Immediate Participant Survey and the Follow-up Participant Survey). In PY18, a smaller proportion of respondents (82%) indicated they were very satisfied six months after the program in comparison to immediately after their participation (87%). Overall, less than 1% indicated dissatisfaction with the program ("not too satisfied" or "not at all satisfied") in the immediate or follow-up surveys.

Satisfaction with Ameren Missouri

Cadmus asked participants about their satisfaction levels with Ameren Missouri as their utility. As in PY16 and PY17, participants expressed high satisfaction levels, although their satisfaction with Ameren Missouri was lower than their satisfaction with the Heating and Cooling program: 73% of respondents were "very satisfied" with Ameren Missouri as a utility; and 25% of participants were "somewhat satisfied." Only 1% of respondents were "not too satisfied" (n=1,196).[4] Comparatively, overall satisfaction with Heating and Cooling program was as follows: 88% of respondents were "very satisfied" and 12% of participants were "somewhat satisfied." Only 0.3% of respondents were "not too satisfied" (n=1,234).

Sources of Participant Program Awareness

Cadmus asked program participants how they learned of the Heating and Cooling program. As in PY16 and PY17, most participants learned of the program through their contractors or a store (59% in 2018, n=393). As in previous years, PY18 participants who learned about the program from Ameren Missouri, most frequently cited the following sources (n=393):

- Ameren Missouri's website (10.2%)
- Mailings (7%)
- Bill statements (7%)
- Ameren Missouri Home Energy Reports (4.9%)

A small number of program participants learned of the Heating and Cooling program from television (2.4%) or newspaper advertisements (0.9%).

As in PY16 and PY17, most customers initially contacted contractors to resolve maintenance issues with existing heating and cooling equipment. For example, in PY18, participants initially contacted their contractors for the following reasons about their central air conditioners (n=371):

- The system had problems (21.5%)

[4] In PY17, 75% of survey respondents were "very satisfied" with Ameren Missouri; 26% of respondents were "somewhat satisfied"; and 1% were "not too satisfied."

- The system stopped working (17.1%)
- To keep the system running efficiently (7.7%)

In addition to contacting contractors to resolve maintenance issues, participants contacted contractors about their air conditioners for other reasons:

- To save energy/lower utility bills (24%)
- To take advantage of the rebate (5.2%)

As in previous years, survey data indicated that contractors served as the primary means for participants to learn about the program, frequently after experiencing maintenance issues. As in the past, however, marketing efforts served as an important driver to encourage customers to purchase efficient equipment.

Participant Demographics

Cadmus asked participants to provide information about their household characteristics. Per the survey results, over 99% of participants owned the home in which their measure was installed, and 79% had a gas water heater.

Cadmus also asked participants about the kind of energy service they received at their homes. Respondents reported 83% of homes had natural gas and electric service; 13% of homes had only electric service; and 4% of homes had another combination of energy sources.

Cadmus asked participants about the size of their homes. As shown in Table 13, most participants had homes between 1,500 and 2,000 square feet in size.

Table 13. Respondents' Homes Living Space

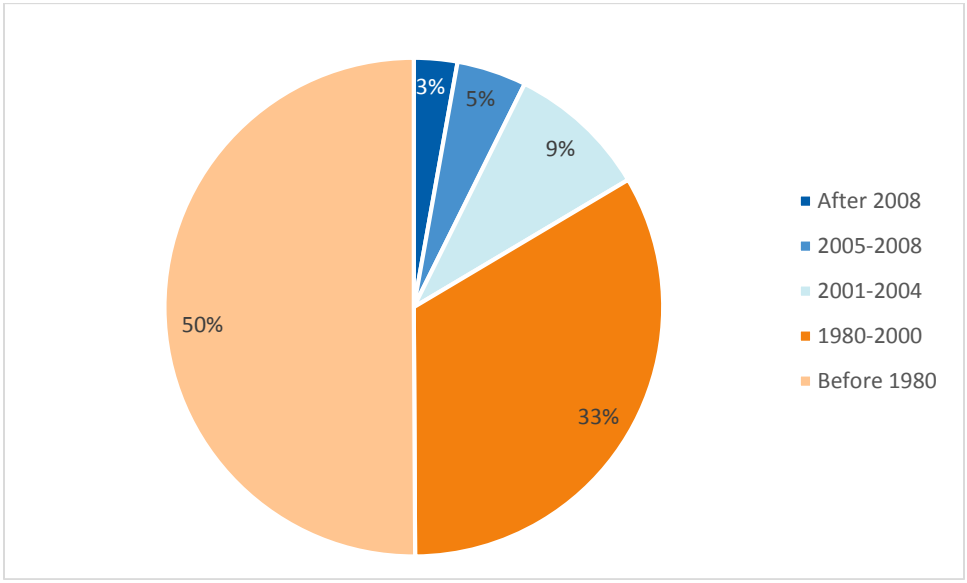
Response	Percentage of Respondents*	Count of Response
Less than 1,000 square feet	7%	78
1,000 to less than 1,500 square feet	20%	236
1,500 to less than 2,000 square feet	25%	288
2,000 to less than 2,500 square feet	22%	253
2,500 to less than 3,000 square feet	12%	135
3,000 or more square feet	15%	178

Immediate Participant Survey: D4. "Approximately how many square feet of living space does your home have? Don't include the basement unless it is a space that you consider "lived in."?" n=393 and Follow-up Participant Survey: C4. "Approximately how many square feet of living space does your home have? Don't include the basement unless it is a space that you consider "lived in."?" n=775 (Total n=1,168)

*Percentages add up to more than 100% because of rounding.

The team asked participants about their home's age. As shown in Figure 4. (and as in previous years), most participants (50%) lived in homes constructed before 1980. Only 3% of participants lived in homes constructed after 2008.

Figure 4. Age of Participants' Homes



Immediate Participant Survey: K6. "When was your home built?" n=393 and Follow-up Participant Survey: J6 "When was your home built?" n=779 (Total n=1,172)

Gross Impact Evaluation Results

This section details Cadmus' determination of each measure's installation rate and calculations of per-unit savings for Ameren Missouri's Heating and Cooling program.

Data Tracking Review

Cadmus examined the program tracking database to identify missing measure data possible duplicate measures. Of 31,000 measures tracked in the program, Cadmus found missing or erroneous inputs recorded for a single CAC measure—a significant improvement over PY17 where 121 measures were missing needed information. Cadmus substituted the missing value with the average input in the measure category.

In PY18, program participation increased for nearly all measures. Most notably, 281 GSHPs were rebated in PY18 compared with 158 in PY17, representing a 78% increase in participation. Also 295 ductless heat pumps were rebated in PY18 compared with 238 in PY17, a 24% increase. DFHP rebates also increased 78% over PY17, though this was not a popular measure, with only 78 rebated in PY18. Tune up rebates declined in PY18 by 37% with only 1,859 rebates.

Early Retirement Verification

The Heating and Cooling program requires that contractors record the disposition of replaced heating and cooling systems as an early retirement, a replace-at-burnout, or a new system. Early retirement systems are considered operational if they produce a delta-T or temperature drop across the cooling coil before removal from the home and replacement. If contactors cannot operate the systems due to cold weather, they demonstrate the system's operability by confirming that it has an operational compressor.

Cadmus analyzed the contractor measurements and found, of 12,857 early retirement CACs, 46 had not recorded temperature drop measurements; additionally, 50 systems recorded a temperature drop of zero. Cadmus adjusted the percentage of early retirement CACs rebates from 88% to 87%. Of 1,784 early retirement ASHPs, 11 had not recorded temperature drop measurements, and 17 reported a temperature drop of zero. Cadmus adjusted the percentage of early retirement ASHPs from 72% to 71%.

Table 14 shows measure verification rates. The total number of measures did not change due to the verification rate adjustment. Instead, some early retirement customers were reclassified to replace-on-fail due to the tracking data review. Cadmus rounded the verification rates.

Table 14. Measure Verification

Measure	Verification Rate
Air-Source Heat Pump	
ASHP ER with ASHP 16+ ER	96%
ASHP Replace at Fail with ASHP 16+	116%
ASHP SEER 15 ER Elec Resist Furnace ER	99%
ASHP SEER 15 Replace at Fail Elect Resist Furnace	105%

Measure	Verification Rate
ASHP SEER 15 Replace at Fail Elect Resist Furnace (NC)	100%
ASHP ER with ASHP SEER 15 ER	97%
ASHP Replace at Fail with ASHP SEER 15	105%
ASHP SEER 16+ ER Elec Resist Furnace ER	98%
ASHP SEER 16+ Replace at Fail Elec Resist Furnace	113%
ASHP SEER 16+ Replace at Fail Elec Resist Furnace (NC)	100%
Ductless Air-Source Heat Pump	
Ductless ASHP ER	100%
Ductless ASHP Replace Electric Resistance ER	100%
Ductless ASHP ROF	100%
Ductless ASHP Replace Electric Resistance ROF	100%
Dual Fuel Heat Pump	
DFHP SEER 15_SF	100%
DFHP SEER 16_SF	100%
DFHP SEER 17+_SF	100%
DFHP SEER 18+_SF	100%
Ground Source Heat Pump	
GSHP SEER 14+ ER ASHP with GSHP ER	100%
GSHP SEER 14+ ER Elec Resist Furnace ER	100%
GSHP SEER 14+ Replace Elec Resist Furnace	100%
GSHP - 23 EER ER	100%
GSHP - 23 EER Replace at Fail	100%
Central Air Conditioner	
CAC SEER 14 ER	99%
CAC SEER 14 Replace at Fail	105%
CAC SEER 15 ER	99%
CAC SEER 15 Replace at Fail	104%
CAC SEER 16+ ER	99%
CAC SEER 16+ Replace at Fail	106%
Electronically Commutated Motor (ECM)	
Concept 3 Installations Continuous Fan ER_50	100%
Concept 3 Installations Continuous Fan ER_100	100%
Concept 3 Continuous Fan Replace at Fail_50	100%
Concept 3 Continuous Fan Replace at Fail_100	100%
Concept 3 Installations Auto Fan ER_50	100%
Concept 3 Installations Auto Fan ER_100	100%
Concept 3 Installations Auto Fan Replace at Fail_50	100%
Concept 3 Installations Auto Fan Replace at Fail_100	100%
Tune Ups	
HVAC Maintenance and Tune Up SF	100%
Indoor Coil Cleaning	100%
Outdoor Coil Cleaning	100%
RCA 10% improvement SF	100%

Measure-Specific Gross Savings

This section outlines the methodology and results for Cadmus' evaluated, per-unit savings for the following energy efficiency measures rebated through PY18:

- ASHPs
- CACs
- ECMs
- DFHPs
- Ductless HPs
- GSHPs
- Tune Ups

The 2018 Ameren Missouri Technical Reference Manual (TRM) identifies separate *ex ante* savings values for HP and CAC measures for replace-on-burnout or early retirement. The HP measures identify savings estimates for different baseline scenarios, specific to the measure replacing another HP or an electric resistance furnace. ECM fan measure TRM values are categorized as operating continuously or automatically.

Estimated Savings Results

Cadmus calculated energy savings for each measure type offered through the Heating and Cooling program. This included calculating gross energy savings for each measure using the equations and inputs outlined in this section and the parameters of each installed measure available in the program tracking database. The team calculated measure savings for program measures individually, resulting in slight variances between average measure savings and average measure characteristics; the summary below shows the resulting aggregate-level parameters.

Table 15. Program Average Size and Efficiency of HVAC systems

Measure	Average Tonnage Installed	Average SEER Installed	Average HSPF Installed	Average EER Installed	Average COP Installed
Air-Source Heat Pump					
ASHP ER with ASHP 16+ ER	3.2	16.8	9.3	N/A	N/A
ASHP Replace at Fail with ASHP 16+	3.3	17.0	9.5	N/A	N/A
ASHP SEER 15 ER Elec Resist Furnace ER	2.9	15.1	8.7	N/A	N/A
ASHP SEER 15 Replace at Fail Elect Resist Furnace	2.9	15.1	8.7	N/A	N/A
ASHP SEER 15 Replace at Fail Elect Resist Furnace (NC)	3.0	15.1	8.6	N/A	N/A
ASHP ER with ASHP SEER 15 ER	2.9	15.1	8.8	N/A	N/A
ASHP Replace at Fail with ASHP SEER 15	2.9	15.2	8.7	N/A	N/A
ASHP SEER 16+ ER Elec Resist Furnace ER	3.2	16.8	9.4	N/A	N/A
ASHP SEER 16+ Replace at Fail Elec Resist Furnace	3.1	16.9	9.4	N/A	N/A
ASHP SEER 16+ Replace at Fail Elec Resist Furnace (NC)	3.4	17.2	9.6	N/A	N/A
Ductless Air-Source Heat Pump					
Ductless ASHP ER	1.5	27.4	12.6	N/A	N/A
Ductless ASHP Replace Electric Resistance ER	1.5	22.6	11.4	N/A	N/A
Ductless ASHP ROF	1.5	19.0	10.6	N/A	N/A
Ductless ASHP Replace Electric Resistance ROF	1.6	22.8	11.4	N/A	N/A
Dual Fuel Heat Pump					
DFHP SEER 15_SF	3.4	15.3	8.6	N/A	N/A
DFHP SEER 16_SF	3.5	16.2	9.0	N/A	N/A
DFHP SEER 17+_SF	3.6	18.5	9.9	N/A	N/A
DFHP SEER 18+_SF	3.0	18.8	9.5	N/A	N/A
Ground Source Heat Pump					
GSHP SEER 14+ ER ASHP with GSHP ER	4.3	N/A	N/A	28.02	4.44
GSHP SEER 14+ ER Elec Resist Furnace ER	3.9	N/A	N/A	28.05	4.44
GSHP SEER 14+ Replace Elec Resist Furnace	4.0	N/A	N/A	27.96	4.43
GSHP - 23 EER ER	4.2	N/A	N/A	28.02	4.44
GSHP - 23 EER Replace at Fail	3.9	N/A	N/A	28.03	4.44
Central Air Conditioner					
CAC SEER 14 ER	3.0	14.1	N/A	N/A	N/A
CAC SEER 14 Replace at Fail	3.0	14.1	N/A	N/A	N/A
CAC SEER 15 ER	3.3	15.2	N/A	N/A	N/A
CAC SEER 15 Replace at Fail	3.3	15.1	N/A	N/A	N/A
CAC SEER 16+ ER	3.1	16.4	N/A	N/A	N/A
CAC SEER 16+ Replace at Fail	2.9	16.5	N/A	N/A	N/A

Measure-Specific Per-Unit Savings

Cadmus reviewed the 2018 TRM's deemed, per-unit savings for all program measures. By comparing these assumptions to the latest data available from the tracking database and from PY13–PY16 metering, the team developed per-unit savings values. The following sections outline each measure's estimated per-unit savings, along with the algorithms and inputs used.

Air Source Heat Pumps

The team estimated ASHP per-unit savings using the following algorithm:

$$\Delta kWh_{ASHP} = Installed\ Tons \times \left(\frac{Metered\ kWh\ Savings\ Cooling \times Installed\ SEER}{Metered\ SEER\ Cooling\ \times Metered\ Tons\ Cooling} + 12 \times Heating\ EFLH \times \left(\frac{1}{Baseline\ HSPF} - \frac{1}{Installed\ HSPF} \right) \right)$$

Where:

Installed Tons	=	Output capacity of installed ASHP (tons)
Metered kWh Savings Cooling	=	Average cooling savings from PY13 metering (kWh)
Installed SEER	=	SEER rating of the installed ASHP (Btu/Wh)
Metered SEER Cooling	=	SEER rating of the PY13 metered cooling systems (Btu/Wh)
Metered Tons Cooling	=	Output capacity of the PY13 metered cooling systems (tons)
12	=	Conversion constant from tons to kBtu/hr
Heating EFLH	=	Equivalent full-load heating hours
Baseline HSPF	=	HSPF value of the baseline system
Installed HSPF	=	HSPF value of the installed system

Table 16 presents the values for variables that Cadmus used to estimate ASHP savings in PY18.

Table 16. ASHP PY18 Savings Variables

Parameter	Ameren Missouri Catalog Name	Value	Source
Metered kWh Savings Cooling	ASHP Early Retirement with ASHP 16+	1,740	PY13 metering study* updated to 8.33 SEER calculated baseline
	ASHP Early Retirement with ASHP SEER 15ER	1,740	PY13 metering study* updated to 8.33 SEER calculated baseline
	ASHP Replace at Fail with ASHP 16+	334	PY13 metering study* updated with new federal standard
	ASHP Replace at Fail with ASHP SEER 15	334	PY13 metering study* updated with new federal standard
	ASHP SEER 15 Early Retirement Electric Resistance Furnace	1,740	PY13 metering study* updated to 8.33 SEER calculated baseline
	ASHP SEER 15 Replace at Fail Electric Resistance Furnace	334	PY13 metering study* updated with new federal standard
	ASHP SEER 15 Replace at Fail Electric Resistance Furnace (New Construction)	334	PY13 metering study* updated with new federal standard
	ASHP SEER 16+ Early Retirement Electric Resistance Furnace	1,740	PY13 metering study* updated to 8.33 SEER calculated baseline
	ASHP SEER 16+ Replace at Fail Electric Resistance Furnace	334	PY13 metering study* updated with new federal standard
Metered SEER Cooling	All ASHP	15.2	PY13 metering study*
Metered Tons Cooling	All ASHP	3.1	PY13 metering study*
Heating EFLH	All ASHP	1,496	2016 -2017 AMR Data & HP Metering
Baseline HSPF	ASHP Early Retirement with ASHP 16+	6.58	Estimated based on early retirement SEER. Cadmus data: HSPF = 0.2675 x SEER + 4.3475
	ASHP Early Retirement with ASHP SEER 15	6.58	Estimated based on early retirement SEER. Cadmus data: HSPF = 0.2675 x SEER + 4.3475
	ASHP Replace at Fail with ASHP 16+	8.2	Federal standard
	ASHP Replace at Fail with ASHP SEER 15	8.2	Federal standard
	ASHP SEER 15 Early Retirement Electric Resistance Furnace	3.41	Electric resistance heating efficiency (COP = 1)
	ASHP SEER 15 Replace at Fail Electric Resistance Furnace	3.41	Electric resistance heating efficiency (COP = 1)
	ASHP SEER 15 Replace at Fail Electric Resistance Furnace (New Construction)	8.2	Federal standard
	ASHP SEER 16+ Early Retirement Electric Resistance Furnace	3.41	Electric resistance heating efficiency (COP = 1)
	ASHP SEER 16+ Replace at Fail Electric Resistance Furnace	3.41	Electric resistance heating efficiency (COP = 1)

*The Cadmus Group and Nexant. *Ameren Missouri CoolSavers Impact and Process Evaluation: Program Year 2013*. pp. 40. May 15, 2014. Available online: https://www.efis.psc.mo.gov/mpsc/commoncomponents/viewdocument.asp?DocId=935842419

Central Air Conditioners

Cadmus estimated CAC per-unit savings using the following algorithm:

$$\Delta kWh_{CAC} = \frac{Metered\ kWh\ Savings\ Cooling * Installed\ Tons * Installed\ SEER}{Metered\ SEER\ Cooling\ \times Metered\ Tons\ Cooling}$$

Where:

Metered kWh Savings Cooling	=	Average cooling savings from metering (kWh)
Installed tons	=	Output capacity of installed CAC (tons)
Installed SEER	=	SEER rating of the installed CAC (Btu/Wh)
Metered SEER Cooling	=	SEER rating of the metered cooling systems (Btu/Wh)
Metered Tons Cooling	=	Output capacity of the metered cooling systems (tons)

Table 17 shows the variable values that the team used to estimate CAC savings in PY18.

Table 17. CAC PY18 Savings Variables

Parameter	Ameren Missouri Catalog Name	PY18 Value	Source
Metered kWh Savings Cooling	CAC SEER 14 Early Retirement	1,740	PY13 metering study* Updated to 8.33 SEER Baseline
	CAC SEER 14 Replace at Fail	360	PY13 metering study*
	CAC SEER 15 Early Retirement	1,740	PY13 metering study* updated to 8.33 SEER Baseline
	CAC SEER 15 Replace at Fail	360	PY13 metering study*
	CAC SEER 16+ Early Retirement	1,740	PY13 metering study* updated to 8.33 SEER Baseline
	CAC SEER 16+ Replace at Fail	360	PY13 metering study*
Metered SEER Cooling	All CACs	15.20	PY13 metering study*
Metered Tons Cooling	All CACs	3.10	PY13 metering study*

*The Cadmus Group and Nexant. *Ameren Missouri CoolSavers Impact and Process Evaluation: Program Year 2013*. pp. 40. May 15, 2014. Available online: https://www.efis.psc.mo.gov/mpsc/commoncomponents/viewdocument.asp?DocId=935842419

Electronically Commutated Motors

In PY18, Cadmus conducted 292 surveys of customers who received rebates for ECM-equipped furnaces to examine customers' fan operations. Contractors recorded the furnace fan's mode, set during installation. In the surveys, Cadmus asked if customers operated their furnace fans in automatic mode or continuous mode to circulate air. We compared before and after operations and found that many customers operating in automatic mode before the upgrade changed to continuous mode after the upgrade, which reduced savings. Customers operating in continuous mode both before and after the upgrade save more energy than those operating in automatic mode. Customers were asked to estimate the number of hours per day that they typically operated their furnace fans in each mode, both before and after installation of their new furnace.

Cadmus found that approximately 18% (N=52) of customers typically operated their fan in continuous mode, independently of the mode set by contractors. Further, 31 of 52 customers categorized as continuous mode by contractors operated their fans in the same manner before and after installing the new furnace; however 21 of 52 customers reported changing the way they used their fan after ECM installation increasing the number of hours that they operated their fans. Customer report using continuous mode approximately 70% of the year. This is lower than the 100% of the year assumed in planning.

Cadmus used a Wisconsin study[5] to estimate savings from ECM fans, installed through the Heating and Cooling program. ECM fans saved energy, depending on the mode in which they operated: heating, cooling, or in circulation mode. Cadmus estimated ECM fan per-unit savings using the following algorithms:

$$Total\ ECM\ Savings\ kWh = Heating\ Savings + Cooling\ Savings + Circulation\ Mode\ Savings - Increased\ Fan\ Energy\ Usage - Standby\ Usage$$

$$Heating\ Savings\ kWh = Wisconsin\ Heating\ Savings \frac{kWh}{year} \times \left(\frac{ENERGY\ STAR\ Heaing\ EFLH\ Missouri}{ENERGY\ STAR\ Heating\ EFLH\ Wisconsin}\right)$$

$$Cooling\ Savings\ kWh = (1 - \%\ Installed\ with\ new\ AHRI\ Central\ Cooling) * Wisconsin\ Cooling\ Savings \frac{kWh}{year} \times \left(\frac{ENERGY\ STAR\ Cooling\ EFLH\ Missouri}{ENERGY\ STAR\ Cooling\ EFLH\ Wisconsin}\right)$$

$$Circualtion\ Mode\ Savings\ kWh = Circulation\ Hours\ of\ Use \times \frac{Baseline\ Wattage\ PSC\ - Efficient\ Wattage\ ECM}{1000\ ^{W}/_{kW}}$$

$$Increased\ Fan\ Energy\ Usage\ kWh = Hours\ of\ Difference\ Circulation\ Mode \times \frac{Efficient\ Wattage\ ECM}{1000\ ^{W}/_{kW}}$$

Where:

Wisconsin Cooling Savings kWh/year = ECM fan savings during the cooling season in Wisconsin (kWh/year)

[5] Energy Center of Wisconsin. *Electricity Use by New Furnaces, A Wisconsin Field Study.* pp. 41. October 2003. Available online: http://www.proctoreng.com/dnld/WIDOE2013.pdf

Cooling Savings All Systems	=	Cooling savings for the fan motor interaction on the cooling compressor (kWh/year)
ES MO Cooling EFLH	=	ENERGY STAR Equivalent full-load cooling hours in Missouri
ES WI Cooling EFLH	=	ENERGY STAR Equivalent full-load cooling hours in Wisconsin
Wisconsin Heating Savings kWh/year	=	ECM fan savings during heating season in Wisconsin (kWh/year)
ES MO Heating EFLH	=	ENERGY STAR Equivalent full load heating hours in Missouri
ES WI Heating EFLH	=	ENERGY STAR Equivalent full load heating hours in Wisconsin
Wisconsin Circulation Savings kWh/year	=	ECM fan savings while the fan operates in circulation mode
Standby losses	=	Standby losses from ECM controls (kWh/year)
Hours of Circulation Mode	=	Hours of annual circulation mode usage

Table 18. ECM Fans PY18 Savings Variables

Parameter	PY18 Value	Source
Wisconsin Cooling Savings kWh/year	70	Secondary source;* however, Cadmus re-weighted the source data to more accurately reflect the actual number of fans operated in continuous mode, based on PY13 meter data.
Cooling Savings All Systems	25	Additional cooling interaction's savings from the ECM fan during the cooling season.*
ES WI Cooling EFLH	542.5	EPA 2002/ENERGY STAR Calculator.**
Wisconsin Heating Savings kWh/year	400	Secondary source.*
ES WI Heating EFLH	2,545	EPA 2002/ENERGY STAR Calculator.**
Wisconsin Circulation Savings kWh/year	2,960	Secondary source;* however, Cadmus weighted this value to more accurately reflect the actual number of fans operating in continuous mode, based on PY13 meter data.
Standby losses	30	Secondary source;* however, Cadmus weighted this values to more accurately reflect the actual number of fans operating in continuous mode, based on PY13 meter data.
ES MO Heating EFLH	2,009	EPA 2002/ENERGY STAR Calculator.**
ES MO Cooling EFLH	1,215	EPA 2002/ENERGY STAR Calculator.**
Baseline wattage PSC	500	Secondary source.*
Efficient wattage ECM	100	Secondary source.*
Hours of Circulation Mode (no change customers)	3,748	PY18 Survey Data
Hours of Circulation Mode (change customers)	3,210	PY18 Survey Data
Hours of difference Circulation mode	1,960	PY18 Survey Data

*Energy Center of Wisconsin. *Electricity Use by New Furnaces, A Wisconsin Field Study.* Pp. 41. October 2003. Available online: http://www.proctoreng.com/dnld/WIDOE2013.pdf

**U.S. Environmental Protection Agency and U.S. Department of Energy. "Life Cycle Cost Estimate for 20 ENERGY STAR Qualified Air Source Heat Pump(s)." Excel file. Last updated April 2009. Available online: https://essearch.energystar.gov/search?utf8=%E2%9C%93&sc=0&query=ashp%20sav%20calc&m=&affiliate=www.energystar.gov&commit=Search

***The Cadmus Group and Nexant. *Ameren Missouri CoolSavers Impact and Process Evaluation: Program Year 2013*. Pp. 40. May 15, 2014. Available online: https://www.efis.psc.mo.gov/mpsc/commoncomponents/viewdocument.asp?DocId=935842419

Cadmus weighted average annual savings for measures included in an AHRI rated central cooling system shown below in

Table 19 and for measures not included in a AHRI rated central cooling systems below in Table 20.

Table 19. Installed with AHRI Rated System $50 Rebate

Classification	% of Customers	Heating Savings (kWh)	% Installed with New AHRI Central Cooling	Cooling Savings (kWh)	Increased Fan Energy Usage (kWh)	Standby Losses (kWh)	Circulation Mode Savings (kWh)	Total Savings
Auto Mode Operation	82%	316	83%	51	-	30	-	337
Continuous Mode Operation (the same both before and after measure implementation)	11%	316	83%	51	-	30	1,499	1,836
Continuous Mode Operation (changed usage after installed of ECM fan)	7%	316	83%	51	196	30	1,284	1,425
							Weighted Average	**547**

Table 20. Installed with non-AHRI Rated System $100 Rebate

Classification	% of Customers	Heating Savings (kWh)	% Installed with New AHRI Central Cooling	Cooling Savings (kWh)	Increased Fan Energy Usage (kWh)	Standby Losses (kWh)	Circulation Mode Savings (kWh)	Total Savings
Auto Mode Operation	82%	316	20%	150	-	30	-	436
Continuous Mode Operation (the same both before and after measure implementation)	11%	316	20%	150	-	30	1,499	1,935
Continuous Mode Operation (changed usage after installed of ECM fan)	7%	316	20%	150	196	30	1,284	1,524
							Weighted Average	**673**

Dual Fuel Heat Pumps

Cadmus estimated per-unit, DFHP savings using the following algorithm:

$$\Delta kWh_{DFHP} = Installed\ Tons \times \left(\frac{Metered\ kWh\ Savings\ Cooling \times Installed\ SEER}{Metered\ SEER\ Cooling\ \times Metered\ Tons\ Cooling} + 12 \times Heating\ EFLH \times \left(\frac{1}{Baseline\ HSPF} - \frac{1}{Installed\ HSPF} \right) \right)$$

Where:

Installed Tons	=	Output capacity of installed DFHPs (tons)
Metered kWh Savings Cooling	=	Average cooling savings from PY13 metering (kWh)
Installed SEER	=	SEER rating of the installed DFHP (Btu/Wh)
Metered SEER Cooling	=	SEER rating of the PY13 metered cooling systems (Btu/Wh)
Metered Tons Cooling	=	Output capacity of the PY13 metered cooling systems (tons)
12	=	Conversion constant from tons to kBtu/hr
Heating EFLH	=	Equivalent full-load heating hours
Baseline HSPF	=	HSPF value of the baseline system
Installed HSPF	=	HSPF value of the installed system

Table 21 shows variable values that the team used to estimate savings in PY18.

Table 21. DFHP PY18 Savings Assumptions

Parameter	Value	Source
Metered kWh Savings Cooling	334	PY13 metering study* updated with new federal standard
Metered SEER Cooling	15.2	PY13 metering study*
Metered Tons Cooling	3.1	PY13 metering study*
Heating EFLH	1,119	2016 -2017 AMR Data & HP Metering
Baseline HSPF	8.2	Federal standard

*The Cadmus Group and Nexant. *Ameren Missouri CoolSavers Impact and Process Evaluation: Program Year 2013*. pp. 40. May 15, 2014. Available online: https://www.efis.psc.mo.gov/mpsc/commoncomponents/viewdocument.asp?DocId=935842419

Ductless Heat Pumps

Cadmus estimated per-unit, ductless HPs savings using the following algorithm:

$$\Delta kWh = Installed\ Tons \times \left(\frac{Metered\ kWh\ Savings\ Cooling \times Installed\ SEER}{Metered\ SEER\ Cooling\ \times Metered\ Tons\ Cooling} + 12 \times Heating\ EFLH \times \left(\frac{1}{Baseline\ HSPF} - \frac{1}{Installed\ HSPF} \right) \right)$$

Where:

Installed Tons	=	Output capacity of installed ductless ASHP (tons)
Metered kWh Savings Cooling	=	Average cooling savings from PY13 metering (kWh)
Installed SEER	=	SEER rating of the installed ductless ASHP (Btu/Wh)
Metered SEER Cooling	=	SEER rating of the PY13 metered cooling systems (Btu/Wh)
Metered Tons Cooling	=	Output capacity of the PY13 metered cooling systems (tons)
12	=	Conversion constant from tons to kBtu/hour
Heating EFLH	=	Equivalent full-load heating hours
Baseline HSPF	=	HSPF value of the baseline system
Installed HSPF	=	HSPF value of the installed system

Table 22 shows variable values that Cadmus used to estimate savings in PY18.

Table 22. Ductless ASHP PY18 Savings Assumptions

Parameter	Ameren Missouri Catalog Name	PY18 Value	Source
Metered kWh Cooling	Ductless ASHP Early Retirement	1,740	PY13 metering study* Updated to 8.33 SEER Baseline
	Ductless ASHP Early Retirement Electric Resistance	1,740	PY13 metering study* Updated to 8.33 SEER Baseline
	Ductless ASHP Replace at Fail Electric Resistance	334	PY13 metering study* updated with new federal standard
	Ductless ASHP Replace at Fail	334	PY13 metering study* updated with new federal standard
Metered SEER Cooling	All Ductless ASHP	15.2	PY13 metering study*
Metered Tons Cooling	All Ductless ASHP	3.1	PY13 metering study*
Heating EFLH	All Ductless ASHP	1,496	Assuming the same full load hours as ASHP**
Baseline HSPF	Ductless ASHP Early Retirement	6.58	Estimated based on early retirement SEER. Cadmus data: HSPF = 0.2675 * SEER + 4.3475
	Ductless ASHP Early Retirement Electric Resistance	3.41	Electric resistance heating efficiency (COP = 1)
	Ductless ASHP Replace at Fail Electric Resistance	3.41	Electric resistance heating efficiency (COP = 1)
	Ductless ASHP Replace at Fail	8.2	Federal standard

*The Cadmus Group and Nexant. *Ameren Missouri CoolSavers Impact and Process Evaluation: Program Year 2013*. pp. 40. May 15, 2014. Available online: https://www.efis.psc.mo.gov/mpsc/commoncomponents/viewdocument.asp?DocId=935842419

Geothermal Heat Pumps

Cadmus estimated GSHP per-unit savings using the following algorithm:

$$\Delta kWh = Installed\ Tons \times \left(\frac{Metered\ kWh\ Savings\ Cooling \times Installed\ EER}{Metered\ SEER\ Cooling \times Metered\ Tons\ Cooling} + 12 \times Heating\ EFLH \times \left(\frac{1}{Baseline\ HSPF} - \frac{1}{Installed\ HSPF} \right) \right)$$

Where:

Installed Tons	=	Output capacity of installed ASHP (tons)
Metered kWh Savings Cooling	=	Average cooling savings from PY13 metering (kWh)
Installed EER	=	EER rating of the installed GSHP (Btu/Wh)
Metered SEER Cooling	=	SEER rating of the PY13 metered cooling systems (Btu/Wh)
Metered Tons Cooling	=	Output capacity of the PY13 metered cooling systems (tons)
12	=	Conversion constant from tons to kBtu/hour
Heating EFLH	=	Equivalent full-load heating hours
Baseline HSPF	=	Coefficient of performance (COP) value of the baseline system converted to HSPF (COP/3.412)
Installed HSPF	=	COP value of the installed system converted to HSPF (COP*3.412)

Table 23 shows variable values that Cadmus used to estimate savings in PY18.

Table 23. GSHP PY18 Savings Assumptions

Parameter	Ameren Missouri Catalog Name	PY18	Source
Metered kWh Savings Cooling	GSHP - 23 EER Early Retirement	1,740	PY13 metering study* Updated to 8.33 SEER Baseline
	GSHP - 23 EER Replace at Fail	334	PY13 metering study* updated with new federal standard
	GSHP SEER 14+ Early Retirement ASHP with GSHP Electric Resistance	1,740	PY13 metering study* Updated to 8.33 SEER Baseline
	GSHP SEER 14+ Electric Resistance Furnace Early Retirement	1,740	PY13 metering study* Updated to 8.33 SEER Baseline
	GSHP SEER 14+ Replace at Fail Electric Resistance Furnace	334	PY13 metering study* updated with new federal standard
Metered SEER Cooling	All GSHP	15.2	PY13 metering study*
Metered Tons Cooling	All GSHP	3.1	PY13 metering study*
Heating EFLH	All GSHP	2,009	ENERGY STAR calculator for Saint Louis **
Baseline HSPF	GSHP - 23 EER Early Retirement	9.55	ICF*** research on installed system types and typical baseline of removed and failed GSHP. Assuming ground loop heat exchange.
	GSHP - 23 EER Replace at Fail	10.58	ICF*** research on installed system types and typical baseline of removed and failed GSHP. Assuming ground loop heat exchange.
	GSHP SEER 14+ Early Retirement ASHP with GSHP Electric Resistance	6.58	ICF*** research on installed system types and typical baseline of removed and failed GSHP. Assuming ground loop heat exchange.
	GSHP SEER 14+ Electric Resistance Furnace Early Retirement	3.41	Electric resistance heating efficiency (COP = 1)
	GSHP SEER 14+ Replace at Fail Electric Resistance Furnace	3.41	Electric resistance heating efficiency (COP = 1)

*The Cadmus Group and Nexant. *Ameren Missouri CoolSavers Impact and Process Evaluation: Program Year 2013*. pp. 40. May 15, 2014. Available online: https://www.efis.psc.mo.gov/mpsc/commoncomponents/viewdocument.asp?DocId=935842419

**U.S. Environmental Protection Agency and U.S. Department of Energy. "Life Cycle Cost Estimate for 20 ENERGY STAR Qualified Air Source Heat Pump(s)." Excel file. Last updated April 2009. Available online: https://essearch.energystar.gov/search?utf8=%E2%9C%93&sc=0&query=ashp%20sav%20calc&m=&affiliate=www.energystar.gov&commit=Search

***Email from M Cano to J Berg, J Walczyk, L Welkison, M Gregory, L Brouk; "RE: Information On GSHP". Sent November 26, 2014

Tune up Measures

Cadmus estimated tune up measures using EER improvements found in previous program evaluations and reported tune up activities conducted. In PY17, Cadmus examined 1,250 customers tune up records

to determine typical savings based on tune up activities that the contractor conducted for those systems.

The program's reported *ex ante* savings included multiple measures per customer, including HVAC maintenance and tune ups, outdoor coil cleaning, refrigerant charge and airflow adjustments, and indoor coil cleaning. Contractors also reported measures with no savings tracked, including air flow adjustments, air filter replacements, and blower compartment cleaning. Cadmus relied in PY13 and PY15 analysis data to estimate savings for several measure combinations as energy savings for these activities were not strictly additive.

Table 23 shows variable values that Cadmus used to estimate savings in PY18.

Table 24. Tune up Savings Summary

Measure	*Ex Post* Measure Savings (kWh/year)
RCA 10% improvement	825
Outdoor Coil Cleaning	243
Indoor Coil Cleaning	328
HVAC Maintenance and Tune Up SF	3

Summary

For nearly all measures, realization rates differed from 100%. In most cases, differences resulted from measure parameters (e.g., installed system size, SEER, HSPF) or measure interactions.[6] Installed systems smaller and less efficient than planned produced lower realization rates, and those larger or more efficient produced higher realization rates. Table 25 through Table 31 lists per-unit *ex ante* and *ex post* gross savings by measure.

As shown in Table 25, *ex ante* and *ex post* results for ASHPs ranged between 80% and 111%. For ASHPs, actual unit sizes and efficiency levels varied from planning values. For the ASHP SEER 15 Replace-at-Fail Electric Resistance Furnace (NC), with a realization rate of 80%, *ex ante* savings assumed an average equipment size and efficiency of 2.8 tons, 15.3 SEER, and 8.9 HSPF, whereas actuals were 3.0 tons, 15.1 SEER and 8.6 HSPF. For the ASHP SEER 15 Replace-at-Fail Electric Resistance Furnace with a realization rate of 111%, *ex ante* savings assumed an average equipment size and efficiency of 2.8 tons, 15.3 SEER, and 8.9 HSPF, whereas actuals were 2.9 tons, 15.1 SEER, and 8.7 HSPF.

[6] Planning values are based on historical, evaluated savings.

Table 25. ASHP Summary: Comparison of *Ex Ante and Ex Post* Per-Unit Gross kWh Savings

Measure	Ex Ante (kWh/year)	Ex Post (kWh/yr)	Realization Rate
ASHP ER with ASHP 16+ ER	5,406	4,485	83%
ASHP Replace at Fail with ASHP 16+	1,587	1,330	84%
ASHP SEER 15 ER Elec Resist Furnace ER	10,749	10,856	101%
ASHP SEER 15 Replace at Fail Elect Resist Furnace	8,520	9,430	111%
ASHP SEER 15 Replace at Fail Elect Resist Furnace (NC)	820	654	80%
ASHP ER with ASHP SEER 15 ER	4,221	3,596	85%
ASHP Replace at Fail with ASHP SEER 15	820	670	82%
ASHP SEER 16+ ER Elec Resist Furnace ER	12,449	12,599	101%
ASHP SEER 16+ Replace at Fail Elec Resist Furnace	11,348	10,823	95%
ASHP SEER 16+ Replace at Fail Elec Resist Furnace (NC)	1,587	1,448	91%

As shown in Table 26, realization rates for ductless heat pumps varied between 81% and 113%. For Ductless ASHP ER, with an 81% realization rate, *ex ante* savings assumed an average equipment size and efficiency of 1.7 tons, 21.2 SEER, and 11.4 HSPF, whereas actuals were 1.4, tons, 27.0 SEER, and 12.6 HSPF. For the Ductless ASHP Replace Electric Resistance ROF, with a realization rate of 111%, *ex ante* savings assumed an average equipment size and efficiency of 1.4 tons, 22.4 SEER, and 11.7 HSPF, whereas actuals were 1.6 tons, 22.8 SEER, and 11.4 HSPF.

Table 26. Ductless Heat Pump Summary: Comparison of *Ex Ante & Ex Post* Per-Unit Gross kWh Savings

Measure	Ex Ante (kWh/year)	Ex Post (kWh/yr)	Realization Rate
Ductless ASHP ER	3,434	2,767	81%
Ductless ASHP Replace Electric Resistance ER	6,204	6,776	109%
Ductless ASHP ROF	927	946	102%
Ductless ASHP Replace Electric Resistance ROF	5,438	6,143	113%

As shown in Table 27, DFHP realization rates varied from 33% to 101%. For the 15 SEER measure with a realization rate of 84%, *ex ante* savings assumed an average equipment size and efficiency of 3.4 tons, 15.2 SEER, and 8.8 HSPF, whereas actuals were 3.4 tons, 15.3 SEER, and 9.7 HSPF. For the 18+ SEER measure with a realization rate of 36%, *ex ante* savings assumed an average equipment size and efficiency of 3.4 tons, 18.3 SEER, and 10.5 HSPF, whereas actuals were 3.0 tons, 18.8 SEER, and 9.5 HSPF.

Table 27. DFHP Summary: Comparison of *Ex Ante & Ex Post* Per-Unit Gross kWh Savings

Measure	Ex Ante (kWh/year)	Ex Post (kWh/yr)	Realization Rate
DFHP SEER 15_SF	755	636	84%
DFHP SEER 16_SF	987	848	86%
DFHP SEER 17+_SF	1,402	1,410	101%
DFHP SEER 18+_SF	3,270	1,071	33%

As shown in

Table 28, GSHP realization rates varied from 95% to 104% due to variations of size and efficiency from planning values.

Table 28. GSHP Summary: Comparison of *Ex Ante & Ex Post* Per-Unit Gross kWh Savings

Measure	Ex Ante (kWh/year)	Ex Post (kWh/yr)	Realization Rate
GSHP SEER 14+ ER ASHP with GSHP ER	12,702	13,169	104%
GSHP SEER 14+ ER Elec Resist Furnace ER	25,346	25,085	99%
GSHP SEER 14+ Replace Elec Resist Furnace	23,251	22,587	97%
GSHP - 23 EER ER	7,953	8,210	103%
GSHP - 23 EER Replace at Fail	3,646	3,449	95%

As shown in Table 29, CAC realization rates varied between 95% and 110%. For CACs, actual unit sizes and efficiency levels only slightly varied from planning values.

Table 29. CAC Summary: Comparison of *Ex Ante and Ex Post* Per-Unit Gross kWh Savings

Measure	Ex Ante (kWh/year)	Ex Post (kWh/yr)	Realization Rate
CAC SEER 14 ER	1,633	1,558	95%
CAC SEER 14 Replace at Fail	323	321	99%
CAC SEER 15 ER	1,923	1,829	95%
CAC SEER 15 Replace at Fail	342	378	110%
CAC SEER 16+ ER	1,922	1,854	96%
CAC SEER 16+ Replace at Fail	368	375	102%

ECM realization rates were 62% for fans installed as part of an AHRI Rated system and 70% for fans not included in the AHRI Rating. ECM savings varied from planned values based on the proportion of HPs and CACs in use with the fans and based on automatic or continuous mode fan settings.

In the PY18 surveys, Cadmus found approximately 18% of customers used continuous mode operation on their furnace fans. Customers also reported not using their fans in continuous mode all the time. From the survey data, Cadmus estimated that customers used continuous mode between 2,300 hours and 2,900 hours annually, depending on their prior usage patterns. A portion of customers (N=21) increased the number of hours that they operated their furnace fans by an average of 1,100 hours annually which limited savings.

Contractor settings led to no observed difference in customer usage patterns. Also, customers reported lower overall hours of usage than assumed by the Ameren Missouri TRM. Some customers also reported increasing their fan usage, resulting in more energy usage than before they installed their ECM. This resulted in lower realization rates for most measures. Customers installing their furnace with an ECM, not included in the AHRI-rated CAC (the $100 incentive), saved additional energy from the fan during cooling mode operations. Most customers (80%) applying for the $50 rebate also received a program rebate for a new central cooling system. As the fan energy saved during cooling operations was captured within the central cooling measure, those ECM fans were not applicable for full cooling savings.

Table 30. ECM Summary: *Ex Post* Per-Unit Gross kWh Savings

Measure	*Ex Post* (kWh/yr)
Concept 3 Installations Continuous Fan ER_50	524
Concept 3 Installations Continuous Fan ER_100	650
Concept 3 Continuous Fan Replace at Fail_50	524
Concept 3 Continuous Fan Replace at Fail_100	650
Concept 3 Installations Auto Fan ER_50	524
Concept 3 Installations Auto Fan ER_100	650
Concept 3 Installations Auto Fan Replace at Fail_50	524
Concept 3 Installations Auto Fan Replace at Fail_100	650

As shown in Table 31, tune up measure realization rates varied between 2% and 280%. The overall tune up realization rate, however, was 99%, and measure variations occurred based on individual measure tracking. ICF tracked HVAC maintenance and tune up measures for every home but assigned *ex ante* savings for a measure if it was the only one installed. Cadmus followed this methodology, allocating *ex post* savings similarly. Additionally, all homes receiving an indoor coil cleaning also received an outdoor coil cleaning. Cadmus allocated all savings for those homes to the less common indoor coil cleaning measure, which inflated apparent savings for that measure. The resulting "average" systems tune up realization rate was 99%.

Table 31. Tune Up Summary: Comparison of *Ex Ante and Ex Post* Per-Unit Gross kWh Savings

Measure	Ex Ante (kWh/year)	Ex Post (kWh/yr)	Realization Rate
HVAC Maintenance and Tune Up SF	174	3	2%
Indoor Coil Cleaning	117	328	280%
Outdoor Coil Cleaning	258	243	94%
RCA 10% Improvement SF	856	825	96%
"Average Tune Up"	**320**	**317**	**99%**

Table 32 lists *ex post* gross demand reduction by measure.

Table 32. PY18 Summary: *Ex Post* Program Gross Demand Savings Accounting for Installation Rates

Measure	PY18 Participation	Per-Unit Ex Post Savings (kW)	Percent Installed & Operating	First Year Ex Post Savings (kW)
Air-Source Heat Pump				
ASHP ER with ASHP 16+ ER	264	2.09	96%	531
ASHP Replace at Fail with ASHP 16+	56	0.62	116%	40
ASHP SEER 15 ER Elec Resist Furnace ER	436	5.06	99%	2,180
ASHP SEER 15 Replace at Fail Elect Resist Furnace	98	4.40	105%	453
ASHP SEER 15 Replace at Fail Elect Resist Furnace (NC)	107	0.31	100%	33
ASHP ER with ASHP SEER 15 ER	185	1.68	97%	299
ASHP Replace at Fail with ASHP SEER 15	121	0.31	105%	40
ASHP SEER 16+ ER Elec Resist Furnace ER	478	5.87	98%	2,757
ASHP SEER 16+ Replace at Fail Elec Resist Furnace	60	5.04	113%	343
ASHP SEER 16+ Replace at Fail Elec Resist Furnace (NC)	122	0.67	100%	82
Ductless Air-Source Heat Pump				
Ductless ASHP ER	14	1.29	100%	18
Ductless ASHP Replace Electric Resistance ER	51	3.16	100%	161
Ductless ASHP ROF	1	0.44	100%	<1
Ductless ASHP Replace Electric Resistance ROF	268	2.86	100%	767
Dual Fuel Heat Pump				
DFHP SEER 15_SF	23	0.30	100%	7
DFHP SEER 16_SF	42	0.40	100%	17
DFHP SEER 17+_SF	23	0.66	100%	15
DFHP SEER 18+_SF	1	0.50	100%	<1
Ground Source Heat Pump				
GSHP SEER 14+ ER ASHP with GSHP ER	40	6.14	100%	246
GSHP SEER 14+ ER Elec Resist Furnace ER	47	11.69	100%	550
GSHP SEER 14+ Replace Elec Resist Furnace	160	10.53	100%	1,684
GSHP - 23 EER ER	67	3.83	100%	256
GSHP - 23 EER Replace at Fail	29	1.61	100%	47
Central Air Conditioner				
CAC SEER 14 ER	4,442	1.48	99%	6,486
CAC SEER 14 Replace at Fail	911	0.30	105%	291
CAC SEER 15 ER	2,347	1.73	99%	4,040
CAC SEER 15 Replace at Fail	369	0.36	104%	138
CAC SEER 16+ ER	6,683	1.76	99%	11,670
CAC SEER 16+ Replace at Fail	607	0.36	106%	229
Electronically Commutated Motor (ECM)				
Concept 3 Installations Continuous Fan ER_50	849	0.27	100%	227

Measure	PY18 Participation	Per-Unit Ex Post Savings (kW)	Percent Installed & Operating	First Year Ex Post Savings (kW)
Concept 3 Installations Continuous Fan ER_100	92	0.31	100%	29
Concept 3 Continuous Fan Replace at Fail_50	141	0.27	100%	32
Concept 3 Continuous Fan Replace at Fail_100	5	0.31	100%	2
Concept 3 Installations Auto Fan ER_50	9856	0.27	100%	2,639
Concept 3 Installations Auto Fan ER_100	791	0.31	100%	248
Concept 3 Installations Auto Fan Replace at Fail_50	1042	0.27	100%	279
Concept 3 Installations Auto Fan Replace at Fail_100	43	0.31	100%	13
Tune Ups				
HVAC Maintenance and Tune up_SF	867	0.00	100%	2
Indoor Coil Cleaning	77	0.15	100%	12
Outdoor Coil Cleaning	866	0.11	100%	98
RCA 10% improvement_SF	49	0.38	100%	19
Total**	**32,730**	**-**	**100.00%**	**36,987**

To estimate the program's total gross energy savings, Cadmus applied the per-unit values shown in Table 25 to Heating and Cooling PY18 participation rates, as shown in Table 33.

Table 33. PY18 Summary: *Ex Post* Program Gross Energy Savings Accounting for Installation Rates

Measure	PY18 Participation	Per-Unit Ex Post Savings (kWh/yr)	Percent Installed & Operating	Total Ex Post Savings (MWh/yr)
Air-Source Heat Pump				
ASHP ER with ASHP 16+ ER	264	4,485	96%	1,140
ASHP Replace at Fail with ASHP 16+	56	1,330	116%	87
ASHP SEER 15 ER Elec Resist Furnace ER	436	10,856	99%	4,677
ASHP SEER 15 Replace at Fail Elect Resist Furnace	98	9,430	105%	972
ASHP SEER 15 Replace at Fail Elect Resist Furnace (NC)	107	654	100%	70
ASHP ER with ASHP SEER 15 ER	185	3,596	97%	642
ASHP Replace at Fail with ASHP SEER 15	121	670	105%	85
ASHP SEER 16+ ER Elec Resist Furnace ER	478	12,599	98%	5,916
ASHP SEER 16+ Replace at Fail Elec Resist Furnace	60	10,823	113%	736
ASHP SEER 16+ Replace at Fail Elec Resist Furnace (NC)	122	1,448	100%	177
Ductless Air-Source Heat Pump				
Ductless ASHP ER	14	2,767	100%	39
Ductless ASHP Replace Electric Resistance ER	51	6,776	100%	346
Ductless ASHP ROF	1	946	100%	1

Measure	PY18 Participation	Per-Unit Ex Post Savings (kWh/yr)	Percent Installed & Operating	Total Ex Post Savings (MWh/yr)
Ductless ASHP Replace Electric Resistance ROF	268	6,143	100%	1,646
Dual Fuel Heat Pump				
DFHP SEER 15_SF	23	636	100%	15
DFHP SEER 16_SF	42	848	100%	36
DFHP SEER 17+_SF	23	1,410	100%	32
DFHP SEER 18+_SF	1	1,071	100%	1
Ground Source Heat Pump				
GSHP SEER 14+ ER ASHP with GSHP ER	40	13,169	100%	527
GSHP SEER 14+ ER Elec Resist Furnace ER	47	25,085	100%	1,179
GSHP SEER 14+ Replace Elec Resist Furnace	160	22,587	100%	3,614
GSHP - 23 EER ER	67	8,210	100%	550
GSHP - 23 EER Replace at Fail	29	3,449	100%	100
Central Air Conditioner				
CAC SEER 14 ER	4,442	1,558	99%	6,846
CAC SEER 14 Replace at Fail	911	321	105%	308
CAC SEER 15 ER	2,347	1,829	99%	4,264
CAC SEER 15 Replace at Fail	369	378	104%	145
CAC SEER 16+ ER	6,683	1,854	99%	12,318
CAC SEER 16+ Replace at Fail	607	375	106%	242
Electronically Commutated Motor (ECM)				
Concept 3 Installations Continuous Fan ER_50	849	574	100%	488
Concept 3 Installations Continuous Fan ER_100	92	673	100%	62
Concept 3 Continuous Fan Replace at Fail_50	141	574	100%	81
Concept 3 Continuous Fan Replace at Fail_100	5	673	100%	3
Concept 3 Installations Auto Fan ER_50	9856	574	100%	5,662
Concept 3 Installations Auto Fan ER_100	791	673	100%	532
Concept 3 Installations Auto Fan Replace at Fail_50	1042	574	100%	599
Concept 3 Installations Auto Fan Replace at Fail_100	43	673	100%	29
Tune Ups				
HVAC Maintenance and Tune up_SF	867	3	100%	3
Indoor Coil Cleaning	77	328	100%	25
Outdoor Coil Cleaning	866	244	100%	211
RCA 10% improvement_SF	49	825	100%	40
Total**	**32,730**		**100.00%**	**54,444**

Net Impact Evaluation Results

Cadmus determined total program net impacts by calculating total gross savings by measure group and then applying the following:

- Participant Free Ridership
- Participant Spillover
- NPSO

Using participant surveys completed during PY18, Cadmus estimated participant free ridership and spillover ratios. Free ridership equals the percentage of savings that would have likely occurred in a program's absence. As free rider measures incur a program's costs but provide none of its benefits, they decrease a program's net savings.

Participant spillover equals savings that occur when program participants undertake additional energy efficiency measures or perform energy-efficient activities without receiving financial assistance from the program. Unlike free ridership, spillover savings do not generate program costs; rather, they generate energy-saving benefits that increase net savings.

Similarly, NPSO results from program or general energy efficiency marketing and education causing nonparticipating customers to undertake additional energy efficiency measures or to perform energy-efficient activities without financial assistance.

Cadmus conducted a survey with 2,431 nonparticipating Ameren Missouri customers (from Ameren Missouri's residential customer database) to assess the program's influence on their decisions to purchase or implement energy-efficient measures without a program incentive. In calculating the Heating and Cooling program's NTG, the team used the following formula:

$$\boldsymbol{NTG = 1 - Freeridership + Participant\ Spillover}$$

Cadmus applied the resulting NTG ratio to *ex post* gross savings for each program measure to calculate net savings. As NPSO is of significant size and does not have the same load shape as each program measure, Cadmus did not include NPSO in the NTG ratio associated with the program, but rather added the net energy and demand impacts separately.

Table 34 presents Cadmus' estimates of the PY18 program's net impacts.

Table 34. PY18 Net Impact Results Summary

Measure	*Ex Post* Gross Savings (MWh/yr)	Free Ridership	Participant Spillover	HVAC NPSO	NTG	Net Savings (MWh/yr)****
Air-Source Heat Pump						
ASHP ER with ASHP 16+ ER	1,140	22.0%	1.0%	0%	79.0%	901
ASHP Replace at Fail with ASHP 16+	87	22.0%	1.0%	0%	79.0%	68
ASHP SEER 15 ER Elec Resist Furnace ER	4,677	22.0%	1.0%	0%	79.0%	3,695
ASHP SEER 15 Replace at Fail Elect Resist Furnace	972	22.0%	1.0%	0%	79.0%	768
ASHP SEER 15 Replace at Fail Elect Resist Furnace (NC)	70	22.0%	1.0%	0%	79.0%	55
ASHP ER with ASHP SEER 15 ER	642	22.0%	1.0%	0%	79.0%	507
ASHP Replace at Fail with ASHP SEER 15	85	22.0%	1.0%	0%	79.0%	67
ASHP SEER 16+ ER Elec Resist Furnace ER	5,916	22.0%	1.0%	0%	79.0%	4,674
ASHP SEER 16+ Replace at Fail Elec Resist Furnace	736	22.0%	1.0%	0%	79.0%	581
ASHP SEER 16+ Replace at Fail Elec Resist Furnace (NC)	177	22.0%	1.0%	0%	79.0%	140
Ductless Air-Source Heat Pump						
Ductless ASHP ER	39	22.0%	1.0%	0%	79.0%	31
Ductless ASHP Replace Electric Resistance ER	346	22.0%	1.0%	0%	79.0%	273
Ductless ASHP ROF	1	22.0%	1.0%	0%	79.0%	1
Ductless ASHP Replace Electric Resistance ROF	1,646	22.0%	1.0%	0%	79.0%	1,301
Dual Fuel Heat Pump						
DFHP SEER 15_SF	15	22.0%	1.0%	0%	79.0%	12
DFHP SEER 16_SF	36	22.0%	1.0%	0%	79.0%	28
DFHP SEER 17+_SF	32	22.0%	1.0%	0%	79.0%	26
DFHP SEER 18+_SF	1	22.0%	1.0%	0%	79.0%	1
Ground Source Heat Pump						
GSHP SEER 14+ ER ASHP with GSHP ER	527	22.0%	1.0%	0%	79.0%	416
GSHP SEER 14+ ER Elec Resist Furnace ER	1,179	22.0%	1.0%	0%	79.0%	931
GSHP SEER 14+ Replace Elec Resist Furnace	3,614	22.0%	1.0%	0%	79.0%	2,855
GSHP - 23 EER ER	550	22.0%	1.0%	0%	79.0%	435
GSHP - 23 EER Replace at Fail	100	22.0%	1.0%	0%	79.0%	79
Central Air Conditioner						
CAC SEER 14 ER	6,846	36.0%	0.0%	0%	64.0%	4,381
CAC SEER 14 Replace at Fail	308	36.0%	0.0%	0%	64.0%	197

CAC SEER 15 ER	4,264	36.0%	0.0%	0%	64.0%	2,729
CAC SEER 15 Replace at Fail	145	36.0%	0.0%	0%	64.0%	93
CAC SEER 16+ ER	12,318	36.0%	0.0%	0%	64.0%	7,883
CAC SEER 16+ Replace at Fail	242	36.0%	0.0%	0%	64.0%	155
Electronically Commutated Motor (ECM)*						
Concept 3 Installations Continuous Fan ER_50	488	31.8%	0.2%	0%	66.7%	325
Concept 3 Installations Continuous Fan ER_100	62	31.8%	0.2%	0%	87.5%	54
Concept 3 Continuous Fan Replace at Fail_50	81	31.8%	0.2%	0%	66.7%	54
Concept 3 Continuous Fan Replace at Fail_100	3	31.8%	0.2%	0%	87.5%	3
Concept 3 Installations Auto Fan ER_50	5,662	31.8%	0.2%	0%	66.7%	3,776
Concept 3 Installations Auto Fan ER_100	532	31.8%	0.2%	0%	87.5%	466
Concept 3 Installations Auto Fan Replace at Fail_50	599	31.8%	0.2%	0%	66.7%	399
Concept 3 Installations Auto Fan Replace at Fail_100	29	31.8%	0.2%	0%	87.5%	25
Tune Ups**						
HVAC Maintenance and Tune-up_SF	3	32.0%	0.0%	0%	68.0%	2
Indoor Coil Cleaning	25	32.0%	0.0%	0%	68.0%	17
Outdoor Coil Cleaning	211	32.0%	0.0%	0%	68.0%	143
RCA 10% improvement_SF	40	32.0%	0.0%	0%	68.0%	27
Nonparticipant Spillover	-	-	-		-	2,534
Program Total	**54,444**	**29.60%**	**0.40%**	**0%**	**75.5%**	**41,108*****

*PY16 results used for free ridership and spillover due to low PY18 survey responses.

**PY17 results used for free ridership and spillover due to low PY18 survey response rate. Two tune up participants completed a survey in PY18.

***May not sum due to rounding

****Net savings may not match NTG multiplied by the *ex post* gross savings due to the rounding of NTG estimates.

Free Ridership Results

At the request of the independent auditor, Cadmus used a new questionnaire and scoring approach to determine free ridership in PY18. The free ridership methodology used for PY18 followed the 2019

Illinois Statewide Technical Reference Manual[7] (IL TRM) for NTG evaluation of a residential prescriptive rebate program. The free ridership methodology produces a No-Program (NP) score and a Program Influence (PI) score, both ranging from 0 to 10. The final free ridership score for a participant is the arithmetic mean of the NP and PI scores.

The NP score was calculated by using the minimum likelihood rating, on a 0 to 10 scale, with 0 being not at all likely and 10 being very likely, of specific Timing (T), Efficiency (E) and Quantity (Q) questions. The following questions were used to develop the NP score:

- Without the Ameren Missouri Heating and Cooling program, what is the likelihood you would have purchased a new [MEASURETYPE] within 12 months?
- Without the Ameren Missouri Heating and Cooling program, what is the likelihood you would have purchased the same exact [MEASURENAME] model as the one(s) you purchased?
- [IF QUANTITY > 1] Without the Ameren Missouri Heating and Cooling program, what is the likelihood you would have purchased fewer [MEASURENAME]s?

The PI score was calculated by asking participants, on a 0 to 10 scale, with 0 being not at all important and 10 being very important, how important they found various program elements were on their decision to purchase a high-efficiency measure. Participants were asked to rate the importance of the following program factors to inform the PI score:

- Ameren Missouri rebate
- Contractor Recommendation
- Information about energy efficiency provided by Ameren Missouri
- Interaction with Ameren Missouri program staff
- Previous participation in an Ameren Missouri rebate program

In addition to asking about specific program influences, Cadmus asked respondents whether they planned to purchase a high-efficiency version of the product before learning of the rebate program. The respondent's rating of the rebate's influence is adjusted by 0.5 for those answering the question "yes."

The Preliminary Program Influence Score equals the maximum influence rating for any program element rather than, for example, the mean influence rating. This is based on the rationale that if any given program element had a great influence on the respondent's action, then the program itself had a great influence, even if other elements had less influence.

An inverse relationship occurs between high program influence and free ridership: the greater the program influence, the lower the free ridership. The PI free ridership score = 10 - Preliminary Program Influence Score.

---

[7] 2019 Illinois Statewide Technical Reference Manual for Energy Efficiency. Version 7.0. Volume 4: Cross-Cutting Measures and Attachments. Section 4.4. http://ilsagfiles.org/SAG_files/Technical_Reference_Manual/Version_7/Final_9-28-18/IL-TRM_Effective_010119_v7.0_Vol_4_X-Cutting_Measures_and_Attach_092818_Final.pdf

Finally, the NP free ridership score is averaged with the PI free ridership score to calculate the final free ridership value for a participant.

$$Free\ Ridership\ (FR) = Mean\ (NP, PI) \div 10$$

Following the guidelines of the IL TRM, if a participant's NP score was 0, 1 or 2 and their PI score was 8, 9, 10, Cadmus considered their responses inconsistent and reviewed verbatim responses to the open ended question that stated "In your own words, please tell me the influence the program had on your purchase of the <insert measure name>. The IL TRM states "if warranted based on clear additional information, they will adjust the score based on expert opinion. If an inconsistency exists and the open-ended response does not resolve the inconsistency, the respondent will be removed from the calculation." Subsequently, in all cases where inconsistent scores were provided, Cadmus found that verbatim responses to the open ended question did not provide clear enough information to resolve the discrepancy and they were initially flagged for removal from the free ridership analysis.[8] However, Cadmus noted that many of the inconsistent responses occurred when the respondent indicated Contractor Recommendation was the highest scoring PI factor. Of the 127 participants flagged initially for removal due to inconsistent scores, 121 had rated Contractor Recommendation as an 8, 9, or 10, with 0, 1, or 2 for NP scores which suggests that program participants were unaware that contractors were agents of the program. Cadmus adjusted the NP free ridership score for these 121 participants to match the rating they gave for the influence of their contractor's recommendation and the 121 participants are being included in the free ridership analysis reported.

Cadmus calculated early retirement customers' free ridership scores using incremental savings for early retirement multiplied by their early retirement free ridership scores. Partial free ridership was not used for the early retirement portion of measure savings. Customers were classified as early retirement free riders using Question D6 as shown in Appendix J.

Cadmus then averaged individual free ridership scores (weighted by evaluated gross energy savings) to arrive at measure category level free ridership estimates for the program.

Table 35 provides PY18 free ridership estimates by measure group in comparison to PY17.

[8] 127 participants were initially flagged for removal from the free ridership analysis due to inconsistent 'No-Program' and 'Program Influence' scores.

Table 35. PY18 and PY17 Heating and Cooling Free Ridership Results

Measure Group	n	PY18 Total Weighted Free Ridership Estimate*	PY17 Results
Central Air Conditioner	340	36%	22%
Heat Pump	41	22%	12%

*Estimates are weighted by *ex post* gross program savings.

Participant Spillover Results

Cadmus asked respondents whether they had undertaken additional energy-efficient actions since participating in the program. To calculate spillover, Cadmus asked them to rate the importance of the following factors on their decisions to purchase additional energy-efficient equipment:

- Receiving funding through Ameren Missouri's Heating and Cooling program
- Information they received from Ameren Missouri or their HVAC contractor regarding the benefits of installing additional equipment

Six survey respondents reported installing additional energy-efficient measures after participating in the Heating and Cooling program; they said their experience in the program was "very important" to their subsequent decision to purchase high-efficiency equipment rather than a standard-efficiency model.

Cadmus estimated energy savings for measures indicated through participant spillover responses. Cadmus then divided the total Heating and Cooling program spillover savings for each program measure group by the Heating and Cooling program gross program savings for each program measure group, as described in the following equation:

$$Spillover\ \% = \frac{\sum[Spillover\ kWh\ savings\ for\ all\ program\ measure\ group\ respondents]}{\sum[Program\ kWh\ savings\ for\ all\ program\ measure\ group\ respondents]}$$

Table 36 presents spillover details by program measure group.

Table 36. Participant Spillover Savings

Measure Group	Spillover Measure	Quantity	Participant Spillover Per-Unit kWh/year Savings*	Total Spillover Measure Spillover kWh/year Savings	Total Measure Group Survey Sample Spillover kWh/year Savings
Central Air Conditioner	Efficient Faucet aerators	1	10.2*	10.2	2,270.3
	Efficient Showerheads	1	85.2*	85.2	
	Efficient Water Heater	1	157.0**	157.0	
	ENERGY STAR Clothes Washer	3	74.7***	224.0	
	ENERGY STAR Clothes Washer	1	26.3†	26.3	
	ENERGY STAR Dehumidifier	1	204.0††	204.0	
	ENERGY STAR Refrigerator	6	25.4†††	152.4	
	ENERGY STAR Room Air Conditioner	1	49.8^	49.8	
	Efficient Insulation	4	192.3^^	769.2	
	Smart Thermostat	2	296.1^	592.2	
Heat Pump	ENERGY STAR Air Purifier	1	610.0^	610.0	4,545.2
	ENERGY STAR Clothes Washer	1	74.7***	74.7	
	ENERGY STAR Clothes Washer	2	26.3†	52.6	
	ENERGY STAR Dehumidifier	1	204.0††	204.0	
	ENERGY STAR Freezer	1	23.4^^^	23.4	
	ENERGY STAR Refrigerator	3	25.4†††	76.2	
	Heat Pump Water Heater	1	2,284.5^	2,284.5	
	Efficient Insulation	1	192.3^^	192.3	
	Recycled a Refrigerator	1	1,027.5^^^^	1,027.5	

*Based on savings calculated for the PY18 School Kits program.

** Based on deemed savings from Ameren Missouri 2012 Energy Efficiency Filing Appendix A TRM.

***Deemed savings for ENERGY STAR Clothes washer - ENERGY STAR, CEE Tier 1 - Electric DHW / Electric Dryer - Front Loader, from the MO-TRM-2017_Vol. 3_March 31, 2017_Final. https://energy.mo.gov/sites/energy/files/MOTRM2017Volume3.pdf.
Reduced by one half due to high market shares of ENERGY STAR clothes washers.

†Deemed savings for ENERGY STAR, CEE Tier 1 - GasDHW / Electric Dryer - Front Loader, from the MO-TRM-2017_Vol. 3_March 31, 2017_Final. https://energy.mo.gov/sites/energy/files/MOTRM2017Volume3.pdf.
Reduced by one half due to high market shares of ENERGY STAR clothes washers.

††Weighted average of deemed savings scenarios from MO-TRM-2017_Vol. 3_March 31, 2017_Final. https://energy.mo.gov/sites/energy/files/MOTRM2017Volume3.pdf.

†††Deemed savings for ENERGY STAR Refrigerator from the Illinois TRM Version 5.0 Volume 3. Reduced by one half due to high market shares of ENERGY STAR refrigerators.

^Based on savings calculated for the PY18 Efficient Products program.

^^Average ceiling insulation savings per home, calculated for the PY15 Home Energy Analysis program.

^^^Deemed savings for ENERGY STAR Freezer - Upright Freezers with Automatic Defrost from the Illinois TRM Version 5.0 Volume 3. Reduced by one half due to high market shares of ENERGY STAR freezers.

^^^^Deemed savings for refrigerator recycling from MO-TRM-2017_Vol. 3_March 31, 2017_Final. https://energy.mo.gov/sites/energy/files/MOTRM2017Volume3.pdf.

Cadmus estimated energy savings for measures indicated through participant spillover responses. Cadmus then divided the total Heating and Cooling program spillover savings for each program measure group by the Heating and Cooling program gross program savings for each program measure group

For the central air conditioner and heat pump measure groups, Cadmus divided the total Heating and Cooling program spillover savings for each measure by the Heating and Cooling program gross program savings for each measure to arrive at participant spillover estimates, rounded to the nearest whole percent, shown in Table 37.

Table 37. Participant Spillover Estimate

Measure Group	Survey Sample Spillover kWh Savings	Survey Sample Gross Program kWh Savings	Spillover %
Central Air Conditioner	2,270	507,158	1%
Heat Pump	4,545	1,113,687	0%

Nonparticipant Spillover

Effective program marketing and outreach generates program participation *and* increases general energy-efficiency awareness among customers. Sustained utility program and general marketing can affect customers' perceptions of their energy usage, and, in some cases, motivate them to take efficiency actions outside of the utility's program. The energy savings caused by—but not rebated through—a utility's DSM activities are designated as NPSO.

During PY18, Ameren Missouri spent $726,844 to market individual residential efficiency programs (excluding the Low Income and Home Energy Report programs).[9] To understand whether these program-specific marketing efforts generated energy-efficiency improvements outside of the incentive programs, Cadmus implemented a large online survey of PY18 nonparticipating residential customers.

Compared to the PY17 version, the PY18 survey added measures from the Heating and Cooling program to the list of measures considered for NPSO. Moreover, for questions asking how respondents knew the installed product was efficient and why respondents took efficiency actions, the PY18 survey included more predefined responses for respondents to select, reducing uncertainty around the interpretation of responses.

Methodology

Survey Sampling and Disposition

Similar to PY17's approach, Cadmus administered an online survey (see Appendix G) to efficiently obtain a significant number of survey completes. The sample design relied on analysis of PY17 survey results to determine sample sizes necessary to achieve 90/10 confidence/precision in PY18 survey results.

[9] The Home Energy Report program is evaluated using billing analysis, which accounts for program savings and spillover savings. Consequently, this NPSO excludes it.

Out of 2,431 survey respondents in PY17, 77 (3%) reported measures that qualified for NPSO. Based on this result, Cadmus estimated that 3% of all nonparticipants in the population adopted measures with ±0.58% absolute precision at 90% confidence. Additionally, the team analyzed confidence/precision around NPSO savings for each type of measure. The absolute precision—with 90% confidence—for each of nine qualified measure types was within ±10%. To increase the likelihood of achieving similar precision at the measure level for the PY18 survey, Cadmus estimated a sample size of approximately 2,250.

From Ameren Missouri's entire residential customer base, Cadmus selected customers who did not participate in any Ameren Missouri programs in PY17 or PY18 (including the Home Energy Report program); these 777,931 customers served as the nonparticipant survey population.[10] From this population, the evaluation team excluded customers who were contacted for the PY17 NPSO survey and randomly selected 60,000 customers to serve as the PY18 survey sample. Cadmus assumed a conservative response rate of 3.75% would achieve a quota of 2,250 completes.

Cadmus mailed postcard invitations, asking customers to enter a web address that would take them to the online survey administered through Qualtrics (an online survey software vendor). To thank customers for completing the survey, the team entered them into a drawing for one of five $100 Visa gift cards. If customers expressed interest in completing the survey but did not have access to a computer linked with the Internet, the team arranged for them to complete the survey over the phone with a Cadmus employee. Within a four-week fielding period, Cadmus achieved the target quota with 2,323 online and 57 phone completes.[11]

NPSO Measures

The survey asked respondents if they adopted any of 18 energy-efficiency measures offered through Ameren Missouri programs (i.e., the measures shown in Table 38). In prior evaluations, we excluded all products in the Lighting program and most products in the Heating and Cooling program to avoid double-counting NPSO savings captured through those programs' NPSO analyses (described in those programs' reports). Because the PY18 evaluation did not conduct a separate NPSO analysis for the Heating and Cooling program (in contrast to prior evaluations), the previously excluded Heating and Cooling products (denoted by an asterisk in Table 38 were added to the list of PY18 measures.

[10] Cadmus removed invalid or duplicate phone numbers from the sample frame as well as Home Energy Report participants.

[11] About 7% of respondents completing the survey (n=167) self-reported that they participated in an Ameren Missouri program in PY18; so were not counted as part of the 2,380 nonparticipant completes.

Table 38. PY18 Measures

Measure	Measure
Room air conditioner	Heat pump water heater
Room air purifier	Learning or "smart" thermostat
Pool pump	Air-source heat pump*
Showerhead	Ductless or mini-split heat pump*
Kitchen faucet aerator	Duel-fuel heat pump*
Bathroom faucet aerator	Ground-source or geothermal heat pump*
Hot water pipe insulation	Central air conditioner*
Furnace fan with ECM (Electronically Commutated Motor)	Air conditioner tune-up
Filter whistle	Heat pump tune-up

Customers also could adopt energy-efficiency measures or perform energy-saving actions outside of Ameren Missouri's PY18 program offerings (i.e., "non-like" NPSO). These were not considered as part of the NPSO estimate.[12]

NPSO Qualification Criteria

To confirm a relationship between Ameren Missouri's energy efficiency programs and measures adopted by nonparticipants, Cadmus created a set of selection criteria and operationalized these into survey questions. To qualify for NPSO savings, respondents had to meet all following criteria (see Appendix B for the NPSO qualification flow charts):

a) Familiarity with at least one Ameren Missouri program, rebate, or discount.

b) At least one element of Ameren Missouri's program marketing and outreach motivated them to adopt the measure.

c) They had a valid reason for considering the adopted measure energy-efficient.

d) They had not received a rebate from Ameren Missouri, had not tried to receive a rebate from Ameren Missouri, and stated a valid reason for not applying for an Ameren Missouri measure rebate.

e) They had a valid reason for deciding to install the measure.

f) The adopted measure generated electric savings, not gas savings.

For criterion a, respondents had to have seen or heard of Ameren Missouri's energy efficiency programs or be aware that Ameren Missouri offered rebates and discounts for energy-saving equipment in customers' homes.

For criterion b, the team asked respondents to rate the importance of several Ameren Missouri program marketing and outreach elements (shown in Table 39) in motivating them to adopt the measure, rating these "very important," "important," "not important," or "not important at all." The measure in

[12] In PY16, the team estimated that non-like NPSO savings equated to 15.1% of the total portfolio evaluated savings. However, in subsequent discussions with stakeholders, Ameren Missouri agreed not to count these savings toward overall spillover estimates in PY17 or future years.

question met criterion b if the respondent found at least one element "very important" or "important" in deciding to adopt the measure.

Table 39. Ameren Missouri Marketing and Outreach Elements for Criterion B

Statement
Information about energy savings from Ameren Missouri's marketing or bill-inserts
Ameren Missouri's marketing information from a contractor or retailer
Information from colleagues or friends who installed energy-efficient equipment and received a rebate from Ameren Missouri
If applicable, past participation in an Ameren Missouri rebate program
If applicable, information from a home energy assessment conducted through Ameren Missouri

Criterion c helped ensure that measures generated energy savings. For all measures except air conditioning and heat pump tune ups, the team asked respondents how they knew their product was energy-efficient. Responses passing criterion c included: "It's ENERGY STAR rated" or "the retailer/dealer/contractor told me it was." Responses such as "personal knowledge" or "new unit" did not pass the criterion.

The team asked whether respondents received a rebate from Ameren Missouri (to double-check that respondents truly did not participate in the program). The team then asked why respondents or their contractor did not apply for a rebate through Ameren Missouri. If respondents reported that they applied for a rebate but did not receive it or that their product or tune up did not qualify, their adopted measure did not pass criterion d. Responses such as "did not know about rebate" or "not worth the trouble" passed the criterion.

For criterion e, the team asked respondents why they decided to adopt the measure. If the response did not relate to saving energy or saving money, the measure did not pass criterion e. For example, one respondent reported installing a "learning or 'smart' thermostat" because it could be "[controlled] remotely." As this response did not relate to energy efficiency, the measure did not qualify as NPSO.

As the PY18 evaluation covered only electric savings generated by Ameren Missouri's programs, the team asked respondents for their water heater and heating system fuel types. Reported measures with water heating and heating end uses satisfied criterion f if the measures had a corresponding electric water heater or electric heat.

Results

Of 2,380 verified nonparticipant respondents, 29 respondents adopted a total of 36 measures that were not incentivized and passed all six NPSO criteria (see Appendix C). None of these 29 respondents received an incentive from Ameren Missouri for any measure. They were influenced by Ameren Missouri program marketing and outreach and adopted NPSO measures on their own.

NPSO Measures

Table 40 shows NPSO measures and gross evaluated kWh savings attributed to Ameren Missouri, achieving average savings of 242 kWh per measure (Variable A).

Table 40. PY18 NPSO Response Summary

Individual Reported Measures	Importance of Ameren Missouri Influence on Adoption	Measure Savings (kWh)	Allocated Savings	Quantity	Total Allocated kWh Savings	Avg kWh Per Spillover Measure
Bathroom faucet aerator	Somewhat	36	50%	2	36	Variable A
Bathroom faucet aerator	Very	36	100%	2	72	
Central air conditioner	Somewhat	321	50%	3	482	
Central air conditioner	Very	321	100%	2	642	
Furnace fan with ECM (Electronically Commutated Motor)	Very	574	100%	1	574	
Hot water pipe insulation	Very	15	100%	8	120	
Kitchen faucet aerator	Somewhat	171	50%	1	86	
Kitchen faucet aerator	Very	171	100%	1	171	
Learning or "smart" thermostat	Somewhat	326	50%	3	488	
Pool pump	Very	2,029	100%	1	2,029	
Room air conditioner	Very	50	100%	1	50	
Room air purifier	Somewhat	608	50%	2	608	
Room air purifier	Very	608	100%	1	608	
Showerhead	Somewhat	276	50%	3	414	
Showerhead	Very	276	100%	1	276	
Air conditioner tune up	Somewhat	244	50%	3	365	
Air conditioner tune up	Very	244	100%	7	1,705	
Total (n=36)					**8,726**	**242**

NPSO Confidence Precision Analysis

As shown in Table 41, the absolute precision—with 90% confidence—for nine of 11 qualified measure types was within ±10%. With 90% confidence. The absolute precision for central air conditioners and for air conditioner tune ups was ±12% and ±15%, respectively. For some measure types where the percentage of respondents adopting the measure was 3% or less, Cadmus could not accurately estimate the incidence of these measures within the population. However, we are confident with the proportion of nonparticipants reporting some type of measure (1.22% or 29/2,380), which has an absolute precision of ±0.37% with 90% confidence.

Table 41. PY18 Confidence/Precision Results

Measure	Number of respondents	Percentage of respondents	Absolute Precision with 90% confidence
Bathroom faucet aerator	2	7%	8%
Central air conditioner	5	17%	12%
Furnace fan with ECM (Electronically Commutated Motor)	1	3%	6%
Hot water pipe insulation	2	7%	8%
Kitchen faucet aerator	2	7%	8%
Learning or "smart" thermostat	3	10%	10%
Pool pump	1	3%	6%
Room air conditioner	1	3%	6%
Room air purifier	3	10%	10%
Showerhead	3	10%	10%
Air conditioner tune-up	10	34%	15%
Total of Respondents Who Reported Measures	**29**	**1.22%**	**0.37%**

*Note that 1.22% is the proportion of all survey respondents (n = 2,380) who reported measures, whereas the proportions for the measure types are out of the respondents who reported measures (n = 29).

NPSO Extrapolation to Nonparticipant Population

To determine total NPSO generated by Ameren Missouri's marketing in PY18, Cadmus extrapolated NPSO savings per measure (Table 40) to the entire PY18 residential nonparticipant population. Table 42 presents the NPSO analysis, resulting in NPSO total evaluated savings of 2,852 MWh portfolio level.

Table 42. PY18 NPSO Analysis

Variable	Metric	Value	Source
A	Average kWh Savings per Measure	242	Survey Data; PY18 Impact Evaluation
B	Number of Measures	36	Survey Data
C	Number of Nonparticipant Respondents	2,380	Survey Disposition
D	Total Residential Population Minus PY18 Participants	777,931	Customer Database
E	Total NPSO MWh Savings Applied to Population	2,852	(((B ÷ C) × A) × D)/1000

NPSO savings in PY18 (2,852 MWh) are less than savings reported in PY17 (6,212 MWh). This is primarily due to the average measure per nonparticipant decreased from 0.035 in PY17 to 0.015 in PY18.

NPSO Allocation to Individual Programs

The observed 2,852 MWh of NPSO equates to 3.8% of the total portfolio evaluated gross savings. As in previous years, the team allocated the NPSO based on marketing budget and savings for each program. This approach remained consistent with the theory that NPSO resulted from the cumulative effects of energy conservation marketing, program-specific marketing, and program activity over a period—not necessarily by a single, program-specific marketing effort. In addition, while NPSO was most commonly associated with mass media marketing campaigns, the scale of program activity also counted as a factor.

For example, even without a significant marketing campaign, a program's size can drive NPSO through word-of-mouth and in-store program messaging. The team found this approach accurately reflected and attributed NSPO to programs, ensuring those total costs (including marketing) and total benefits (net savings including NPSO) were properly accounted for when assessing overall program cost-effectiveness.

The allocation approach is based on the combined savings and marketing budget and illustrated in Table 43.

Table 43. PY18 Combined Savings and Marketing Allocation

Program	Program *Ex Post* Gross Savings (MWh)	Percentage of Portfolio Savings	Program Marketing	Percentage of Total Marketing	Combined Savings & Marketing (AxB)	Percentage of Combined Savings & Marketing
Lighting	8,383	11.15%	$40,316	5.55%	0.62%	0.95%
Efficient Products	4,270	5.68%	$18,434	2.54%	0.14%	0.22%
Heating and Cooling	**54,444**	**72.42%**	**$643,897**	**88.59%**	**64.16%**	**98.65%**
Smart Thermostats	2,163	2.88%	$21,574	2.97%	0.09%	0.13%
Energy Efficiency Kits	5,915	7.87%	$2,624	0.36%	0.03%	0.04%
Total	**75,175**	**100%**	**$726,844**	**100%**	**65%**	**100%**

Using the allocation method based on marketing budget and program size, the team distributed the portfolio-level result of 2,852 MWh NPSO to each of Ameren Missouri's residential programs. As shown in Table 44, the results of this approach reflected each program's impact on the nonparticipant population, proxied by the combined effect of marketing expenditures and program savings. The Heating and Cooling program achieved 98.7% of the total NPSO, at about 2,814 MWh.

Table 44. PY18 NPSO by Program

Program	Program Gross Savings (MWh)	Total NPSO (MWH)	Percentage of Combined Savings/ Marketing	Program-Specific NPSO (MWh)
Lighting	8,383	2,852	0.95%	27
Efficient Products	4,270		0.22%	6
Heating and Cooling	**54,444**		**98.65%**	**2,814**
Smart Thermostats	2,163		0.13%	4
Energy Efficiency Kits	5,915		0.04%	1
Total	**75,175**		**100%**	**2,852**

Three-Year Savings Comparison

Figure 5 and Figure 6 show the Heating and Cooling program's energy and demand savings summaries—MPSC target, *ex post* gross, and *ex post* net—for PY16, PY17, and PY18.

Figure 5. P16-PY18 Heating and Cooling Program Energy Savings Summary

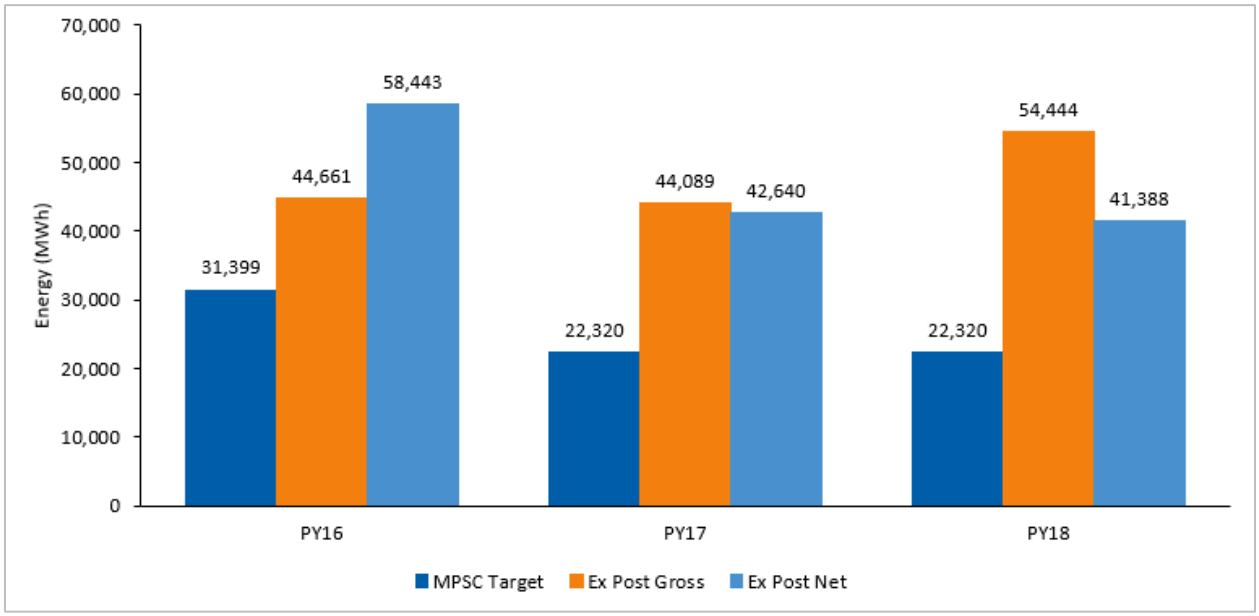
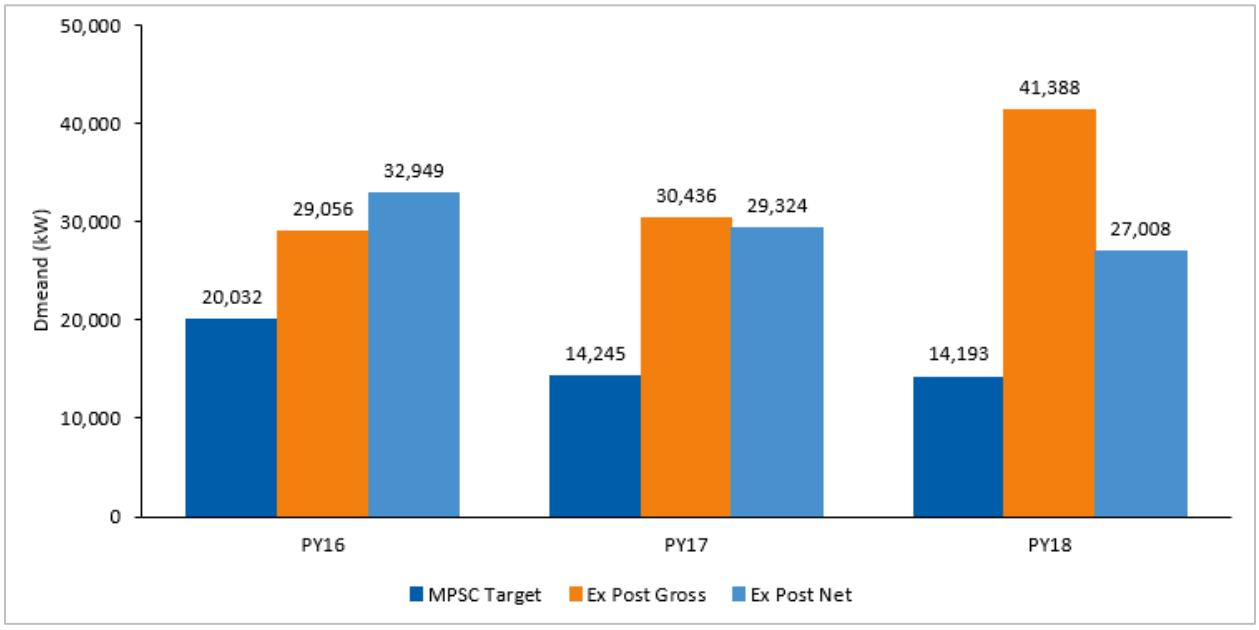


Figure 6. PY16-PY18 Heating and Cooling Program Demand Savings Summary



Key Progress Indicators

Cadmus tracks the following key progress indicators for the Heating and Cooling program:

- Program electric savings
- Number of contractors registered
- Satisfaction with the Heating and Cooling program
- Satisfaction with Ameren Missouri

Table 45 shows the Heating and Cooling program's key progress metrics for PY16, PY17, and PY18. PY18's savings increased significantly from PY17, and the number of customers participating in the program increased also increased.[13] Participant satisfaction with the program and with Ameren Missouri remained consistent.

Table 45. Key Progress Indicators

Metric	PY16	PY17	PY18
Gross Evaluated Electric Savings (MWh)	44,661	44,089	54,444
Number of Contractors registered	456	457	541
Percentage of participants expressing that they are "very satisfied" with the Heating and Cooling program	88%	88%	89%
Percentage of participants expressing that they are "very satisfied" with Ameren Missouri	72%	73%	73%

[13] Cadmus can verify the number of contractors completing at least one application in the program year by reviewing program tracking data. In PY16, Cadmus determined that 398 unique contractors completed at least one project; in PY17, 404 unique contractors did so; and in PY18, 448 did so.

Cost-Effectiveness

The Cadmus Team assessed cost-effectiveness using the following five tests, as defined by the California Standard Practice Manual (except where modified as noted in this report):[14]

- Total Resource Cost Test (TRC)
- Utility Cost Test (UCT)
- Ratepayer Impact Measure Test (RIM)
- Participant Cost Test (PART)
- Societal Cost Test (SCT)

DSMore takes hourly prices and hourly energy savings from specific measures installed through the Heating and Cooling program and correlates them 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 the demand-side efficiency measure relative to other alternative supply options. For the Heating And Cooling program, the team also used dual baselines for early replacement measures, assigning the savings based on the replaced equipment for the remaining useful life of the replaced equipment, and then applying savings values based on the current market alternative for the remaiing useful life of the new equipment. The impact evaluation results, consider the 1-year annual saving.

Key assumptions include the following:

- Discount Rate of 6.46% for all tests except the SCT, which used a 3.0% discount rate
- Line Losses of 5.72% for residential customers and 4.84% for business customers
- Summer peak occurring during the 16th hour of a July weekday, on average
- Avoided costs from the 2017 IRP, filed October 1, 2017
- Escalation rates for different costs occurring at the component level, with separate escalation rates for fuel, capacity, generation, T&D, and customer rates carried out over 25 years

The Cadmus team used evaluation results as model inputs (e.g., PY18-specific Lighting program participation counts, per-unit gross savings, NTG, NPSO). All PY18 inputs were entered into the model as "Year 3" values, and the model discounted all costs back to 2016 values; so results are comparable across program years.

The team used measure-specific load shapes provided by Ameren Missouri to inform the model when to apply savings for each measure over any given day. This ensured that the load shape for an end use matched the system peak impacts of that end use, and provided the correct summer coincident savings. The team used measure lifetime assumptions and incremental costs from the Ameren Missouri TRM or from the original Batch Tool provided with the Cycle 2 MEEIA filing.

---

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

The model also applied actual PY18 Ameren Missouri program costs. For the PY18 Heating and Cooling program, Ameren Missouri's costs included direct expenses for the Heating and Cooling program administration and incentives, in addition to a percentage of portfolio-level costs. Portfolio costs—including research and development, EM&V, Educational Outreach, Portfolio Administration, Potential Study, and Data Tracking—were allocated to each program based on the relative program benefits. The Cadmus team used cost data through March 2019, as provided by Ameren Missouri.

For all programs, the team included NPSO savings on a measure-by-measure basis (instead of as a percentage incorporated in the NTG) which allowed DSMore to apply the correct load shape, incremental cost, and useful life to each spillover measure.

Table 46 summarizes cost-effectiveness findings by test. Any benefit-cost score above 1.0 passed the test as cost-effective. As shown, the Heating and Cooling program passed the UCT, TRC, Societal, and PART tests.

Table 46. Cost-Effectiveness Results (PY18)

Program	UCT	TRC	RIM	SCT	PART
Heating and Cooling	2.34	1.36	0.54	1.99	3.08

List of Appendices

Following are the Appendices for the Heating and Cooling program evaluation.

Appendix A. End-Use Load Shapes and Coincidence Factors

Appendix E

End-Use Category Energy Load Shapes

% Energy by Month

	Residential End-Use Category Load Shape								
Month	**Building Shell**	**Cooling**	**Freezer**	**HVAC**	**Lighting**	**Miscellaneous**	**Pool Spa**	**Refrigeration**	**Water Heating**
January	11.1297%	0.1200%	7.9579%	11.1297%	10.1182%	8.4893%	8.6451%	7.7053%	10.3527%
February	9.3077%	0.1100%	7.2518%	9.3077%	8.8441%	7.7366%	7.1145%	7.2169%	9.0720%
March	7.0042%	0.3130%	8.1080%	7.0042%	9.2879%	8.4863%	8.6052%	8.0272%	9.5543%
April	3.7116%	1.5047%	7.9918%	3.7116%	8.4645%	8.2144%	8.0702%	7.8752%	8.4799%
May	4.0888%	6.5410%	8.4083%	4.0888%	7.9393%	8.4847%	8.6052%	8.5646%	8.3600%
June	10.3973%	21.0823%	8.5730%	10.3973%	6.8508%	8.2122%	8.0702%	8.9112%	7.7065%
July	14.0100%	28.4780%	9.6095%	14.0100%	6.7864%	8.4883%	8.6451%	9.4239%	6.7712%
August	13.3207%	27.0766%	9.6095%	13.3207%	7.0565%	8.4840%	8.5653%	9.4212%	6.3688%
September	6.6759%	12.6605%	8.4277%	6.6759%	7.3792%	8.2136%	8.3032%	8.4971%	6.9373%
October	3.7011%	1.8472%	8.2582%	3.7011%	8.4539%	8.4869%	8.6052%	8.5653%	7.9644%
November	5.9593%	0.1444%	7.8465%	5.9593%	8.9880%	8.2122%	8.1088%	7.8717%	8.4752%
December	10.6937%	0.1222%	7.9579%	10.6937%	9.8312%	8.4915%	8.6619%	7.9204%	9.9577%

End-Use Category Energy to Coincident Peak Demand Factors

	Building Shell	**Cooling**	**Freezer**	**HVAC**	**Lighting**	**Miscellaneous**	**Pool Spa**	**Refrigeration**	**Water Heating**
	0.0004660805	0.0009474181	0.0001685722	0.0004660805	0.0001492529	0.0001148238	0.0002354459	0.0001285253	0.0000887318

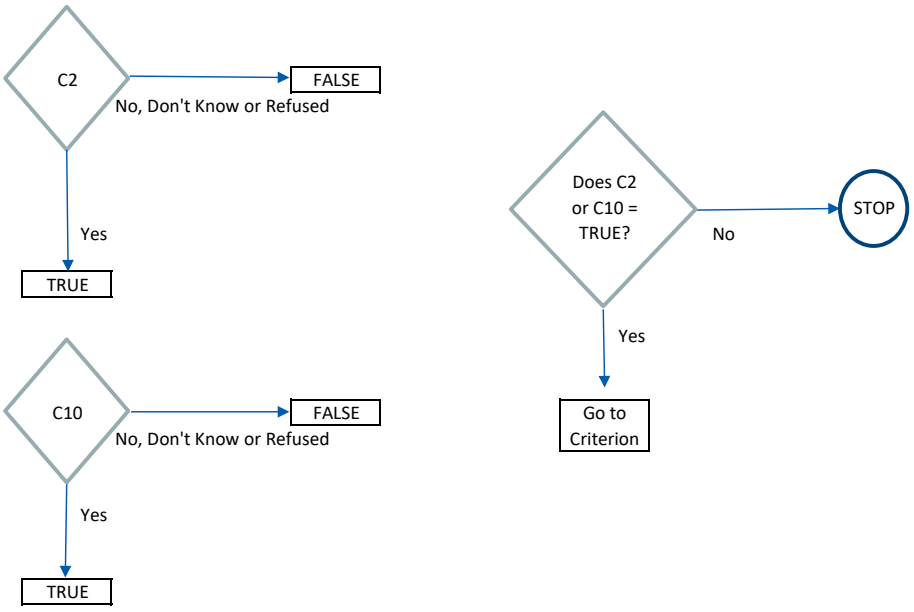
Source: Ameren Missouri 2016-2018 Energy Efficiency Plan. MPSC file number EO-2015-0055 Appendix E to evaluated energy savings.

Appendix B. Nonparticipant Spillover Qualification Flow Charts

FLOWCHARTS FOR DETERMINING LIKE NPSO

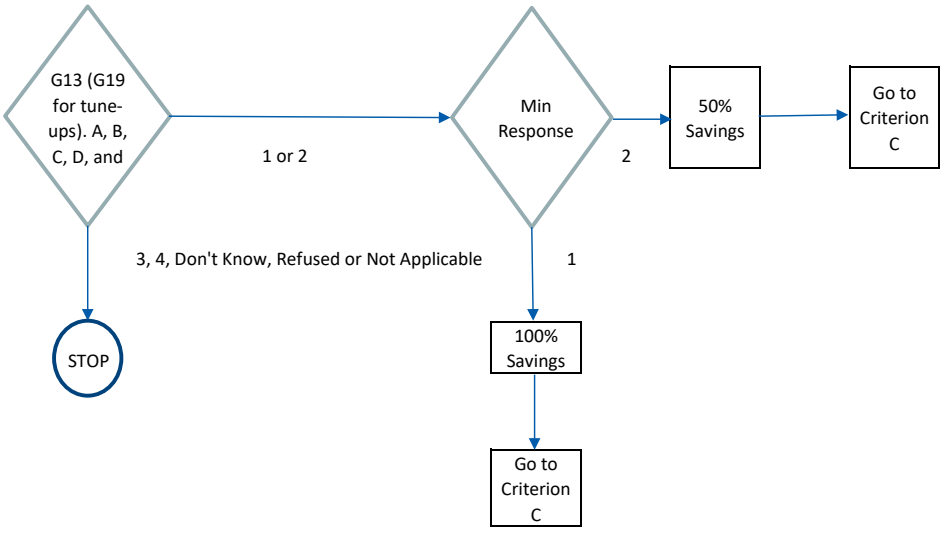
Criterion A: Familiarity with at least one Ameren Missouri program, rebate, or discount

C2. Have you ever seen or heard of the Ameren Missouri's energy efficiency programs?
C10. Are you aware that Ameren Missouri offers rebates and discounts for energy-saving equipment in your home?



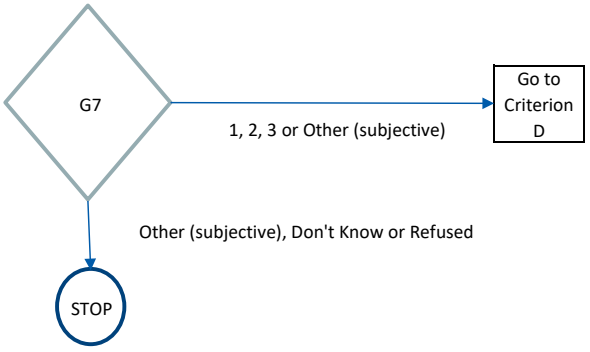
Criterion B: At least one element of Ameren Missouri's program marketing and outreach motivated them to adopt the measure

G13 (G19 for tune-ups). On a 1 to 4 scale, with 1 meaning "very important", and 4 meaning "not at all important", how important was each of the following elements in your decision to purchase and install the measure?
A. Information about energy savings from Ameren Missouri's marketing or bill insert
B. Ameren Missouri's marketing information from a contractor or retailer
C. Information from colleagues or friends who installed energy efficient equipment and received a rebate from Ameren Missouri
D. Past participation in an Ameren Missouri energy efficiency program
E. Information from the energy assessment conducted at your home through Ameren Missouri



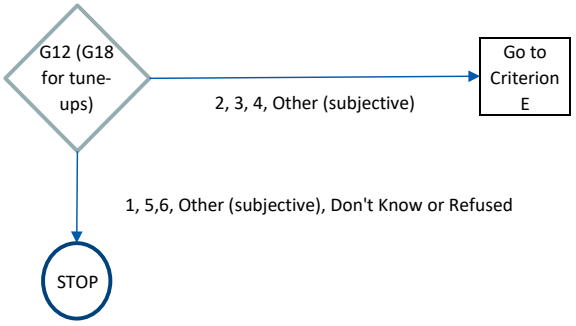
Criterion C: They had a valid reason for considering the adopted measure energy efficient (not for tune-ups)

G7. How do you know the measure is energy efficient?
1 = It's ENERGY STAR-certified, 2 = The retailer/dealer/contractor told me it was, 3 = Information about the product from packaging, websites, etc., 4 = Other (please specify)



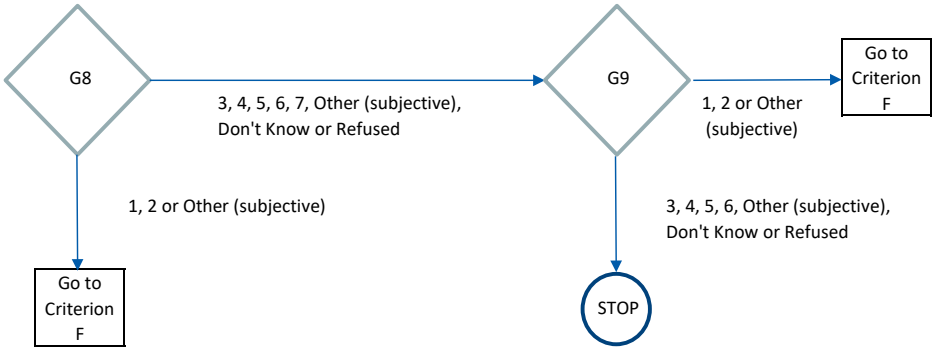
Criterion D: They had not received a rebate from Ameren Missouri, had not tried to receive a rebate from Ameren Missouri, and stated a valid reason for not applying for an Ameren Missouri measure rebate.

G12 (G18 for tune-ups). Why didn't you or your contractor apply for a rebate through Ameren Missouri for the measure?
1 = I am still planning to apply, 2 = It was confusing, 3 = Just forgot about it, 4 = I wasn't sure my equipment qualified, 5 = I wanted a different model that did not qualify, 6 = I applied but I did not receive a rebate, 7 = Other (please specify)

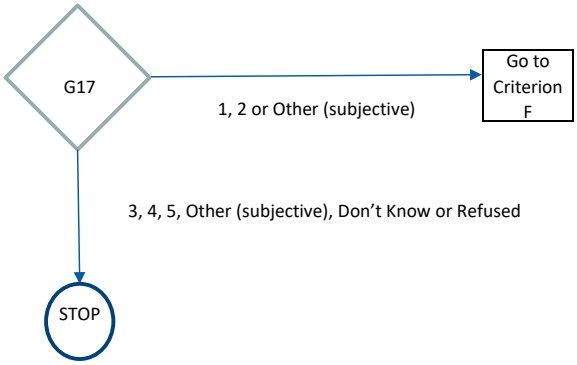


Criterion E: They had a valid reason for deciding to install the measure

G8. Which of the following reasons best describe why you decided to install the measure?
1 = To save energy, 2 = To save money, 3 = To replace failing equipment, 4 = Needed to replace anyway, 5 = Liked the style, 6 = Was ready to update,
G9. Which of the following reasons best describe why you chose an energy efficient version of the measure?
1 = To save energy, 2 = To save money, 3 = Liked the style, 4 = It had other features that I liked, 5 = It was the cheapest product available, 6 = It was the only option available, 7 = Other (please specify)

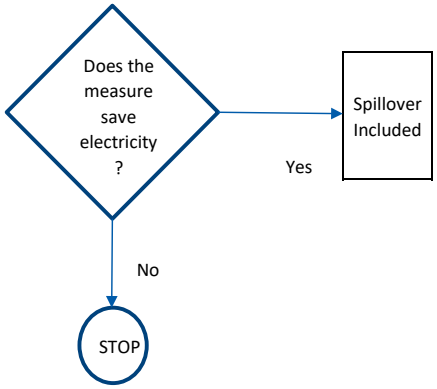


G17 (for tune-ups). Which of the following reasons best describe why you decided to install have the tune-up?
1 = To save energy, 2 = To save money, 3 = To improve home comfort, 4 = It was part of routine maintenance, 5 = To make repairs or replacements, 6 = Other (please specify)



Criterion F: The adopted measure generated electric savings, not gas savings

F1. What type of heating equipment do you have in your home?
F4. Is your home heating electric or gas?
G1. Is your hot water heater electric or gas?



Appendix C. Nonparticipant Spillover Data

Measure Information				Criterion A: Familiarity with at least one Ameren Missouri program, rebate, or discount			Criterion B: At least one element of Ameren's program marketing and outreach motivated them to adopt the measure								Criterion C: They had a valid reason for considering the adopted measure energy efficient		Criterion D: They had not received a rebate from Ameren, and had not already tried to receive a rebate from Ameren, and they stated a valid reason for not applying for an Ameren rebate			Criterion E: They had a valid reason for deciding to install the measure			Criterion F: The adopted measure generated electric savings, not gas savings				Meeting all criteria	
Account	Cadmus Disposition	Measure	Measure Number	C2. Have you ever seen or heard of Ameren Missouri's energy efficiency programs?	C10. Are you aware that Ameren Missouri offers rebates and discounts for energy-saving equipment in your home ?	Criterion A met? (Yes to C2 or C10)	a) Information about energy savings from Ameren Missouri's marking or bill insert	b) Ameren Missouri's marketing information from a contractor or retailer	c) Information from colleagues or friends who installed energy efficient equipment and received a rebate from Ameren Missouri	d) Past participation in an Ameren Missouri energy efficiency program	e) Information from the energy assessment conducted at your home through Ameren Missouri	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)	C7. How do you know the [measure] is energy efficient?	Criterion C met? (qualitative assessment)	G10. Did you receive a rebate, discount, or tax credit for installing the [measure]?	G11. Did you get a rebate from Ameren Missouri?	G12. Why didn't you or your contractor apply for a rebate through Ameren Missouri for the [measure]?	Criterion D met? (qualitative assessment)	G8. Which of the following reasons best describe why you decided to install a [measure]?	Which of the following reasons best describe why you chose an energy efficient version of a [measure]?	Criterion E met? (qualitative assessment)	Cooling System	Heating System	Water Heating Fuel	Criterion F met? (depends on the measure)	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)	
GP220	Eligible Complete	Bathroom faucet aerator	19	Yes	No	TRUE	1	1	1	N	1	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No		Didn't know you had rebate	TRUE	To replace failing equipment	To save energy	TRUE	Window or wall air conditioner	Electric furnace	Electric	TRUE	FALSE	TRUE	
HQ319	Eligible Complete	Room air purifier	2	Yes	Yes	TRUE	1	1	2	1	2	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	No		Just forgot about it	TRUE	To improve comfort	health	FALSE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE	
HO319	Eligible Complete	Furnace fan with ECM (Electronically Commutated Motor)	9	Yes	Yes	TRUE	1	2	3	1	2	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	Yes	Yes	0	FALSE	To replace failing equipment	To save energy	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE	
HQ319	Eligible Complete	Learning or "smart" thermostat	12	Yes	Yes	TRUE	1	2	3	2	2	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	Yes	Yes	0	FALSE	Needed to replace anyway	To save money	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
HZ948	Eligible Complete	Learning or "smart" thermostat	12	No	Yes	TRUE	1	3	4	N	2	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	No		0	Was not aware	TRUE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
LS526	Eligible Complete	Ground-source or geothermal heat pump	24	Yes	Yes	TRUE	3	3	1	4	4	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No		0	I have tried for rebate but have been told I didn't use a certified contractor to install my system	FALSE	To save money	0	TRUE	Ground-source or geothermal heat pump	Ground-source or geothermal heat pump	Electric	TRUE	FALSE	FALSE	
DD775	Eligible Complete	Room air purifier	2	Yes	Yes	TRUE	1	0	2	2	0	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No		0	Don't know	FALSE	Wife has copd	To save money	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE	
DD775	Eligible Complete	Showerhead	17	Yes	Yes	TRUE	2	0	2	N	2	TRUE	FALSE	Information about the product from packaging, websites. etc.	TRUE	No		0	Don't know	FALSE	To improve comfort	To save money	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
DD775	Eligible Complete	Learning or "smart" thermostat	12	Yes	Yes	TRUE	2	2	2	2	N	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	No		0	Don't know	FALSE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
LG594	Eligible Complete	Showerhead	17	Yes	Yes	TRUE	2	2	3	2	N	TRUE	FALSE	The retailer/dealer/contractor told me it was	TRUE	No		0	I wasn't sure my equipment qualified	TRUE	Was ready to update	To save energy	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	TRUE	FALSE	
LG594	Eligible Complete	Bathroom faucet aerator	19	Yes	Yes	TRUE	2	3	4	2	N	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	No		0	Just forgot about it	TRUE	Was ready to update	Liked the style	FALSE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE	
LG594	Eligible Complete	Learning or "smart" thermostat	12	Yes	Yes	TRUE	2	2	3	N	2	TRUE	FALSE	The retailer/dealer/contractor told me it was	TRUE	No		0	I wasn't sure my equipment qualified	TRUE	To save energy	0	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	TRUE	FALSE	
ME113	Eligible Complete	Learning or "smart" thermostat	12	Yes	Yes	TRUE	1	1	1	N	1	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No		0	I wasn't sure my equipment qualified	TRUE	Was ready to update	It had other features that I liked	FALSE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE	
KR706	Eligible Complete	Central air conditioner	25	No	Yes	TRUE	1	1	2	2	1	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	Yes	No	out of state	FALSE	new construction	new construction	FALSE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE	
HH866	Eligible Complete	Hot water pipe insulation for your hot water heater	20	No	Yes	TRUE	2	2	1	0	0	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	No		0	It was confusing	TRUE	To replace failing equipment	To save energy	TRUE	Central air conditioner	Air-source heat pump	Electric	TRUE	FALSE	TRUE	
HH866	Eligible Complete	Heat pump water heater	11	No	Yes	TRUE	1	N	2	N	0	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	No		0	It was confusing	TRUE	Needed to replace anyway	It had other features that I liked	FALSE	Central air conditioner	Air-source heat pump	Electric	TRUE	FALSE	FALSE	
HE892	Eligible Complete	Central air conditioner	25	No	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	No		0	Don't know	FALSE	To replace failing equipment	To save money	TRUE	Central air conditioner	Don't know Electric	Gas	TRUE	FALSE	FALSE	
LV388	Eligible Complete	Showerhead	17	Yes	Yes	TRUE	2	2	N	N	N	TRUE	FALSE	Information about the product from packaging, websites. etc.	TRUE	No		0	I wasn't sure my equipment qualified	TRUE	Was ready to update	Liked the style	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
CN474	Eligible Complete	Room air purifier	2	Yes	Yes	TRUE	1	1	1	2	4	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	No		0	Just forgot about it	TRUE	To improve comfort	It had other features that I liked	FALSE	Central air conditioner	None	Gas	TRUE	FALSE	FALSE	
CN474	Eligible Complete	Showerhead	17	Yes	Yes	TRUE	2	2	1	4	1	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	No		0	Just forgot about it	TRUE	To replace failing equipment	To save money	TRUE	Central air conditioner	None	Gas	FALSE	FALSE	FALSE	
MB566	Eligible Complete	Pool pump	3	Yes	Yes	TRUE	3	2	2	1	2	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	Yes	No	I wasn't sure my equipment qualified	TRUE	Was ready to update	To save energy	TRUE	Central air conditioner,Air-source heat pump	Air-source heat pump ,Electric furnace	Electric	TRUE	FALSE	TRUE	
MB566	Eligible Complete	Kitchen faucet aerator	18	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No		0	I wasn't sure my equipment qualified	TRUE	To save energy	0	TRUE	Central air conditioner,Air-source heat pump	Air-source heat pump ,Electric furnace	Electric	TRUE	TRUE	FALSE	
MB566	Eligible Complete	Furnace fan with ECM (Electronically Commutated Motor)	9	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	Yes	Don't know	0	FALSE	To save money	0	TRUE	Central air conditioner,Air-source heat pump	Air-source heat pump ,Electric furnace	Electric	TRUE	FALSE	FALSE	
KC540	Eligible Complete	Furnace fan with ECM (Electronically Commutated Motor)	9	Don't know	Yes	TRUE	2	2	2	3	2	TRUE	FALSE	The retailer/dealer/contractor told me it was	TRUE	Don't know	0	0	FALSE	Needed to replace anyway	To save energy	TRUE	Central air conditioner,Other (please specify): attic fan for mild days	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE	
LG156	Eligible Complete	Bathroom faucet aerator	19	Yes	Yes	TRUE	2	2	N	3	N	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	No		0	Didn't know I could	TRUE	To save money	0	TRUE	Central air conditioner,Air-source heat pump	Air-source heat pump ,Electric Baseboard heating system	Electric	TRUE	TRUE	FALSE	
LG156	Eligible Complete	Air-source heat pump	21	Yes	Yes	TRUE	3	3	2	3	N	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	Don't know	0	0	FALSE	To save money	0	TRUE	Central air conditioner,Air-source heat pump	Air-source heat pump ,Electric Baseboard heating system	Electric	TRUE	FALSE	FALSE	
AM582	Eligible Complete	Learning or "smart" thermostat	12	Don't know	Yes	TRUE	2	3	1	3	2	FALSE	TRUE	Historical energy bills compared to current	TRUE	Yes	Yes	0	FALSE	To save money	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
KN880	Eligible Complete	Central air conditioner	25	Don't know	Yes	TRUE	2	4	N	4	N	TRUE	FALSE	Don't know	FALSE	No		0	I applied, but I did not receive a rebate	FALSE	To replace failing equipment	Don't know	FALSE	Central air conditioner	Electric furnace	Gas	TRUE	FALSE	FALSE	
AT737	Eligible Complete	Showerhead	17	Yes	Yes	TRUE	1	1	2	N	1	FALSE	TRUE	Landlord installed it	FALSE	No		0	Landlord replaced broken one	TRUE	To replace failing equipment	Landlord bought it	FALSE	Window or wall air conditioner	Electric baseboard heating system	Electric	TRUE	FALSE	FALSE	
KC536	Eligible Complete	Showerhead	17	Yes	No	TRUE	4	4	1	4	N	FALSE	TRUE	Information about the product from packaging, websites. etc.	TRUE	No		0	I wanted a different model that did not qualify	FALSE	Was ready to update	It had other features that I liked	FALSE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE	
KX743	Eligible Complete	Kitchen faucet aerator	18	Yes	Yes	TRUE	2	2	2	2	1	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No		0	Don't know	FALSE	To save money	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
KX743	Eligible Complete	Bathroom faucet aerator	19	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	Information about the product from packaging, websites. etc.	TRUE	No		0	Don't know	FALSE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
HT597	Eligible Complete	Kitchen faucet aerator	18	Yes	Don't know	TRUE	3	2	2	0	1	FALSE	TRUE	Don't know	FALSE	No		0	Don't know	FALSE	Don't know	It was the only option available	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
HT597	Eligible Complete	Bathroom faucet aerator	19	Yes	Don't know	TRUE	1	2	2	3	2	FALSE	TRUE	Don't know	FALSE	No		0	Don't know	FALSE	Don't know	To save energy	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
HT597	Eligible Complete	Learning or "smart" thermostat	12	Yes	Don't know	TRUE	2	1	3	N	1	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	No		0	Don't know	FALSE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
FN584	Eligible Complete	Hot water pipe insulation for your hot water heater	20	Yes	Yes	TRUE	3	2	2	2	2	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	No		0	Just forgot about it	TRUE	They insulated with the roof and upper room insulation	To make our home more efficiently cool and warm	FALSE	Central air conditioner	Gas furnace/boiler ,Other (please specify): out door wood boiler Gas	Electric	TRUE	FALSE	FALSE	
HW784	Eligible Complete	Showerhead	17	Yes	Yes	TRUE	2	3	3	2	2	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	No		0	I wasn't sure my equipment qualified	TRUE	Needed to replace anyway	It had other features that I liked	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
HW784	Eligible Complete	Learning or "smart" thermostat	12	Yes	Yes	TRUE	2	3	3	2	2	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	Yes	No	I wasn't sure my equipment qualified	TRUE	Was ready to update	To save energy	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
HW399	Eligible Complete	Learning or "smart" thermostat	12	Don't know	Yes	TRUE	2	N	2	N	2	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	Yes	Yes	0	FALSE	To save money	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
KU700	Eligible Complete	Kitchen faucet aerator	18	No	Yes	TRUE	2	0	0	2	0	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No		0	Don't know	FALSE	To replace failing equipment	Liked the style	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	

Measure Information				Criterion A: Familiarity with at least one Ameren Missouri program, rebate, or discount			Criterion B: At least one element of Ameren's program marketing and outreach motivated them to adopt the measure								Criterion C: They had a valid reason for considering the adopted measure energy efficient		Criterion D: They had not received a rebate from Ameren, and had not already tried to receive a rebate from Ameren, and they stated a valid reason for not applying for an Ameren rebate				Criterion E: They had a valid reason for deciding to install the measure			Criterion F: The adopted measure generated electric savings, not gas savings				Meeting all criteria	
Account	Cadmus Disposition	Measure	Measure Number	C2. Have you ever seen or heard of Ameren Missouri's energy efficiency programs?	C10. Are you aware that Ameren Missouri offers rebates and discounts for energy-saving equipment in your home ?	Criterion A met? (Yes to C2 or C10)	a) Information about energy savings from Ameren Missouri's marketing or bill insert	b) Ameren Missouri's marketing information from a contractor or retailer	c) Information from colleagues or friends who installed energy efficient equipment and received a rebate from Ameren Missouri	d) Past participation in an Ameren Missouri energy efficiency program	e) Information from the energy assessment conducted at your home through Ameren Missouri	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)	C7. How do you know the [measure] is energy efficient?	Criterion C met? (qualitative assessment)	G10. Did you receive a rebate, discount, or tax credit for installing the [measure]?	G11. Did you get a rebate from Ameren Missouri?	G12. Why didn't you or your contractor apply for a rebate through Ameren Missouri for the [measure]?	Criterion D met? (qualitative assessment)	G8. Which of the following reasons best describe why you decided to install a [measure]?	Which of the following reasons best describe why you chose an energy efficient version of a [measure]?	Criterion E met? (qualitative assessment)	Cooling System	Heating System	Water Heating Fuel	Criterion F met? (depends on the measure)	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)	
GS293	Eligible Complete	Learning or "smart" thermostat	12	Yes		TRUE	N	N	1	N	N	FALSE	TRUE	ITâ€™s ENERGY STAR-certified	TRUE	No		I wasnâ€™t sure my equipment qualified	TRUE	Was ready to update	To save energy	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
CF885	Eligible Complete	Kitchen faucet aerator	18	Yes		TRUE	0	N	0	2	0	TRUE	FALSE	ITâ€™s ENERGY STAR-certified	TRUE	No	0	Don't know	FALSE	Was ready to update	It had other features that I liked	FALSE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE	
CF885	Eligible Complete	Hot water pipe insulation for your hot water heater	20	Yes		TRUE	1	N	1	1	N	FALSE	TRUE	Information about the product from packaging, websites. etc.	TRUE	No	0	I wasnâ€™t sure my equipment qualified	TRUE	Needed to replace anyway	It was the cheapest product available	FALSE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE	
CF885	Eligible Complete	Furnace fan with ECM (Electronically Commutated Motor)	9	Yes		TRUE	1	N	D	2	D	FALSE	TRUE	The retailer/dealer/ contractor told me it was	TRUE	No	0	I wasnâ€™t sure my equipment qualified	TRUE	To save energy	0	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	TRUE	
AM977	Eligible Complete	Room air purifier	2	Yes		TRUE	2	2	2	2	2	TRUE	FALSE	Information about the product from packaging, websites. etc.	TRUE	No	0	Don't know	FALSE	To improve comfort	Liked the style	FALSE	Air-source heat pumo	Air-source heat pump ,Electric furnace	Electric	TRUE	FALSE	FALSE	
AM977	Eligible Complete	Air-source heat pumo	21	Yes		TRUE	2	2	2	2	2	TRUE	FALSE	The retailer/dealer/ contractor told me it was	TRUE	No	0	contractor said it didn't qualify	FALSE	Needed to replace anyway	To save monev	TRUE	Air-source heat pumo	Air-source heat pump ,Electric furnace	Electric	TRUE	FALSE	FALSE	
HE674	Eligible Complete	Showerhead	17	Yes		TRUE	1	1	1	1	1	FALSE	TRUE	aot it from you	FALSE	No	0	aot it from you	FALSE	To replace failing equipment	To save enerev	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE	
HE674	Eligible Complete	Kitchen faucet aerator	18	Yes		TRUE	1	1	1	1	1	FALSE	TRUE	Information about the product from packaging, websites. etc.	TRUE	No		I wasnâ€™t sure my equipment qualified	TRUE	To save energy	0	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	TRUE	
HE674	Eligible Complete	Bathroom faucet aerator	19	Yes		TRUE	1	1	1	1	2	FALSE	TRUE	ITâ€™s ENERGY STAR-certified	TRUE	No	0	Don't know	FALSE	Needed to replace anyway	It was the only option available	FALSE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE	
CN740	Eligible Complete	Room air conditioner	1	Yes		No	1	2	3	2	2	FALSE	TRUE	ITâ€™s ENERGY STAR-certified	TRUE	No	0	Don't know	FALSE	To replace failing equipment	It was the only option available	FALSE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE	
CN740	Eligible Complete	Showerhead	17	Yes		No	1	2	3	2	2	FALSE	TRUE	ITâ€™s ENERGY STAR-certified	TRUE	No	0	Don't know	FALSE	To save monev	0	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE	
CN740	Eligible Complete	Kitchen faucet aerator	18	Yes		No	1	2	3	2	1	FALSE	TRUE	Information about the product from packaging, websites. etc.	TRUE	No	0	Don't know	FALSE	To save money	0	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE	
FN596	Eligible Complete	Kitchen faucet aerator	18	Yes		TRUE	2	4	4	1	4	FALSE	TRUE	Information about the product from packaging, websites. etc.	TRUE	No	0	Just forgot about it	TRUE	To replace failing equipment	functionality	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
FN596	Eligible Complete	Hot water pipe insulation for your hot water heater	20	Yes		TRUE	2	2	4	1	4	FALSE	TRUE	The retailer/dealer/ contractor told me it was	TRUE	No	0	Just forgot about it	TRUE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
FN596	Eligible Complete	Learning or "smart" thermostat	12	Yes		TRUE	2	1	D	2	3	FALSE	TRUE	Information about the product from packaging, websites. etc.	TRUE	Don't know	0	0	FALSE	To improve comfort	To save money	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
ET174	Eligible Complete	Hot water pipe insulation for your hot water heater	20	Yes		TRUE	2	2	D	N	D	TRUE	FALSE	The retailer/dealer/ contractor told me it was	TRUE	No	0	Did not know I could	TRUE	To replace failing equipment	To save enerev	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
LS917	Eligible Complete	Room air purifier	2	Yes		TRUE	3	3	2	4	N	TRUE	FALSE	Information about the product from packaging, websites. etc.	TRUE	No	0	Just forgot about it	TRUE	health reasons	Liked the style	FALSE	Central air conditioner,Air-source heat pump	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE	
LS917	Eligible Complete	Showerhead	17	Yes		TRUE	3	3	2	N	N	TRUE	FALSE	The retailer/dealer/ contractor told me it was	TRUE	No	0	I wasnâ€™t sure my equipment qualified	TRUE	Needed to replace anyway	To save money	TRUE	Central air conditioner,Air-source heat pump	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
GP243	Eligible Complete	Room air conditioner	1	Yes		TRUE	2	4	3	N	2	TRUE	FALSE	ITâ€™s ENERGY STAR-certified	TRUE	No	0	I wasnâ€™t sure my equipment qualified	TRUE	To improve comfort	It was the cheapest product available	FALSE	Window or wall air conditioner	Other (please specify): Space heatersElectric	Electric	TRUE	FALSE	FALSE	
DG739	Eligible Complete	Learning or "smart" thermostat	12	Yes		TRUE	2	2	2	4	3	TRUE	FALSE	ITâ€™s ENERGY STAR-certified	TRUE	No	0	Don't know	FALSE	Needed to replace anyway	It had other features that I liked	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
DG739	Eligible Complete	Central air conditioner	25	Yes		TRUE	2	2	3	2	3	TRUE	FALSE	The retailer/dealer/ contractor told me it was	TRUE	Yes	Yes	0	FALSE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE	
DV192	Eligible Complete	Showerhead	17	Yes		TRUE	D	D	1	D	N	FALSE	TRUE	Information about the product from packaging, websites. etc.	TRUE	No	0	Just forgot about it	TRUE	To save enerev	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
LS916	Eligible Complete	Room air conditioner	1	Yes		TRUE	2	N	N	N	2	TRUE	FALSE	Information about the product from packaging, websites. etc.	TRUE	No	0	Landlord purchased the equipment	FALSE	To replace failing equipment	To save energy	TRUE	Window or wall air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE	
AW742	Eligible Complete	Showerhead	17	Yes		TRUE	2	3	3	4	2	TRUE	FALSE	Information about the product from packaging, websites. etc.	TRUE	No	0	Don't know	FALSE	To save money	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
AW742	Eligible Complete	Bathroom faucet aerator	19	Yes		TRUE	2	4	3	3	2	TRUE	FALSE	Information about the product from packaging, websites. etc.	TRUE	No	0	Don't know	FALSE	To save enerev	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
AW742	Eligible Complete	Hot water pipe insulation for your hot water heater	20	Yes		TRUE	2	3	3	4	N	TRUE	FALSE	Information about the product from packaging, websites. etc.	TRUE	No	0	Don't know	FALSE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
GP505	Eligible Complete	Showerhead	17	No		TRUE	3	3	2	3	3	TRUE	FALSE	Information about the product from packaging, websites. etc.	TRUE	No	0	I wasnâ€™t sure my equipment qualified	TRUE	To replace failing equipment	To save enerev	TRUE	Central air conditioner	Electric furnace ,Other (please specify): Wood burning stoveElectric	Electric	TRUE	TRUE	FALSE	
DG290	Eligible Complete	Kitchen faucet aerator	18	No		TRUE	1	1	1	1	1	FALSE	TRUE	you sent it to my house	FALSE	No	0	Don't know	FALSE	To save energy	0	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE	
DG290	Eligible Complete	Hot water pipe insulation for your hot water heater	20	No		TRUE	1	1	1	1	1	FALSE	TRUE	I got a package for Amaren on this	FALSE	No	0	Don't know	FALSE	To save enerev	0	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE	
DG290	Eligible Complete	Learning or "smart" thermostat	12	No		TRUE	1	2	1	1	1	FALSE	TRUE	ITâ€™s ENERGY STAR-certified	TRUE	No	0	Don't know	FALSE	To save money	0	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE	
EC997	Eligible Complete	Central air conditioner	25	No		TRUE	1	2	2	N	2	FALSE	TRUE	Information about the product from packaging, websites. etc.	TRUE	No	0	I wasnâ€™t sure my equipment qualified	TRUE	Was ready to update	To save energy	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	TRUE	
CF378	Eligible Complete	Room air purifier	2	Yes		TRUE	2	3	2	2	2	TRUE	FALSE	ITâ€™s ENERGY STAR-certified	TRUE	No	0	I wasnâ€™t sure my equipment qualified	TRUE	To improve comfort	It had other features that I liked	FALSE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE	
CF378	Eligible Complete	Showerhead	17	Yes		TRUE	2	3	2	2	2	TRUE	FALSE	Information about the product from packaging, websites. etc.	TRUE	No		I wasnâ€™t sure my equipment qualified	TRUE	To replace failing equipment	It had other features that I liked	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
EH359	Eligible Complete	Showerhead	17	Yes		No	2	4	N	2	2	TRUE	FALSE	ITâ€™s ENERGY STAR-certified	TRUE	No	0	still updating	FALSE	Needed to replace anyway	It had other features that I liked	FALSE	Central air conditioner	Other (please specify): forced hot airGas	Gas	FALSE	FALSE	FALSE	
EH359	Eligible Complete	Kitchen faucet aerator	18	Yes		No	2	3	2	N	2	TRUE	FALSE	ITâ€™s ENERGY STAR-certified	TRUE	Don't know	0	0	FALSE	Was ready to update	Liked the style	FALSE	Central air conditioner	Other (please specify): forced hot airGas	Gas	FALSE	FALSE	FALSE	
DD586	Eligible Complete	Learning or "smart" thermostat	12	No		TRUE	1	1	1	2	1	FALSE	TRUE	ITâ€™s ENERGY STAR-certified	TRUE	Don't know	0	0	FALSE	Needed to replace anyway	To save money	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	
HM816	Eligible Complete	Showerhead	17	No		TRUE	3	4	D	2	N	TRUE	FALSE	Information about the product from packaging, websites. etc.	TRUE	Don't know	0	0	FALSE	To save monev	0	TRUE	Window or wall air conditioner	Electric baseboard heating system	Electric	TRUE	FALSE	FALSE	
LA560	Eligible Complete	Furnace fan with ECM (Electronically Commutated Motor)	9	Yes		TRUE	1	N	2	1	2	FALSE	TRUE	ITâ€™s ENERGY STAR-certified	TRUE	No	0	Installed myself didn't qualify	FALSE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE	
LA560	Eligible Complete	Central air conditioner	25	Yes		TRUE	2	N	1	N	2	FALSE	TRUE	ITâ€™s ENERGY STAR-certified	TRUE	No	0	Installed myself not by a contractor	FALSE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE	
LA605	Eligible Complete	Showerhead	17	Yes		No	1	1	1	1	1	FALSE	TRUE	ITâ€™s ENERGY STAR-certified	TRUE	No	0	Just forgot about it	TRUE	To save money	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE	

Measure Information				Criterion A: Familiarity with at least one Ameren Missouri program, rebate, or discount			Criterion B: At least one element of Ameren's program marketing and outreach motivated them to adopt the measure							Criterion C: They had a valid reason for considering the adopted measure energy efficient		Criterion D: They had not received a rebate from Ameren, and had not already tried to receive a rebate from Ameren, and they stated a valid reason for not applying for an Ameren rebate				Criterion E: They had a valid reason for deciding to install the measure			Criterion F: The adopted measure generated electric savings, not gas savings				Meeting all criteria	
Account	Cadmus Disposition	Measure	Measure Number	C2. Have you ever seen or heard of Ameren Missouri's energy efficiency programs?	C10. Are you aware that Ameren Missouri offers rebates and discounts for energy-saving equipment in your home ?	Criterion A met? (Yes to C2 or C10)	a) Information about energy savings from Ameren Missouri's marketing or bill insert	b) Ameren Missouri's marketing information from a contractor or retailer	c) Information from colleagues or friends who installed energy efficient equipment and received a rebate from Ameren Missouri	d) Past participation in an Ameren Missouri energy efficiency program	e) Information from the energy assessment conducted at your home through Ameren Missouri	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings ? (Max rating was 1)	C7. How do you know the [measure] is energy efficient?	Criterion C met? (qualitative assessment)	G10. Did you receive a rebate, discount, or tax credit for installing the [measure]?	G11. Did you get a rebate from Ameren Missouri?	G12. Why didn't you or your contractor apply for a rebate through Ameren Missouri for the [measure]?	Criterion D met? (qualitative assessment)	G8. Which of the following reasons best describe why you decided to install a [measure]?	Which of the following reasons best describe why you chose an energy efficient version of a [measure]?	Criterion E met? (qualitative assessment)	Cooling System	Heating System	Water Heating Fuel	Criterion F met? (depends on the measure)	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)	
LA605	Eligible Complete	Hot water pipe insulation for your hot water heater	20	Yes	No	TRUE	1	1	1	1	1	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	No	0	Just forgot about it	TRUE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE		
LA605	Eligible Complete	Learning or "smart" thermostat	12	Yes	No	TRUE	1	1	1	1	1	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	Yes	No	It was confusing	TRUE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE		
EC114	Eligible Complete	Furnace fan with ECM (Electronically Commutated Motor)	9	Yes	No	TRUE	2	2	3	3	3	TRUE	FALSE	Don't know	FALSE	No	0	Don't know	FALSE	Don't know	To save energy	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE		
EC114	Eligible Complete	Central air conditioner	25	Yes	No	TRUE	2	3	4	3	3	TRUE	FALSE	now unit	FALSE	No	0	Don't know	FALSE	To replace failing equipment	To save money	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE		
DA605	Eligible Complete	Learning or "smart" thermostat	12	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	Yes	Yes	0	FALSE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE		
DA605	Eligible Complete	Central air conditioner	25	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	The retailer/dealer/contractor told me it was	TRUE	Yes	Yes	0	FALSE	Needed to replace anyway	To save energy	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE		
KX886	Eligible Complete	Central air conditioner	25	Yes	Yes	TRUE	2	1	1	3	3	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	Yes	Yes	0	FALSE	To replace failing equipment	To save energy	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE		
EM682	Eligible Complete	Ground-source or geothermal heat pump	24	Yes	Yes	TRUE	N	1	1	N	N	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	Yes	Don't know	0	FALSE	To replace failing equipment	To save money	TRUE	Central air conditioner,Air-source heat pump	Air-source heat pump	Gas	TRUE	FALSE	FALSE		
EM682	Eligible Complete	Central air conditioner	25	Yes	Yes	TRUE	N	1	1	N	N	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	Don't know	0	0	FALSE	To replace failing equipment	To save money	TRUE	Central air conditioner,Air-source heat pump	Air-source heat pump	Gas	TRUE	FALSE	FALSE		
EH356	Eligible Complete	Furnace fan with ECM (Electronically Commutated Motor)	9	Yes	Yes	TRUE	2	3	3	4	4	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No	0	Contractor may have	FALSE	Needed to replace anyway	To save energy	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE		
EH356	Eligible Complete	Learning or "smart" thermostat	12	Yes	Yes	TRUE	3	1	4	3	N	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	No	0	Contractor may have	FALSE	Needed to replace anyway	It was the only option available	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE		
EH356	Eligible Complete	Central air conditioner	25	Yes	Yes	TRUE	2	2	3	4	4	TRUE	FALSE	The retailer/dealer/contractor told me it was	TRUE	No	0	Contractor may have	FALSE	Needed to replace anyway	It was the only option available	FALSE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE		
KX795	Eligible Complete	Central air conditioner	25	Yes	Yes	TRUE	N	N	N	N	2	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	No	0	I wanted a different model that did not qualify	FALSE	To save energy	0	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE		
MO332	Eligible Complete	Learning or "smart" thermostat	12	No	Yes	TRUE	N	1	N	3	N	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	Don't know	0	0	FALSE	To save money	0	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE		
MO332	Eligible Complete	Central air conditioner	25	No	Yes	TRUE	N	1	N	3	N	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	Yes	Don't know	0	FALSE	To replace failing equipment	Dealer recommendation	FALSE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE		
GV432	Eligible Complete	Air-source heat pump	21	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	No	0	I wanted a different model that did not qualify	FALSE	To replace failing equipment	To save money	TRUE	Air-source heat pump	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE		
MM775	Eligible Complete	Central air conditioner	25	Yes	No	TRUE	1	1	2	1	1	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	No	0	Don't know	FALSE	To save energy	0	TRUE	Central air conditioner	Air-source heat pump	Gas	TRUE	FALSE	FALSE		
LV647	Eligible Complete	Showerhead	17	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	No	0	Just forgot about it	TRUE	Was ready to update	To save energy	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	TRUE		
LD740	Eligible Complete	Pool pump	3	Yes	Yes	TRUE	N	4	1	3	4	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	No	0	My favorite contractor is not one of your special contractors. Just some small company	FALSE	Hobby of mine. It will never pay for itself	To save energy	TRUE	Central air conditioner,Ductless or mini-split heat pump ,Other (please specify): I put 3 new Mitsubishi hyper heat pumps in to have zoned comfort and efficiency and still have my working central air and resistance heat forced air system	Ductless or mini-split heat pump ,Electric furnace	Electric	TRUE	FALSE	FALSE		
LD740	Eligible Complete	Learning or "smart" thermostat	12	Yes	Yes	TRUE	4	D	1	D	D	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No	0	I use Fire and Ice heating and cooling because I like them and they are not an approved dealer. Basically BS they have to be in a special group of preferred companies. Spent $10,000 for 30 plus SEER and got NOTHING !!!	FALSE	To save energy	0	TRUE	Central air conditioner,Ductless or mini-split heat pump ,Other (please specify): I put 3 new Mitsubishi hyper heat pumps in to have zoned comfort and efficiency and still have my working central air and resistance heat forced air system	Ductless or mini-split heat pump ,Electric furnace	Electric	TRUE	FALSE	FALSE		
KC774	Eligible Complete	Pool pump	3	Yes	Yes	TRUE	2	N	N	N	N	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No	0	I wasn't sure my equipment qualified	TRUE	To replace failing equipment	It was the cheapest product available	FALSE	Central air conditioner	Gas furnace/boiler	Electric	TRUE	FALSE	FALSE		
GS439	Eligible Complete	Showerhead	17	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No	0	Don't know	FALSE	To save money	0	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE		
KF535	Eligible Complete	Furnace fan with ECM (Electronically Commutated Motor)	9	Yes	Don't know	TRUE	2	1	2	2	2	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	No	0	Don't know	FALSE	To replace failing equipment	It was the only option available	FALSE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE		
KF535	Eligible Complete	Learning or "smart" thermostat	12	Yes	Don't know	TRUE	2	2	2	2	2	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No	0	Don't know	FALSE	To replace failing equipment	To save money	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE		
KF535	Eligible Complete	Central air conditioner	25	Yes	Don't know	TRUE	2	2	2	2	2	TRUE	FALSE	The retailer/dealer/contractor told me it was	TRUE	No	0	Don't know	FALSE	To replace failing equipment	Don't know	FALSE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE		
FW322	Eligible Complete	Central air conditioner	25	Yes	Yes	TRUE	3	3	2	3	3	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No	0	I wasn't sure my equipment qualified	TRUE	Needed to replace anyway	It was the only option available	FALSE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE		
EE669	Eligible Complete	Kitchen faucet aerator	18	Yes	Yes	TRUE	2	2	D	D	N	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No	0	Don't know	FALSE	Was ready to update	Liked the style	FALSE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE		
EE659	Eligible Complete	Central air conditioner	25	Don't know	Yes	TRUE	2	2	2	N	N	TRUE	FALSE	The retailer/dealer/contractor told me it was	TRUE	Yes	Yes	0	FALSE	Needed to replace anyway	To save energy	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE		
DS888	Eligible Complete	Showerhead	17	Don't know	Yes	TRUE	3	1	N	N	N	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	No	0	Just forgot about it	TRUE	Was ready to update	Liked the style	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE		
HM619	Eligible Complete	Learning or "smart" thermostat	12	Yes	Yes	TRUE	2	2	4	2	4	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No	0	I wanted a different model that did not qualify	FALSE	To replace failing equipment	It had other features that I liked	FALSE	Central air conditioner	Gas furnace/boiler	Electric	FALSE	FALSE	FALSE		
DY321	Eligible Complete	Central air conditioner	25	Yes	No	TRUE	2	2	1	D	1	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	No	0	Didn't know we could	TRUE	To replace failing equipment	To save money	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	TRUE		
HT935	Eligible Complete	Showerhead	17	Yes	Yes	TRUE	2	2	2	2	3	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	Yes	No	I wasn't sure my equipment qualified	TRUE	Needed to replace anyway	To save money	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE		
HT935	Eligible Complete	Bathroom faucet aerator	19	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	Yes	No	I wasn't sure my equipment qualified	TRUE	Needed to replace anyway	It had other features that I liked	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE		

Measure Information				Criterion A: Familiarity with at least one Ameren Missouri program, rebate, or discount			Criterion B: At least one element of Ameren's program marketing and outreach motivated them to adopt the measure							Criterion C: They had a valid reason for considering the adopted measure energy efficient		Criterion D: They had not received a rebate from Ameren, and had not already tried to receive a rebate from Ameren, and they stated a valid reason for not applying for an Ameren rebate			Criterion E: They had a valid reason for deciding to install the measure			Criterion F: The adopted measure generated electric savings, not gas savings				Meeting all criteria	
Account	Cadmus Disposition	Measure	Measure Number	C2. Have you ever seen or heard of Ameren Missouri's energy efficiency programs?	C10. Are you aware that Ameren Missouri offers rebates and discounts for energy-saving equipment in your home ?	Criterion A met? (Yes to C2 or C10)	a) Information about energy savings from Ameren Missouri's marking or bill insert	b) Ameren Missouri's marketing information from a contractor or retailer	c) Information from colleagues or friends who installed energy efficient equipment and received a rebate from Ameren Missouri	d) Past participation in an Ameren Missouri energy efficiency program	e) Information from the energy assessment conducted at your home through Ameren Missouri	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)	C7. How do you know the [measure] is energy efficient?	Criterion C met? (qualitative assessment)	G10. Did you receive a rebate, discount, or tax credit for installing the [measure]?	G11. Did you get a rebate from Ameren Missouri?	G12. Why didn't you or your contractor apply for a rebate through Ameren Missouri for the [measure]?	Criterion D met? (qualitative assessment)	G8. Which of the following reasons best describe why you decided to install a [measure]?	Which of the following reasons best describe why you chose an energy efficient version of a [measure]?	Criterion E met? (qualitative assessment)	Cooling System	Heating System	Water Heating Fuel	Criterion F met? (depends on the measure)	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)
FK656	Eligible Complete	Room air purifier	2	Yes	Yes	TRUE	2	2	1	3	3	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	No	0	Just forgot about it	TRUE	To improve comfort	It had other features that I liked	FALSE	Central air conditioner	Electric furnace ,Other (please specify): Wood fireplaceElectric	Electric	TRUE	FALSE	FALSE
FK656	Eligible Complete	Hot water pipe insulation for your hot water heater	20	Yes	Yes	TRUE	2	3	2	3	2	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No	0	House had flooded	FALSE	To save money	0	TRUE	Central air conditioner	Electric furnace ,Other (please specify): Wood fireplaceElectric	Electric	TRUE	FALSE	FALSE
FK656	Eligible Complete	Learning or "smart" thermostat	12	Yes	Yes	TRUE	2	3	2	3	4	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	No	0	Just forgot about it	TRUE	To save money	0	TRUE	Central air conditioner	Electric furnace ,Other (please specify): Wood fireplaceElectric	Electric	TRUE	TRUE	FALSE
HZ272	Eligible Complete	Learning or "smart" thermostat	12	Don't know	Yes	TRUE	3	3	2	N	2	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	Don't know	0	0	FALSE	To save money	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
FN458	Eligible Complete	Showerhead	17	Yes	No	TRUE	2	2	2	2	2	TRUE	FALSE	Don't know	FALSE	Don't know	0	0	FALSE	Don't know	Liked the style	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
FN458	Eligible Complete	Bathroom faucet aerator	19	Yes	No	TRUE	2	2	2	2	2	TRUE	FALSE	Don't know	FALSE	Don't know	0	0	FALSE	Don't know	Don't know	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
HW194	Eligible Complete	Learning or "smart" thermostat	12	Yes	Yes	TRUE	3	2	3	3	N	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	Yes	Yes	0	FALSE	To save money	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
LV969	Eligible Complete	Showerhead	17	No	Yes	TRUE	4	2	2	3	1	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No	0	I wasn't sure my equipment qualified	TRUE	To replace failing equipment	It had other features that I liked	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
LV969	Eligible Complete	Kitchen faucet aerator	18	No	Yes	TRUE	2	2	2	3	1	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No	0	I wasn't sure my equipment qualified	TRUE	Needed to replace anyway	It had other features that I liked	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
LD629	Eligible Complete	Room air conditioner	1	Yes	No	TRUE	1	1	1	1	1	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	No	0	Just forgot about it	TRUE	To save energy	0	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	TRUE
LD629	Eligible Complete	Room air purifier	2	Yes	No	TRUE	1	1	1	1	1	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	No	0	I wasn't sure my equipment qualified	TRUE	To save energy	0	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	TRUE
LD629	Eligible Complete	Hot water pipe insulation for your hot water heater	20	Yes	No	TRUE	1	1	1	2	1	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No	0	I wasn't sure my equipment qualified	TRUE	To save energy	0	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	TRUE
DA846	Eligible Complete	Room air purifier	2	No	Yes	TRUE	4	2	2	D	2	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No	0	Just forgot about it	TRUE	Do clean the air quility in the house.	To save money	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	TRUE	FALSE
DA846	Eligible Complete	Showerhead	17	No	Yes	TRUE	2	2	D	1	D	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No	0	Don't know	FALSE	Was ready to update	Did some home improvements	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
DA846	Eligible Complete	Heat pump water heater	11	No	Yes	TRUE	1	1	2	1	1	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	No	0	Don't know	FALSE	To replace failing equipment	To save money	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
CK636	Eligible Complete	Central air conditioner	25	Yes	Yes	TRUE	1	1	2	2	1	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	Don't know	0	0	FALSE	To replace failing equipment	To save energy	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE
CK787	Eligible Complete	Kitchen faucet aerator	18	Don't know	Yes	TRUE	2	D	N	N	D	TRUE	FALSE	Don't know	FALSE	No	0	Landlord got it	FALSE	To save money	0	TRUE	Central air conditioner	Gas furnace/boiler	Electric	TRUE	FALSE	FALSE
CK787	Eligible Complete	Bathroom faucet aerator	19	Don't know	Yes	TRUE	2	D	2	D	D	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	No	0	Don't know	FALSE	To save money	0	TRUE	Central air conditioner	Gas furnace/boiler	Electric	TRUE	FALSE	FALSE
LD594	Eligible Complete	Central air conditioner	25	No	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	Yes	Yes	0	FALSE	To replace failing equipment	To save money	TRUE	Central air conditioner	Gas furnace/boiler	Don't know	TRUE	FALSE	FALSE
EQ563	Eligible Complete	Room air purifier	2	No	Yes	TRUE	N	N	1	N	N	FALSE	TRUE	Don't know	FALSE	No	0	Don't know	FALSE	allergies	Don't know	FALSE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE
EQ563	Eligible Complete	Learning or "smart" thermostat	12	No	Yes	TRUE	2	3	3	3	D	TRUE	FALSE	Don't know	FALSE	Don't know	0	0	FALSE	Needed to replace anyway	Don't know	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
LL681	Eligible Complete	Central air conditioner	25	No	Yes	TRUE	4	4	2	N	N	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	No	0	It was confusing	TRUE	Needed to replace anyway	To save money	TRUE	Central air conditioner	Gas furnace/boiler	Electric	TRUE	TRUE	FALSE
DD635	Eligible Complete	Learning or "smart" thermostat	12	Yes	Yes	TRUE	N	N	2	N	N	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No	0	I wasn't sure my equipment qualified	TRUE	To save energy	0	TRUE	Central air conditioner	Air-source heat pump	Gas	TRUE	TRUE	FALSE
GV447	Eligible Complete	Showerhead	17	Yes	Yes	TRUE	2	1	2	3	1	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	Yes	No	I wanted a different model that did not qualify	FALSE	Was ready to update	To save energy	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
GV447	Eligible Complete	Learning or "smart" thermostat	12	Yes	Yes	TRUE	1	1	1	2	2	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No	0	I wasn't sure my equipment qualified	TRUE	Was ready to update	It had other features that I liked	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
MH474	Eligible Complete	Showerhead	17	No	Yes	TRUE	2	2	2	4	2	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No	0	Just forgot about it	TRUE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
MH474	Eligible Complete	Learning or "smart" thermostat	12	No	Yes	TRUE	2	3	2	2	2	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	No	0	Just forgot about it	TRUE	Was ready to update	It had other features that I liked	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
CU944	Eligible Complete	Central air conditioner	25	Yes	Yes	TRUE	2	N	4	N	2	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	No	0	not qualified	FALSE	To replace failing equipment	To save money	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE
FK470	Eligible Complete	Learning or "smart" thermostat	12	No	Yes	TRUE	2	N	1	N	2	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	Yes	Yes	0	FALSE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
LP888	Eligible Complete	Showerhead	17	Yes	Yes	TRUE	3	2	3	D	3	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No	0	I wanted a different model that did not qualify	FALSE	To save energy	0	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE
LP888	Eligible Complete	Kitchen faucet aerator	18	Yes	Yes	TRUE	3	4	3	1	4	FALSE	TRUE	It's ENERGY STAR-certified	TRUE	No	0	Got it from Amreren	FALSE	To save energy	0	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE
LP888	Eligible Complete	Central air conditioner	25	Yes	Yes	TRUE	4	3	4	2	2	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No	0	It was confusing	TRUE	To replace failing equipment	To save money	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	TRUE	FALSE
MB634	Eligible Complete	Hot water pipe insulation for your hot water heater	20	Yes	Yes	TRUE	1	1	N	N	N	FALSE	TRUE	from Ameren	FALSE	No	0	received as part of plac	FALSE	To save energy	0	TRUE	Air-source heat pump	Air-source heat pump	Electric	TRUE	FALSE	FALSE
HM562	Eligible Complete	Showerhead	17	Yes	Yes	TRUE	1	2	3	1	1	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No	0	Don't know	FALSE	Needed to replace anyway	Liked the style	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
HM562	Eligible Complete	Kitchen faucet aerator	18	Yes	Yes	TRUE	1	1	2	2	3	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No	0	Don't know	FALSE	To improve comfort	Liked the style	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
HM562	Eligible Complete	Bathroom faucet aerator	19	Yes	Yes	TRUE	1	1	3	2	1	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No	0	Don't know	FALSE	Was ready to update	Liked the style	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
DL184	Eligible Complete	Heat pump water heater	11	No	Yes	TRUE	2	4	2	2	2	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	Don't know	0	0	FALSE	To improve comfort	Don't know	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
HW621	Eligible Complete	Hot water pipe insulation for your hot water heater	20	Yes	Yes	TRUE	1	1	2	1	1	FALSE	TRUE	Don't know	FALSE	No	0	I applied, but I did not receive a rebate	FALSE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
CU550	Eligible Complete	Room air purifier	2	Yes	Yes	TRUE	N	D	D	2	D	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No	0	Just forgot about it	TRUE	To improve comfort	To save energy	TRUE	Ground-source or geothermal heat pump	Ground-source or geothermal heat pump	Electric	TRUE	TRUE	FALSE
FC834	Eligible Complete	Central air conditioner	25	Yes	No	TRUE	1	2	2	2	2	TRUE	FALSE	It's ENERGY STAR-certified	TRUE	Yes	Don't know	0	FALSE	To replace failing equipment	To save energy	TRUE	Central air conditioner	Gas furnace/boiler	Electric	TRUE	FALSE	FALSE

Measure Information				Criterion A: Familiarity with at least one Ameren Missouri program, rebate, or discount			Criterion B: At least one element of Ameren's program marketing and outreach motivated them to adopt the measure							Criterion C: They had a valid reason for considering the adopted measure energy efficient		Criterion D: They had not received a rebate from Ameren, and had not already tried to receive a rebate from Ameren, and they stated a valid reason for not applying for an Ameren rebate			Criterion E: They had a valid reason for deciding to install the measure			Criterion F: The adopted measure generated electric savings, not gas savings				Meeting all criteria	
Account	Cadmus Disposition	Measure	Measure Number	C2. Have you ever seen or heard of Ameren Missouri's energy efficiency programs?	C10. Are you aware that Ameren Missouri offers rebates and discounts for energy-saving equipment in your home ?	Criterion A met? (Yes to C2 or C10)	a) Information about energy savings from Ameren Missouri's marking or bill insert	b) Ameren Missouri's marketing information from a contractor or retailer	c) Information from colleagues or friends who installed energy efficient equipment and received a rebate from Ameren Missouri	d) Past participation in an Ameren Missouri energy efficiency program	e) Information from the energy assessment conducted at your home through Ameren Missouri	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)	C7. How do you know the [measure] is energy efficient?	Criterion C met? (qualitative assesment)	G10. Did you receive a rebate, discount, or tax credit for installing the [measure]?	G11. Did you get a rebate from Ameren Missouri?	G12. Why didn't you or your contractor apply for a rebate through Ameren Missouri for the [measure]?	Criterion D met? (qualitative assesment)	G8. Which of the following reasons best describe why you decided to install a [measure]?	Which of the following reasons best describe why you chose an energy efficient version of a [measure]?	Criterion E met? (qualitative assesment)	Cooling System	Heating System	Water Heating Fuel	Criterion F met? (depends on the measure)	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)
FW714	Eligible Complete	Kitchen faucet aerator	18	Yes	Yes	TRUE	4	2	4	4	4	TRUE	FALSE	contractor suggestion	TRUE	Don't know	0	0	FALSE	doing kitchen update	Liked the style	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
GL892	Eligible Complete	Pool pump	3	No	Yes	TRUE	N	1	N	N	N	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	Yes	Yes	0	FALSE	To improve comfort	To save money	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE
DL663	Eligible Complete	Central air conditioner	25	Yes	Yes	TRUE	3	3	2	4	4	TRUE	FALSE	Itâ€™s ENERGY STAR-certified	TRUE	No	0	I wasnâ€™t sure my equipment qualified	TRUE	Needed to replace anyway	To save money	TRUE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	TRUE	FALSE
FN321	Eligible Complete	Kitchen faucet aerator	18	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No	0	Just forgot about it	TRUE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
FN321	Eligible Complete	Bathroom faucet aerator	19	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	Itâ€™s ENERGY STAR-certified	TRUE	No	0	Just forgot about it	TRUE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
FN321	Eligible Complete	Learning or "smart" thermostat	12	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	Itâ€™s ENERGY STAR-certified	TRUE	Yes	No	Went through Spire	FALSE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
HB400	Eligible Complete	Central air conditioner	25	Yes	No	TRUE	2	3	2	2	3	TRUE	FALSE	Landlord information	FALSE	Don't know	0	0	FALSE	Needed to replace anyway	Landlord picked it out	FALSE	Central air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE
EC945	Eligible Complete	Room air conditioner	1	No	Yes	TRUE	1	N	1	2	0	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No	0	Don't know	FALSE	Don't know	To save money	TRUE	Central air conditioner	Electric baseboard heating system	Gas	TRUE	FALSE	FALSE
EM809	Eligible Complete	Learning or "smart" thermostat	12	Don't know	Yes	TRUE	2	3	3	4	N	TRUE	FALSE	Itâ€™s ENERGY STAR-certified	TRUE	Don't know	0	0	FALSE	To replace failing equipment	It had other features that I liked	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
GV445	Eligible Complete	Showerhead	17	Don't know	Yes	TRUE	1	0	1	1	N	FALSE	TRUE	Itâ€™s ENERGY STAR-certified	TRUE	No	0	I applied, but I did not receive a rebate	FALSE	Was ready to update	To save energy	TRUE	Air-source heat pump	Air-source heat pump	Electric	TRUE	FALSE	FALSE
CR510	Eligible Complete	Room air purifier	2	Yes	No	TRUE	4	2	2	4	0	TRUE	FALSE	The retailer/dealer/contractor told me it was	TRUE	No	0	Don't know	FALSE	To improve comfort	Liked the style	FALSE	Central air conditioner,Ductless or mini-split heat pump	Ductless or mini-split heat pump ,Air-source heat pump ,Gas furnace/boiler ,Other (please specify): ventless gasElectric	Gas	TRUE	FALSE	FALSE
CR510	Eligible Complete	Bathroom faucet aerator	19	Yes	No	TRUE	0	1	N	N	N	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	No	0	I wasnâ€™t sure my equipment qualified	TRUE	To save energy	0	TRUE	Central air conditioner,Ductless or mini-split heat pump	Ductless or mini-split heat pump ,Air-source heat pump ,Gas furnace/boiler ,Other (please specify): ventless gasElectric	Gas	FALSE	FALSE	FALSE
CR510	Eligible Complete	Ductless or mini-split heat pump	22	Yes	No	TRUE	4	1	N	2	N	FALSE	TRUE	Itâ€™s ENERGY STAR-certified	TRUE	No	0	I wasnâ€™t sure my equipment qualified	TRUE	To improve comfort	It had other features that I liked	FALSE	Central air conditioner,Ductless or mini-split heat pump	Ductless or mini-split heat pump ,Air-source heat pump ,Gas furnace/boiler ,Other (please specify): ventless gasElectric	Gas	FALSE	FALSE	FALSE
DV399	Eligible Complete	Bathroom faucet aerator	19	Don't know	Yes	TRUE	2	1	3	2	3	FALSE	TRUE	Itâ€™s ENERGY STAR-certified	TRUE	No	0	Don't know	FALSE	To save energy	0	TRUE	Central air conditioner	Electric furnace	Gas	FALSE	FALSE	FALSE
DV399	Eligible Complete	Learning or "smart" thermostat	12	Don't know	Yes	TRUE	2	3	4	2	2	TRUE	FALSE	Itâ€™s ENERGY STAR-certified	TRUE	Don't know	0	0	FALSE	To save energy	0	TRUE	Central air conditioner	Electric furnace	Gas	TRUE	FALSE	FALSE
DS490	Eligible Complete	Heat pump water heater	11	Yes	No	TRUE	2	0	1	N	2	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	No	0	Don't know	FALSE	Needed to replace anyway	To save money	TRUE	Central air conditioner	Electric furnace	Electric	TRUE	FALSE	FALSE
FC753	Eligible Complete	Hot water pipe insulation for your hot water heater	20	Yes	Yes	TRUE	1	3	N	1	1	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	No	0	I was not aware it was available.	TRUE	I replaced the water heater and the contractor installed the insulation.	The contractor chose.	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
LS336	Eligible Complete	Hot water pipe insulation for your hot water heater	20	No	Yes	TRUE	2	3	3	3	3	TRUE	FALSE	personal knowledge	FALSE	No	0	I wasnâ€™t sure my equipment qualified	TRUE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
LS336	Eligible Complete	Learning or "smart" thermostat	12	No	Yes	TRUE	3	3	2	3	3	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No	0	I wasnâ€™t sure my equipment qualified	TRUE	To save money	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
GY984	Eligible Complete	Room air conditioner	1	Yes	Yes	TRUE	2	0	2	2	0	TRUE	FALSE	Itâ€™s ENERGY STAR-certified	TRUE	No	0	I am still planning to apply	FALSE	To replace failing equipment	It was the only option available	FALSE	Central air conditioner,Window or wall air conditioner	Gas furnace/boiler ,Other (please specify): Electric Wall units	Gas	TRUE	FALSE	FALSE
GA702	Eligible Complete	Kitchen faucet aerator	18	Yes	Yes	TRUE	1	0	2	N	N	FALSE	TRUE	Itâ€™s ENERGY STAR-certified	TRUE	No	0	Just forgot about it	TRUE	To replace failing equipment	It had other features that I liked	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
KR656	Eligible Complete	Room air conditioner	1	Yes	Yes	TRUE	N	2	4	3	N	TRUE	FALSE	Itâ€™s ENERGY STAR-certified	TRUE	No	0	I applied, but I did not receive a rebate	FALSE	To improve comfort	To save money	TRUE	Central air conditioner,Window or wall air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE
AW714	Eligible Complete	Room air conditioner	1	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	Information about the product from packaging, websites, etc.	TRUE	No	0	Just forgot about it	TRUE	To improve comfort	It was the only option available	FALSE	Central air conditioner,Portable air conditioner	Gas furnace/boiler	Gas	TRUE	FALSE	FALSE
AW714	Eligible Complete	Showerhead	17	Yes	Yes	TRUE	1	2	1	1	1	FALSE	TRUE	Itâ€™s ENERGY STAR-certified	TRUE	No	0	I wasnâ€™t sure my equipment qualified	TRUE	To replace failing equipment	Liked the style	FALSE	Central air conditioner,Portable air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
LS931	Eligible Complete	Learning or "smart" thermostat	12	No	Yes	TRUE	1	1	1	2	1	FALSE	TRUE	Information about the product from packaging, websites, etc.	TRUE	No	0	I wasnâ€™t sure my equipment qualified	TRUE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
EM621	Eligible Complete	Showerhead	17	Yes	No	TRUE	2	1	0	0	2	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	No	0	I didnâ€™t know I had the option to do so.	TRUE	To improve comfort	Liked the style	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
EM621	Eligible Complete	Bathroom faucet aerator	19	Yes	No	TRUE	0	0	2	1	0	FALSE	TRUE	The retailer/dealer/contractor told me it was	TRUE	No	0	I didnâ€™t know it was an option to do so.	TRUE	Didnâ€™t have one prior	It had other features that I liked	FALSE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE
LG782	Eligible Complete	Learning or "smart" thermostat	12	No	Yes	TRUE	1	0	0	1	0	FALSE	TRUE	Itâ€™s ENERGY STAR-certified	TRUE	Yes	Yes	0	FALSE	To save energy	0	TRUE	Central air conditioner	Gas furnace/boiler	Gas	FALSE	FALSE	FALSE

Measure Information			Criterion A: Familiarity with at least one Ameren Missouri program, rebate, or discount			Criterion B: At least one element of Ameren's program marketing and outreach motivated them to adopt the measure							Criterion D: They had not received a rebate from Ameren, and had not already tried to receive a rebate from Ameren, and they stated a valid reason for not applying for an Ameren rebate				Criterion E: They had a valid reason for deciding to install the measure			Criterion F: The adopted measure generated electric savings, not gas savings			Meeting all criteria	
Account	Cadmus Disposition	Measure	C2. Have you ever seen or heard of Ameren Missouri's energy efficiency programs?	C10. Are you aware that Ameren Missouri offers rebates and discounts for energy-saving equipment in your home ?	Criterion A met? (Yes to C2 or C10)	a) Information about energy savings from Ameren Missouri's marking or bill insert	b) Ameren Missouri's marketing information from a contractor or retailer	c) Information from colleagues or friends who installed energy efficient equipment and received a rebate from Ameren Missouri	d) Past participation in an Ameren Missouri energy efficiency program	e) Information from the energy assessment conducted at your home through Ameren Missouri	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)	G18. Did you receive a rebate, discount, or tax credit for the tune-up?	G19. Did you get a rebate from Ameren Missouri?	G20. Why didn't you or your contractor apply for a rebate through Ameren Missouri for the tune-up?	Criterion D met? (qualitative assessment)	G17. Which of the following reasons best describe why you decided to install have the tune-up?	G17. Other categories	Criterion E met? (qualitative assessment)	Cooling System	Heating System	Criterion F met? (depends on the measure)	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)
MH230	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	3	N	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To improve home comfort		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
EQ805	Eligible Complete	Heat Pump Tune-Up	Yes	No	TRUE	2	N	N	3	N	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
HZ466	Eligible Complete	Heat Pump Tune-Up	Yes	No	TRUE	2	2	2	2	2	TRUE	FALSE	No		I am still planning to apply	FALSE	To save energy		TRUE	Portable air conditioner	Air-source heat pump	FALSE	FALSE	FALSE
KU900	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	2	1	1	2	FALSE	TRUE	No		Don't know	FALSE	To improve home comfort		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
EC307	Eligible Complete	Air Conditioner Tune-Up	Don't know	Yes	TRUE	1	2	2	2	2	FALSE	TRUE	No		Did not know about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
LA504	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	2	1	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Don't know Gas	TRUE	FALSE	FALSE
LP856	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	1	1	D	2	2	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HZ948	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	1	3	3	N	3	FALSE	TRUE	Yes	No	Was not aware	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HE709	Eligible Complete	Heat Pump Tune-Up	No	Yes	TRUE	1	2	2	3	3	FALSE	TRUE	No		Just forgot about it	TRUE	To make repairs or replacements		FALSE	Ground-source or geothermal heat pump	Ground-source or geothermal heat pump	TRUE	FALSE	FALSE
HT983	Eligible Complete	Heat Pump Tune-Up	No	Yes	TRUE	2	1	1	D	D	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To save money		TRUE	Don't know	Gas furnace/boiler ,Electric furnace	FALSE	FALSE	FALSE
AZ138	Eligible Complete	Heat Pump Tune-Up	No	Yes	TRUE	1	2	2	2	3	FALSE	TRUE	Yes	No	Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
CC347	Eligible Complete	Heat Pump Tune-Up	Don't know	Yes	TRUE	2	2	3	D	3	TRUE	FALSE	No		never heard of a rebate	TRUE	It was part of routine maintenance		FALSE	Air-source heat pump	Gas furnace/boiler	FALSE	FALSE	FALSE
CU402	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
AM444	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	1	2	2	3	2	FALSE	TRUE	No		Donâ€™t know about program	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
KC273	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	2	2	2	4	FALSE	TRUE	No		Did not know	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HZ575	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	3	N	N	FALSE	TRUE	No		I am a service tech	FALSE	It was part of routine maintenance		FALSE	Central air conditioner,Window or wall	Gas furnace/boiler ,Electric	TRUE	FALSE	FALSE
FF200	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	D	D	2	D	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	to save energy which saves money	To save energy	TRUE	Central air conditioner	Electric furnace	TRUE	TRUE	FALSE
LG594	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	N	2	3	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
HB963	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	D	3	2	2	D	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Air-source heat pump	Air-source heat pump	TRUE	FALSE	FALSE
GS751	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	D	N	2	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AZ682	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	Don't know		0	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
EM824	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KR706	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	1	2	2	1	1	FALSE	TRUE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CK709	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	2	2	N	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
DG643	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	3	2	2	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AQ956	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	D	1	N	N	D	FALSE	TRUE	No		did not know about rebate	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HQ756	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	3	2	2	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CF580	Eligible Complete	Heat Pump Tune-Up	No	Yes	TRUE	2	N	N	N	2	TRUE	FALSE	No		it came with the house when we buy it	FALSE	It was part of routine maintenance		FALSE	Central air conditioner,Window or wall air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
FF714	Eligible Complete	Heat Pump Tune-Up	Yes	No	TRUE	1	4	1	1	2	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Electric furnace	FALSE	FALSE	FALSE
EC611	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	N	2	D	1	FALSE	TRUE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
EC924	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	3	2	4	3	3	TRUE	FALSE	No		Just forgot about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CN474	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	3	1	2	3	3	FALSE	TRUE	No		Just forgot about it	TRUE	To save energy		TRUE	Central air conditioner	None	TRUE	FALSE	TRUE
KK523	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	3	3	2	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner,Air-source heat	Air-source heat pump	TRUE	FALSE	FALSE
AW844	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	1	2	2	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
MB566	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner,Air-source heat	Air-source heat pump ,Electric furnace	TRUE	FALSE	FALSE
FC626	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	D	4	3	2	3	TRUE	FALSE	Yes	No	Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KC540	Eligible Complete	Air Conditioner Tune-Up	Don't know	Yes	TRUE	2	2	3	3	3	TRUE	FALSE	Don't know		0	FALSE	It was part of routine maintenance		FALSE	Central air conditioner,Other (please	Gas furnace/boiler	TRUE	FALSE	FALSE
FC923	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	2	2	2	1	FALSE	TRUE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
CR908	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	3	3	3	2	3	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
DV615	Eligible Complete	Heat Pump Tune-Up	Yes	No	TRUE	2	N	N	N	N	TRUE	FALSE	No		Didn't know	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Electric furnace	FALSE	FALSE	FALSE
AW773	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	2	3	2	4	2	TRUE	FALSE	Don't know		0	FALSE	To make repairs or replacements		FALSE	Central air conditioner,Window or wall	Gas furnace/boiler	TRUE	FALSE	FALSE
MQ357	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	3	2	3	1	2	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To save money		TRUE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	TRUE
DA758	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	D	1	1	2	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To save energy		TRUE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	TRUE
LY193	Eligible Complete	Air Conditioner Tune-Up	Don't know	Yes	TRUE	2	3	D	N	D	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AZ719	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HT597	Eligible Complete	Air Conditioner Tune-Up	Yes	Don't know	TRUE	1	1	1	1	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KF345	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	No		Just forgot about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE

Measure Information			Criterion A: Familiarity with at least one Ameren Missouri program, rebate, or discount			Criterion B: At least one element of Ameren's program marketing and outreach motivated them to adopt the measure							Criterion D: They had not received a rebate from Ameren, and had not already tried to receive a rebate from Ameren, and they stated a valid reason for not applying for an Ameren rebate				Criterion E: They had a valid reason for deciding to install the measure			Criterion F: The adopted measure generated electric savings, not gas savings			Meeting all criteria	
Account	Cadmus Disposition	Measure	C2. Have you ever seen or heard of Ameren Missouri's energy efficiency programs?	C10. Are you aware that Ameren Missouri offers rebates and discounts for energy-saving equipment in your home ?	Criterion A met? (Yes to C2 or C10)	a) Information about energy savings from Ameren Missouri's marking or bill insert	b) Ameren Missouri's marketing information from a contractor or retailer	c) Information from colleagues or friends who installed energy efficient equipment and received a rebate from Ameren Missouri	d) Past participation in an Ameren Missouri energy efficiency program	e) Information from the energy assessment conducted at your home through Ameren Missouri	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)	G18. Did you receive a rebate, discount, or tax credit for the tune-up?	G19. Did you get a rebate from Ameren Missouri?	G20. Why didn't you or your contractor apply for a rebate through Ameren Missouri for the tune-up?	Criterion D met? (qualitative assessment)	G17. Which of the following reasons best describe why you decided to install have the tune-up?	G17. Other categories	Criterion E met? (qualitative assessment)	Cooling System	Heating System	Criterion F met? (depends on the measure)	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)
DA769	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	3	2	N	2	2	TRUE	FALSE	No		did not know i could	TRUE	To make repairs or replacements		FALSE	Central air conditioner,Air-source heat	Air-source heat pump ,Electric furnace	TRUE	FALSE	FALSE
LY519	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	N	1	N	2	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Ground-source or geothermal heat pump	FALSE	FALSE	FALSE
KK264	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	4	2	D	2	2	TRUE	FALSE	Yes	No	I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
LP768	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	3	2	3	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Air-source heat pump ,Electric furnace	TRUE	FALSE	FALSE
ME728	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FN865	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	3	4	2	2	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HH386	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	2	3	N	2	N	TRUE	FALSE	Yes	No	I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
EQ874	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	1	1	N	FALSE	TRUE	No		Don't know	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KK133	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	2	D	2	D	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CR503	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	3	2	4	4	4	TRUE	FALSE	Yes	No	I wasnâ€™t sure the tune-up qualified	TRUE	To save money		TRUE	Central air conditioner,Air-source heat	Air-source heat pump ,Electric furnace	TRUE	TRUE	FALSE
LY806	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	1	1	1	1	1	FALSE	TRUE	No		Don't know	FALSE	To save money		TRUE	Air-source heat pump	Air-source heat pump	FALSE	FALSE	FALSE
LV897	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	2	D	2	2	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To save energy		TRUE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	TRUE
DG449	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	2	4	N	N	N	TRUE	FALSE	Yes	No	I wasn't aware that existed	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
MB658	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	No		Just forgot about it	TRUE	It was part of routine maintenance		FALSE	Window or wall air conditioner	Gas furnace/boiler ,Electric furnace	FALSE	FALSE	FALSE
AZ614	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	2	2	3	2	2	TRUE	FALSE	No		Just forgot about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KN821	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	4	4	N	4	TRUE	FALSE	No		Didnâ€™t have to pay bill	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HE674	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To improve home comfort		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
FN804	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	4	2	3	2	FALSE	TRUE	No		Just forgot about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
EM326	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
AT281	Eligible Complete	Heat Pump Tune-Up	Yes	No	TRUE	1	1	2	1	1	FALSE	TRUE	No		warranty	FALSE	To make repairs or replacements		FALSE	Air-source heat pump	Air-source heat pump ,Electric furnace	TRUE	FALSE	FALSE
CC985	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	D	D	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
MB218	Eligible Complete	Heat Pump Tune-Up	Yes	No	TRUE	1	N	N	N	N	FALSE	TRUE	No		Nothing was said	TRUE	To make repairs or replacements		FALSE	Central air conditioner,Window or wall	Electric furnace	FALSE	FALSE	FALSE
LD421	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	2	3	3	2	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Air-source heat pump	Air-source heat pump ,Gas furnace/boiler	TRUE	FALSE	FALSE
HM766	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	3	3	3	4	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AZ612	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	N	N	N	1	N	FALSE	TRUE	No		Rent	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
MH877	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	4	1	1	1	FALSE	TRUE	No		Just forgot about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FN596	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	4	4	3	1	4	FALSE	TRUE	No		I did not know I could get a rebate	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FK731	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	3	N	N	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
ET174	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	N	N	N	2	N	TRUE	FALSE	No		Did not know about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
GA803	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	1	2	1	1	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KN605	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	4	4	4	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
GG846	Eligible Complete	Heat Pump Tune-Up	Yes	No	TRUE	1	3	3	1	3	FALSE	TRUE	Yes	Yes	0	FALSE	To save money		TRUE	Central air conditioner,Air-source heat	Air-source heat pump	TRUE	FALSE	FALSE
DL469	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	Yes	No	I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner,Portable air	Gas furnace/boiler	TRUE	FALSE	FALSE
AM426	Eligible Complete	Air Conditioner Tune-Up	Don't know	Yes	TRUE	2	4	1	N	2	FALSE	TRUE	Don't know		0	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FX382	Eligible Complete	Air Conditioner Tune-Up	Don't know	Yes	TRUE	1	2	1	4	2	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CC997	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	4	4	4	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To improve home comfort		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FN707	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	2	2	2	TRUE	FALSE	No		Don't know	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
GD625	Eligible Complete	Heat Pump Tune-Up	Yes	No	TRUE	2	3	D	D	D	TRUE	FALSE	No		Don't know	FALSE	To save money		TRUE	Air-source heat pump	Air-source heat pump	TRUE	FALSE	FALSE
FC411	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	N	N	N	N	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To improve home comfort		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KN412	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	2	N	N	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AT538	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	3	3	D	TRUE	FALSE	No		DIDN'T QUALIFY	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
DY838	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	2	1	1	2	3	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To make repairs or replacements		FALSE	Central air conditioner,Other (please	Electric furnace	TRUE	FALSE	FALSE
GL405	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	4	4	4	2	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To save energy		TRUE	Central air conditioner	Don't know Gas	FALSE	FALSE	FALSE
CU459	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	2	2	D	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner,Other (please	Gas furnace/boiler	TRUE	FALSE	FALSE
GL524	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	2	N	N	N	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To improve home comfort		FALSE	Central air conditioner,Air-source heat	Air-source heat pump	TRUE	FALSE	FALSE
FK566	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	4	2	3	2	FALSE	TRUE	No		Just forgot about it	TRUE	It was part of routine maintenance		FALSE	Ground-source or geothermal heat pump	Ground-source or geothermal heat pump	TRUE	FALSE	FALSE
CF378	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	4	2	2	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CC579	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	3	2	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE

Measure Information			Criterion A: Familiarity with at least one Ameren Missouri program, rebate, or discount			Criterion B: At least one element of Ameren's program marketing and outreach motivated them to adopt the measure							Criterion D: They had not received a rebate from Ameren, and had not already tried to receive a rebate from Ameren, and they stated a valid reason for not applying for an Ameren rebate				Criterion E: They had a valid reason for deciding to install the measure			Criterion F: The adopted measure generated electric savings, not gas savings			Meeting all criteria	
Account	Cadmus Disposition	Measure	C2. Have you ever seen or heard of Ameren Missouri's energy efficiency programs?	C10. Are you aware that Ameren Missouri offers rebates and discounts for energy-saving equipment in your home ?	Criterion A met? (Yes to C2 or C10)	a) Information about energy savings from Ameren Missouri's marking or bill insert	b) Ameren Missouri's marketing information from a contractor or retailer	c) Information from colleagues or friends who installed energy efficient equipment and received a rebate from Ameren Missouri	d) Past participation in an Ameren Missouri energy efficiency program	e) Information from the energy assessment conducted at your home through Ameren Missouri	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)	G18. Did you receive a rebate, discount, or tax credit for the tune-up?	G19. Did you get a rebate from Ameren Missouri?	G20. Why didn't you or your contractor apply for a rebate through Ameren Missouri for the tune-up?	Criterion D met? (qualitative assessment)	G17. Which of the following reasons best describe why you decided to install have the tune-up?	G17. Other categories	Criterion E met? (qualitative assessment)	Cooling System	Heating System	Criterion F met? (depends on the measure)	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)
FR434	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	4	2	N	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FW475	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	2	4	2	2	3	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
EH359	Eligible Complete	Heat Pump Tune-Up	Yes	No	TRUE	2	4	2	N	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Other (please specify): forced hot airGas	FALSE	FALSE	FALSE
KX200	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	2	N	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
DA179	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	1	D	D	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KX804	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	3	3	2	2	TRUE	FALSE	No		Just forgot about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
LL794	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	2	N	3	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KX380	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	2	1	2	1	1	FALSE	TRUE	No		I AM A RENTER	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
KC323	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	3	4	3	4	2	TRUE	FALSE	No		I DIDN'TKNOW	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AQ926	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	2	2	1	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Electric baseboard heating system	FALSE	FALSE	FALSE
HT221	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	1	1	2	1	FALSE	TRUE	No		DID WORK MYSELF	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
LA605	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	1	1	1	1	1	FALSE	TRUE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KX183	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	4	2	4	TRUE	FALSE	No		didn't know	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
MH620	Eligible Complete	Heat Pump Tune-Up	No	Yes	TRUE	2	3	2	4	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner,Window or wall	Gas furnace/boiler	FALSE	FALSE	FALSE
HQ162	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	3	2	4	TRUE	FALSE	No		Didnt know about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner,Other (please	Gas furnace/boiler	TRUE	FALSE	FALSE
DD710	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	4	N	2	TRUE	FALSE	No		Just forgot about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KC625	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	2	3	2	2	TRUE	FALSE	Yes	No	I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Electric furnace	FALSE	FALSE	FALSE
DL283	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	2	4	2	4	N	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HH998	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner,Air-source heat	Electric furnace	FALSE	FALSE	FALSE
HM667	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	2	3	2	2	TRUE	FALSE	No		Don't know	FALSE	To make repairs or replacements		FALSE	Central air conditioner,Window or wall	Gas furnace/boiler	FALSE	FALSE	FALSE
DV867	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	3	2	2	4	N	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AW934	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	D	D	D	D	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Ground-source or geothermal heat pump	Ground-source or geothermal heat pump	TRUE	FALSE	FALSE
HT280	Eligible Complete	Heat Pump Tune-Up	Don't know	Yes	TRUE	2	N	1	N	N	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
CK138	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	2	2	2	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To save money		TRUE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	TRUE
KF402	Eligible Complete	Air Conditioner Tune-Up	Don't know	Yes	TRUE	2	D	D	D	D	TRUE	FALSE	Yes	No	Just forgot about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
GV432	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	No		Not a Ameren contractor	FALSE	To make repairs or replacements		FALSE	Air-source heat pump	Gas furnace/boiler	FALSE	FALSE	FALSE
DL471	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	D	2	N	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FW142	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	N	N	N	N	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
ME654	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	4	1	1	3	3	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Electric furnace	FALSE	FALSE	FALSE
LV647	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	Yes	Yes	0	FALSE	To save money		TRUE	Central air conditioner	Electric furnace	FALSE	FALSE	FALSE
HT389	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	3	2	3	3	3	TRUE	FALSE	No		rebate on A-coil	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CR214	Eligible Complete	Air Conditioner Tune-Up	Don't know	Yes	TRUE	3	2	2	4	3	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
LD740	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	D	D	D	D	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner,Ductless or mini-	Ductless or mini-split heat pump ,Electric	TRUE	FALSE	FALSE
KX429	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Other (please specify): gas furnaceGas	TRUE	FALSE	FALSE
EC510	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	3	3	3	TRUE	FALSE	No		Don't know	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KC209	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	3	3	3	3	2	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CF385	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	N	1	N	N	N	FALSE	TRUE	Yes	Yes	0	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HQ172	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To improve home comfort		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HZ674	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	2	N	2	TRUE	FALSE	No		dont know about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
GV549	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	1	4	4	3	FALSE	TRUE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
DL786	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	3	3	3	3	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HT637	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	1	2	2	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Air-source heat pump ,Other (please	TRUE	FALSE	FALSE
AW310	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	3	N	N	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
DD188	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	1	1	1	D	1	FALSE	TRUE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HZ812	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	1	2	2	2	1	FALSE	TRUE	No		Didnâ€™t know you could	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KF535	Eligible Complete	Air Conditioner Tune-Up	Yes	Don't know	TRUE	2	1	2	2	2	FALSE	TRUE	No		Don't know	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CK483	Eligible Complete	Air Conditioner Tune-Up	Don't know	Yes	TRUE	2	3	2	2	3	TRUE	FALSE	No		didn't know about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HM916	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	2	2	D	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE

Measure Information			Criterion A: Familiarity with at least one Ameren Missouri program, rebate, or discount			Criterion B: At least one element of Ameren's program marketing and outreach motivated them to adopt the measure							Criterion D: They had not received a rebate from Ameren, and had not already tried to receive a rebate from Ameren, and they stated a valid reason for not applying for an Ameren rebate				Criterion E: They had a valid reason for deciding to install the measure			Criterion F: The adopted measure generated electric savings, not gas savings			Meeting all criteria	
Account	Cadmus Disposition	Measure	C2. Have you ever seen or heard of Ameren Missouri's energy efficiency programs?	C10. Are you aware that Ameren Missouri offers rebates and discounts for energy-saving equipment in your home ?	Criterion A met? (Yes to C2 or C10)	a) Information about energy savings from Ameren Missouri's marking or bill insert	b) Ameren Missouri's marketing information from a contractor or retailer	c) Information from colleagues or friends who installed energy efficient equipment and received a rebate from Ameren Missouri	d) Past participation in an Ameren Missouri energy efficiency program	e) Information from the energy assessment conducted at your home through Ameren Missouri	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)	G18. Did you receive a rebate, discount, or tax credit for the tune-up?	G19. Did you get a rebate from Ameren Missouri?	G20. Why didn't you or your contractor apply for a rebate through Ameren Missouri for the tune-up?	Criterion D met? (qualitative assessment)	G17. Which of the following reasons best describe why you decided to install have the tune-up?	G17. Other categories	Criterion E met? (qualitative assessment)	Cooling System	Heating System	Criterion F met? (depends on the measure)	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)
DL956	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	2	2	N	N	N	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
DG687	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	4	2	4	2	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
EC163	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	4	2	3	1	FALSE	TRUE	No		NOT SURE IF APARTMENT MANAGEMENT WOULD	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
KU536	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	N	N	2	N	N	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner,Evaporative	Electric furnace	TRUE	FALSE	FALSE
HW501	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	N	N	N	N	TRUE	FALSE	Yes	No	I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
DA645	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	3	3	4	4	1	FALSE	TRUE	No		This is an apartment	FALSE	Stopped Working	To make repairs or replacements	FALSE	Central air conditioner	Air-source heat pump ,Electric furnace	TRUE	FALSE	FALSE
HB229	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	2	2	3	3	2	TRUE	FALSE	No		Just forgot about it	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
KU935	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	2	3	3	3	2	TRUE	FALSE	No		DYI	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HH536	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	1	2	2	FALSE	TRUE	No		Just forgot about it	TRUE	To save money		TRUE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	TRUE
DP576	Eligible Complete	Air Conditioner Tune-Up	Don't know	Yes	TRUE	2	3	4	3	2	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
DG456	Eligible Complete	Air Conditioner Tune-Up	Don't know	Yes	TRUE	2	3	4	2	2	TRUE	FALSE	Yes	No	I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HH835	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	D	1	D	D	FALSE	TRUE	Yes	No	Don't know	FALSE	It was part of routine maintenance		FALSE	Don't know	Don't know Gas	FALSE	FALSE	FALSE
KF448	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	1	1	2	FALSE	TRUE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KC997	Eligible Complete	Air Conditioner Tune-Up	Don't know	Yes	TRUE	2	D	D	D	N	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
DG686	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	1	N	1	FALSE	TRUE	No		Don't know	FALSE	To improve home comfort		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
EE345	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	2	1	2	N	N	FALSE	TRUE	Yes	Yes	0	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KX908	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	4	4	2	4	4	TRUE	FALSE	No		did'nt know about rebate	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KF482	Eligible Complete	Air Conditioner Tune-Up	Don't know	Yes	TRUE	2	2	2	N	2	TRUE	FALSE	No		Don't know	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AT686	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	3	N	4	TRUE	FALSE	Yes	No	I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
LS483	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	2	N	D	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
DS888	Eligible Complete	Air Conditioner Tune-Up	Don't know	Yes	TRUE	2	2	4	N	N	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AQ339	Eligible Complete	Heat Pump Tune-Up	No	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Air-source heat pump	FALSE	FALSE	FALSE
MH343	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	2	2	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
DP207	Eligible Complete	Heat Pump Tune-Up	Yes	No	TRUE	1	2	1	2	1	FALSE	TRUE	Don't know		0	FALSE	To save energy		TRUE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
LG889	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	2	3	2	3	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
DA916	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	2	3	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
DY321	Eligible Complete	Heat Pump Tune-Up	Yes	No	TRUE	2	2	2	2	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
FC841	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	2	1	1	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AQ553	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	D	N	N	N	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To save money		TRUE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
DD535	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	Don't know		0	FALSE	To save money		TRUE	Don't know	Don't know Electric	FALSE	FALSE	FALSE
FC336	Eligible Complete	Heat Pump Tune-Up	Yes	No	TRUE	1	1	1	2	1	FALSE	TRUE	No		Don't know	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Air-source heat pump	FALSE	FALSE	FALSE
HW199	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	3	1	3	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
MB428	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	2	2	2	2	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler ,Electric furnace	TRUE	FALSE	FALSE
GS273	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	2	N	N	N	N	TRUE	FALSE	Yes	No	Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KU826	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	D	3	2	D	2	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
ME336	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	D	2	3	2	N	TRUE	FALSE	Yes	No	I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CF336	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	Don't know		0	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
GP525	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	4	4	D	3	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
LP903	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	3	3	2	TRUE	FALSE	Yes	Don't know	0	FALSE	I am going to say it was part of routine maintenace. it was just the annual furnace and air conditionin checkup	It was part of routine maintenance	FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FK656	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	3	2	4	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Electric furnace ,Other (please specify): Wood	TRUE	FALSE	FALSE
GL511	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	D	3	D	1	FALSE	TRUE	No		Just forgot about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
MQ155	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	2	N	2	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
CX587	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	4	4	N	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
CX453	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	N	N	N	N	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner,Window or wall	Electric furnace	TRUE	FALSE	FALSE
EE823	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	D	D	1	D	N	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE

Measure Information			Criterion A: Familiarity with at least one Ameren Missouri program, rebate, or discount			Criterion B: At least one element of Ameren's program marketing and outreach motivated them to adopt the measure							Criterion D: They had not received a rebate from Ameren, and had not already tried to receive a rebate from Ameren, and they stated a valid reason for not applying for an Ameren rebate				Criterion E: They had a valid reason for deciding to install the measure			Criterion F: The adopted measure generated electric savings, not gas savings			Meeting all criteria	
Account	Cadmus Disposition	Measure	C2. Have you ever seen or heard of Ameren Missouri's energy efficiency programs?	C10. Are you aware that Ameren Missouri offers rebates and discounts for energy-saving equipment in your home ?	Criterion A met? (Yes to C2 or C10)	a) Information about energy savings from Ameren Missouri's marking or bill insert	b) Ameren Missouri's marketing information from a contractor or retailer	c) Information from colleagues or friends who installed energy efficient equipment and received a rebate from Ameren Missouri	d) Past participation in an Ameren Missouri energy efficiency program	e) Information from the energy assessment conducted at your home through Ameren Missouri	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)	G18. Did you receive a rebate, discount, or tax credit for the tune-up?	G19. Did you get a rebate from Ameren Missouri?	G20. Why didn't you or your contractor apply for a rebate through Ameren Missouri for the tune-up?	Criterion D met? (qualitative assessment)	G17. Which of the following reasons best describe why you decided to install have the tune-up?	G17. Other categories	Criterion E met? (qualitative assessment)	Cooling System	Heating System	Criterion F met? (depends on the measure)	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)
HZ272	Eligible Complete	Heat Pump Tune-Up	Don't know	Yes	TRUE	4	4	2	N	4	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
CF180	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	2	2	2	2	2	TRUE	FALSE	No		Don't know	FALSE	To save money		TRUE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
KK562	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	N	D	3	3	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FF193	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	3	2	3	3	3	TRUE	FALSE	Don't know			FALSE	To make repairs or replacements		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
AM359	Eligible Complete	Heat Pump Tune-Up	Don't know	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Air-source heat pump ,Electric furnace	FALSE	FALSE	FALSE
DL180	Eligible Complete	Heat Pump Tune-Up	Yes	No	TRUE	2	D	3	N	1	FALSE	TRUE	No		did not know about it	TRUE	It was part of routine maintenance		FALSE	Air-source heat pump	Gas furnace/boiler	FALSE	FALSE	FALSE
CF125	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	4	4	N	4	TRUE	FALSE	No		friend did it	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FN458	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	2	2	2	2	2	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CK413	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	2	1	2	1	FALSE	TRUE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Air-source heat pump	FALSE	FALSE	FALSE
CN931	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	1	3	1	FALSE	TRUE	No		did not know there was a rebate for a tune-up	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HE850	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	3	4	4	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
LV969	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	2	2	2	3	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
LL303	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	N	N	N	N	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KU355	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	D	2	N	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner,Ductless or mini-	Ductless or mini-split heat pump ,Air-	TRUE	FALSE	FALSE
GP623	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	1	1	N	N	1	FALSE	TRUE	No		Don't know	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HM789	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	1	3	2	N	N	FALSE	TRUE	No		Just forgot about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FC754	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	3	2	2	3	3	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HQ457	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
GL897	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner,Portable air	Gas furnace/boiler	TRUE	FALSE	FALSE
HT177	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	1	2	1	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FW663	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	N	N	4	N	TRUE	FALSE	No		Did not know work was eligible for a rebate	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CU760	Eligible Complete	Heat Pump Tune-Up	Yes	No	TRUE	2	2	3	4	3	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To make repairs or replacements		FALSE	Window or wall air conditioner	Electric baseboard heating	FALSE	FALSE	FALSE
KK888	Eligible Complete	Air Conditioner Tune-Up	Don't know	Yes	TRUE	2	3	2	2	2	TRUE	FALSE	No		Don't know	FALSE	To save money		TRUE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AQ657	Eligible Complete	Heat Pump Tune-Up	Yes	No	TRUE	1	1	4	1	1	FALSE	TRUE	No		Just forgot about it	TRUE	To save energy		TRUE	Central air conditioner	Electric furnace	FALSE	FALSE	FALSE
KR222	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	4	4	2	4	4	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CR119	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	N	N	N	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
EH811	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	1	4	4	4	3	FALSE	TRUE	Yes	No	Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
LY967	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	3	4	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
EM446	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	No		Just forgot about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Air-source heat pump	FALSE	FALSE	FALSE
GA332	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	2	1	1	N	FALSE	TRUE	No		did not know about it	TRUE	It was part of routine maintenance		FALSE	Ground-source or geothermal heat pump	Ground-source or geothermal heat pump	TRUE	FALSE	FALSE
EE727	Eligible Complete	Air Conditioner Tune-Up	Don't know	Yes	TRUE	2	2	2	2	3	TRUE	FALSE	No		Just forgot about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
EM926	Eligible Complete	Air Conditioner Tune-Up	Yes	Don't know	TRUE	1	D	D	D	D	FALSE	TRUE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FK608	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	2	2	N	3	2	TRUE	FALSE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
GV447	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	2	1	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To improve home comfort		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
DG307	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	2	2	2	D	2	TRUE	FALSE	No		Don't know	FALSE	To improve home comfort		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HQ857	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	3	4	3	3	2	TRUE	FALSE	No		Do not own the property	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Don't know Gas	TRUE	FALSE	FALSE
DP925	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	4	4	4	N	TRUE	FALSE	No		Just forgot about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
LP960	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	2	2	2	2	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
DS832	Eligible Complete	Heat Pump Tune-Up	No	Yes	TRUE	2	3	2	2	2	TRUE	FALSE	No		self-employed/certified HVAC	FALSE	It was part of routine maintenance		FALSE	Air-source heat pump	Air-source heat pump	TRUE	FALSE	FALSE
GD772	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	2	3	2	TRUE	FALSE	No		Work was performed by family member who is HVAC professional	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
GV763	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	1	2	1	FALSE	TRUE	No		Don't know	FALSE	To improve home comfort		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
DY230	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	1	3	D	2	FALSE	TRUE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AM896	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	The unit would not come on.	To make repairs or replacements	FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
GG235	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	D	1	1	1	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HH389	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	3	2	2	3	FALSE	TRUE	No		I wasnâ€™t sure the tune-up qualified	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AQ768	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	N	4	4	3	TRUE	FALSE	No		Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Air-source heat pump	FALSE	FALSE	FALSE

Measure Information			Criterion A: Familiarity with at least one Ameren Missouri program, rebate, or discount			Criterion B: At least one element of Ameren's program marketing and outreach motivated them to adopt the measure							Criterion D: They had not received a rebate from Ameren, and had not already tried to receive a rebate from Ameren, and they stated a valid reason for not applying for an Ameren rebate				Criterion E: They had a valid reason for deciding to install the measure			Criterion F: The adopted measure generated electric savings, not gas savings			Meeting all criteria	
Account	Cadmus Disposition	Measure	C2. Have you ever seen or heard of Ameren Missouri's energy efficiency programs?	C10. Are you aware that Ameren Missouri offers rebates and discounts for energy-saving equipment in your home ?	Criterion A met? (Yes to C2 or C10)	a) Information about energy savings from Ameren Missouri's marking or bill insert	b) Ameren Missouri's marketing information from a contractor or retailer	c) Information from colleagues or friends who installed energy efficient equipment and received a rebate from Ameren Missouri	d) Past participation in an Ameren Missouri energy efficiency program	e) Information from the energy assessment conducted at your home through Ameren Missouri	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)	G18. Did you receive a rebate, discount, or tax credit for the tune-up?	G19. Did you get a rebate from Ameren Missouri?	G20. Why didn't you or your contractor apply for a rebate through Ameren Missouri for the tune-up?	Criterion D met? (qualitative assessment)	G17. Which of the following reasons best describe why you decided to install have the tune-up?	G17. Other categories	Criterion E met? (qualitative assessment)	Cooling System	Heating System	Criterion F met? (depends on the measure)	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)
CN274	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	2	2	D	2	FALSE	TRUE	No		0 Don't know	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KX794	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	3	2	2	2	TRUE	FALSE	No		0 Just forgot about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Ductless or mini-split heat pump	FALSE	FALSE	FALSE
HQ615	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	D	2	2	D	TRUE	FALSE	Yes	No	I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
GD541	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	N	D	1	D	D	FALSE	TRUE	No		0 rent	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AT892	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	N	1	2	1	D	FALSE	TRUE	No		0 no work was done	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CU239	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	2	3	4	4	4	TRUE	FALSE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
MB865	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	N	N	2	N	N	TRUE	FALSE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KU531	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	D	3	2	N	N	TRUE	FALSE	No		0 Didn't know about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
EC663	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	2	1	N	FALSE	TRUE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
GD413	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	1	1	3	3	1	FALSE	TRUE	No		0 Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FX971	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	No		0 Don't know	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CX974	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	3	D	3	D	TRUE	FALSE	No		0 Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
HW919	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	1	3	3	N	FALSE	TRUE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	To save energy		TRUE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	TRUE
FN321	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
GS780	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	2	D	D	TRUE	FALSE	No		0 Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
EH953	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	D	D	3	3	TRUE	FALSE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FW615	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	2	3	2	D	2	TRUE	FALSE	Don't know		0 0	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
LG501	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	1	2	2	1	FALSE	TRUE	Yes	No	I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
GP163	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	3	3	2	D	3	TRUE	FALSE	No		0 Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner,Air-source heat	Air-source heat pump	TRUE	FALSE	FALSE
EM272	Eligible Complete	Heat Pump Tune-Up	Yes	No	TRUE	2	3	2	2	2	TRUE	FALSE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Air-source heat pump	FALSE	FALSE	FALSE
FW691	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	1	D	2	D	1	FALSE	TRUE	No		0 Didnt know about it	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AZ559	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	D	4	3	TRUE	FALSE	Don't know		0 0	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
DD366	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	2	2	2	TRUE	FALSE	No		0 Just forgot about it	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
MM719	Eligible Complete	Heat Pump Tune-Up	Don't know	Yes	TRUE	2	2	N	2	D	TRUE	FALSE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner,Window or wall	Air-source heat pump ,Gas furnace/boiler	FALSE	FALSE	FALSE
HE314	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	2	1	N	2	FALSE	TRUE	No		0 Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
LV754	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	D	4	D	2	TRUE	FALSE	No		0 Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
MM957	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	1	2	2	1	FALSE	TRUE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
KU655	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	1	2	2	1	2	FALSE	TRUE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
KF685	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	2	2	2	1	FALSE	TRUE	Yes	Yes	0	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
LS676	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	2	2	4	D	3	TRUE	FALSE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FX734	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	N	2	D	N	TRUE	FALSE	No		0 Don't know	FALSE	To save money		TRUE	Air-source heat pump	Air-source heat pump	TRUE	FALSE	FALSE
FC753	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	N	N	1	1	FALSE	TRUE	No		0 I was not aware it was available	TRUE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
LP596	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	2	4	2	2	4	TRUE	FALSE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	Need new unit but cant afford one	To make repairs or replacements	FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FK383	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	2	2	N	1	FALSE	TRUE	Yes	No	Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE
HB867	Eligible Complete	Air Conditioner Tune-Up	Don't know	Yes	TRUE	1	N	N	1	N	FALSE	TRUE	Yes	No	I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
EM487	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	1	1	1	1	FALSE	TRUE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Electric furnace	FALSE	FALSE	FALSE
DG852	Eligible Complete	Heat Pump Tune-Up	No	Yes	TRUE	1	1	3	N	1	FALSE	TRUE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Air-source heat pump	Electric furnace	FALSE	FALSE	FALSE
LG337	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	2	1	1	2	FALSE	TRUE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Air-source heat pump	Air-source heat pump	TRUE	FALSE	FALSE
MM542	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	D	D	D	D	FALSE	TRUE	Don't know		0 0	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Don't know Gas	FALSE	FALSE	FALSE
GD958	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	4	3	2	TRUE	FALSE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
EM179	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	3	4	3	TRUE	FALSE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	To improve home comfort		FALSE	Central air conditioner	Gas furnace/boiler ,Electric furnace	TRUE	FALSE	FALSE
GP317	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	2	D	2	N	TRUE	FALSE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	To save energy		TRUE	Central air conditioner	Gas furnace/boiler	TRUE	TRUE	FALSE
DA627	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	4	4	2	4	2	TRUE	FALSE	No		0 Don't know	FALSE	To save energy		TRUE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
EC592	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	N	3	N	TRUE	FALSE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	To improve home comfort		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CX916	Eligible Complete	Air Conditioner Tune-Up	Yes	No	TRUE	2	1	1	2	1	FALSE	TRUE	No		0 Don't know	FALSE	To improve home comfort		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
EE965	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	3	3	1	4	FALSE	TRUE	No		0 Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HW374	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	N	2	D	D	TRUE	FALSE	No		0 I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Electric furnace	TRUE	FALSE	FALSE
LD153	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	1	N	1	FALSE	TRUE	No		0 Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE

Measure Information			Criterion A: Familiarity with at least one Ameren Missouri program, rebate, or discount			Criterion B: At least one element of Ameren's program marketing and outreach motivated them to adopt the measure							Criterion D: They had not received a rebate from Ameren, and had not already tried to receive a rebate from Ameren, and they stated a valid reason for not applying for an Ameren rebate				Criterion E: They had a valid reason for deciding to install the measure			Criterion F: The adopted measure generated electric savings, not gas savings			Meeting all criteria	
Account	Cadmus Disposition	Measure	C2. Have you ever seen or heard of Ameren Missouri's energy efficiency programs?	C10. Are you aware that Ameren Missouri offers rebates and discounts for energy-saving equipment in your home ?	Criterion A met? (Yes to C2 or C10)	a) Information about energy savings from Ameren Missouri's marking or bill insert	b) Ameren Missouri's marketing information from a contractor or retailer	c) Information from colleagues or friends who installed energy efficient equipment and received a rebate from Ameren Missouri	d) Past participation in an Ameren Missouri energy efficiency program	e) Information from the energy assessment conducted at your home through Ameren Missouri	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)	G18. Did you receive a rebate, discount, or tax credit for the tune-up?	G19. Did you get a rebate from Ameren Missouri?	G20. Why didn't you or your contractor apply for a rebate through Ameren Missouri for the tune-up?	Criterion D met? (qualitative assessment)	G17. Which of the following reasons best describe why you decided to install have the tune-up?	G17. Other categories	Criterion E met? (qualitative assessment)	Cooling System	Heating System	Criterion F met? (depends on the measure)	Criterion B met for 50% savings? (Max rating was 2)	Criterion B met for 100% savings? (Max rating was 1)
HH693	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	2	N	D	2	FALSE	TRUE	No	0	I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AM901	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	3	3	2	D	TRUE	FALSE	No	0	I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CR481	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	2	1	2	N	N	FALSE	TRUE	No	0	Don't know	FALSE	To make repairs or replacements		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
AT118	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	2	N	N	N	N	TRUE	FALSE	No	0	I wasnâ€™t sure the tune-up qualified	TRUE	To improve home comfort		FALSE	Air-source heat pump	Air-source heat pump	TRUE	FALSE	FALSE
LL890	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	D	4	D	D	FALSE	TRUE	No	0	Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
LA400	Eligible Complete	Air Conditioner Tune-Up	Yes	Don't know	TRUE	2	2	2	1	2	FALSE	TRUE	No	0	I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
FF910	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	3	3	2	N	D	TRUE	FALSE	Don't know	0	0	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
HW559	Eligible Complete	Air Conditioner Tune-Up	No	Yes	TRUE	1	4	2	2	3	FALSE	TRUE	No	0	Don't know	FALSE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler ,Electric	TRUE	FALSE	FALSE
DS347	Eligible Complete	Heat Pump Tune-Up	Yes	Yes	TRUE	1	N	N	N	N	FALSE	TRUE	No	0	I wasnâ€™t sure the tune-up qualified	TRUE	It was part of routine maintenance		FALSE	Air-source heat pump	Air-source heat pump	TRUE	FALSE	FALSE
HB425	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	1	1	1	D	FALSE	TRUE	No	0	He doesn't think the check that he has done would qualify	TRUE	It was part of routine maintenance		FALSE	Central air conditioner	Gas furnace/boiler	TRUE	FALSE	FALSE
CN442	Eligible Complete	Air Conditioner Tune-Up	Yes	Yes	TRUE	1	N	1	N	N	FALSE	TRUE	No	0	I wasnâ€™t sure the tune-up qualified	TRUE	To make repairs or replacements		FALSE	Window or wall air conditioner	Gas furnace/boiler	FALSE	FALSE	FALSE

Appendix D. Stakeholder Interview Guide

CADMUS

Ameren Missouri Heating and Cooling Program
Stakeholder Interview Guide (PY18)

Respondent name:_____

Respondent phone: _____

Interview date: _____ Interviewer initials: _____

In PY18 Cadmus will interview both Ameren and ICF Heating and Cooling program managers. The interview will focus on changes to program design. The interview will also collect feedback about program successes and challenges.

Introduction

1. Have there been any significant changes to the eligible measures or how the program is implemented this year?

    a. If so, what are these changes, and why were they introduced?

2. What, if any, are changes that the program is planning to make looking ahead?

Program Design and Implementation

15. [If needed] Are there any (other) changes to program design or implementation that have affected the classification of early retirement systems? Is so what were these changes and what effect did they have?

    a. What changes in program participation or measure classification have you seen because of these changes?

Quality Control

3. Cadmus found that customers reported operating their furnace fan in continuous mode more frequently compared to the contractor-reported installation setting.

   Does ICF include any follow-up questions regarding furnace fan operation, such as being on “auto” or “continuous” mode, either pre or post installation, in its customer follow up surveys?

    b. If so, has ICF compared the results of this survey to the tracking data? What were the findings?

720 SW Washington Street
Suite 400
Portland, OR 97205
Voice: 503.467.7100
Fax: 503.228.3696

An Employee-Owned Company
www.cadmusgroup.com

Corporate Headquarters:
100 5th Avenue, Suite 100
Waltham, MA 02451
Voice: 617.673.7000
Fax: 617.673.7001

4. We understand that the program can penalize contractors for incorrectly classifying equipment – either by removing them from the website listing, or by removing them from the program? Has this program taken such actions this year? If so, how many contractors did this effect?

Marketing Efforts

5. What kind of marketing have you done in PY18? [Probe: Distributor, contractor, customer]

    c. Are there any (other) changes to how marketing was conducted this year?

Successes, Challenges, Suggestions for Improvement

6. In your opinion, how has the program performed in PY18 (in terms of both process and savings/participation goals)?

    a. What are the biggest challenges of the program?

    b. How, if at all, are you anticipating the program to change in the long-term future for the next cycle?

720 SW Washington Street
Suite 400
Portland, OR 97205
Voice: 503.467.7100
Fax: 503.228.3696

Appendix E. Immediate Participant Survey

CADMUS

Ameren Missouri 2017 Immediate Online HVAC Survey

A. All HVAC Measures – Verification and Program Awareness

ASK QUESTIONS OF ALL PARTICIPANTS, REGARDLESS OF WHAT TYPE OF MEASURE THEY HAVE INSTALLED.

INTRO: Thank you for participating in Ameren Missouri's Heating and Cooling Program. We would like to know more about your experience with the program. Instructions for participating in the prize drawing are provided at the end of this survey.

A1. Our records indicate that you received a rebate for **[ASK IF MEASURETYPE ≠ TUNE-UP]** installing a new high efficiency **[MEASURENAME] [AND SMART THERMOSTAT(S) IF APPLICABLE]** **[ASK IF MEASURETYPE = TUNE-UP]** an equipment tune-up. Is this correct? **[FORCED RESPONSE (NO SKIP)]**

1.Yes
2.No, I did not receive a rebate
3.**[IF SMART THERMOSTAT]** No, I only received a rebate for the **[MEASURETYPE]**
4.**[IF SMART THERMOSTAT]** No, I only received a rebate for the **[SMART THERMOSTAT]**(s)

A2. **[IF A1=2 OR 4]** Why did you not receive a rebate?

1.I did not participate in the Ameren Missouri Heating and Cooling Program **[TERMINATE]**
2.I participated in the Ameren Missouri Heating and Cooling Program, but my rebate has not arrived yet **[TERMINATE]**
3.Some other reason, please specify: **[SPECIFY: _____]** **[TERMINATE]**
98. Don't Know **[TERMINATE]**
99. (Skipped) **[TERMINATE]**

A3. **[ASK IF MEASURETYPE = FURNACE FAN]** Did you install your new furnace fan with a new furnace, or did you install it with an existing furnace?

1.I installed it with a new furnace
2.I installed it with an existing furnace
98. Don't Know **[TERMINATE]**
99. (Skipped) **[TERMINATE]**

A4. **[ASK IF A3=1]** Do you have a central air conditioner or heat pump?

1.Yes
2.No **[TERMINATE]**
98. Don't Know **[TERMINATE]**
99. (Skipped) **[TERMINATE]**

A5. **[ASK IF A4 = 1]** Did you install the air-conditioner or heat pump when you installed the furnace?

1.Yes
2.No **[TERMINATE]**
98. Don't Know **[TERMINATE]**
99. (Skipped) **[TERMINATE]**

A6. **[ASK IF A5 = 1]** Why did you not get a rebate for the air conditioner or heat pump?

1.I did get a rebate from Ameren **[TERMINATE]**
2.Because my contractor said it did not qualify **[TERMINATE]**
3.The efficiency was too low **[TERMINATE]**
4.Because I did not get a new indoor cooling coil to my install didn't qualify **[TERMINATE]**
5.Because I was unable to get a valid AHRI certificate, thus did not qualify for a rebate **[TERMINATE]**
6.**[SPECIFY:_____]** **[TERMINATE]**
98. Don't Know **[TERMINATE]**
99. (Skipped) **[TERMINATE]**

A7. Are you or any members of your household employed by Ameren Missouri or by a company that sells, installs, or services heating and cooling equipment? **[FORCED RESPONSE (NO SKIP OR DK)]**

1.Yes, I or someone in my household works for Ameren Missouri **[TERMINATE]**
2.Yes, I or someone in my household works for a company that sells, installs or services heating and cooling equipment **[TERMINATE]**
3.No one in my household works for the companies listed above

A8. Prior to this survey, were you aware that the rebate you received after **[ASK IF MEASURETYPE ≠ TUNE-UP]** installing your new high efficiency **[MEASURETYPE] [AND SMART THERMOSTAT] [ASK IF MEASURETYPE = TUNE-UP]** your tune-up was provided by Ameren Missouri?

1.Yes
2.No
98. Don't Know
99. (Skipped)

A9. **[SKIP IF A8=2]** How did you hear about Ameren Missouri's Heating and Cooling Program? **[RANDOMIZE ORDER – CHECK ALL THAT APPLY]**

1. From my contractor or installer
2. Visited Ameren's Web site
3. Other Web site, which site? **[SPECIFY:_____]**
4. On my Monthly Energy Statement/Bill
5. Information that I received by mail from Ameren
6. Information that I received by mail from a contractor
7. A brochure from Ameren that I did not receive by mail

   Where did you find the brochure that informed you about the program, or who gave it to you? **[SPECIFY:_____]**
8. When my rebate check arrived
9. Door hanger
10. Family, friend or co-worker
11. Newspaper
12. Radio
13. Ameren Missouri representative
14. Television advertisement
15. Ameren Missouri Home Energy Report
16. Signs or displays in a store
17. Store representative or salesperson
18. Social Media (Facebook, Twitter)
19. Some other way **[SPECIFY:_____]**

98. Don't Know
99. (Skipped)

B. All HVAC Measures - Purchase Patterns and Decision-making

ASK QUESTIONS OF ALL PARTICIPANTS, REGARDLESS OF WHAT TYPE OF MEASURE THEY HAVE INSTALLED. MEASURE-SPECIFIC PURCHASE PATTERN AND DECISION-MAKING QUESTIONS WILL BE ADDRESSED IN EACH MEASURE'S SECTION

B1. **[ASK IF MEASURETYPE ≠ TUNE-UP]** What was the primary reason you purchased a new **[MEASURETYPE]**? **[SELECT ONE RESPONSE]**

1. To replace broken equipment
2. To replace aging equipment
3. To improve the comfort of my home
4. To improve the safety of my home
5. The purchase was part of a larger home renovation
6. The equipment is for a newly constructed home
7. To save money on energy costs
8. To help the environment
9. Some other reason, please specify: **[SPECIFY: _____]**

98. Don't Know
99. (Skipped)

B2. **[ASK IF MEASURETYPE = TUNE-UP]** What motivated you to purchase the tune-up service? (check all that apply) **[RANDOMIZE ORDER EXCEPT FOR OTHER AND DON'T KNOW; ALLOW MULTIPLE RESPONSES]**

1. My air conditioner stopped working (i.e., unit failed)
2. My air conditioner was working, but was having problems (i.e., wasn't cooling properly or was making a noise)
3. Was included in my maintenance contract or part of a regularly scheduled check up
4. To take advantage of the rebate
5. It was time for a tune-up
6. To ensure that it lasts longer
7. To find out if it needs any repairs
8. To keep my air conditioner running efficiently
9. To save energy
10. To lower energy bill, save money on bills
11. It didn't cost much
12. Reminded by Ameren Missouri advertising
13. Reminded by advertising other than Ameren Missouri
14. Recommended by a family or friend
15. Other [**SPECIFY:**_____]

98. Don't Know **[EXCLUSIVE RESPONSE]**
99. (Skipped)

C. All HVAC Measures – Participant Satisfaction

ASK QUESTIONS OF ALL PARTICIPANTS, REGARDLESS OF WHAT TYPE OF MEASURE THEY HAVE INSTALLED.

C1. **[ASK IF SMART THERMOSTAT]** How satisfied are you with the performance of your new smart thermostat(s)?

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all

98. Don't Know
99. (Skipped)

C2. **[C1= 1, 2, 3 OR 4]** Why are you **[INSERT RATING FROM C1]** with the performance of your new smart thermostat(s)?

[RECORD RESPONSE:_____]

C3. Thinking about your overall satisfaction with Ameren Missouri's Heating and Cooling Program, would you say you are:

1.Very satisfied
2.Somewhat satisfied
3.Not too satisfied
4.Not satisfied at all

98. Don't Know
99. (Skipped)

C4. **[ASK IF 0 = 1, 2, 3 OR 4]** Why are you **[RATING FROM 0]** with Ameren Missouri's Heating and Cooling Program? Please give us further details on what you like or dislike about this rebate program (check all that apply). **[ALLOW MULTIPLE RESONSES; SHOW ALL RESPONSE OPTIONS IF 0= 2 OR 3, SHOW RESPONSE OPTIONS 1-5 & 9, 98 IF D3 = 1, SHOW RESPONSE OPTIONS 6-9 & 98 IF D3 = 4. RANDOMIZE ORDER EXCEPT FOR OTHER AND DON'T KNOW]**

1.Satisfied with the rebates
2.Overall positive program experience
3.The program met my expectations
4.Satisfied with the environmental benefits of the program
5.Satisfied with the contractor
6.Dissatisfied with the rebates
7.Dissatisfied with delays in rebate processing
8.Dissatisfied with the contractor
9.Other reasons or comments, please specify: **[SPECIFY:_____]**
98. Don't Know **[EXCLUSIVE RESPONSE]**
99. (Skipped)

D. Central Air Conditioner Questions

ASK QUESTIONS OF PARTITIPANTS THAT HAVE INSTALLED CENTRAL AIR CONDITIONERS

D1. Did you install your central air conditioner in a newly constructed home or in an existing home?

1.Newly constructed home
2.Existing home
99. (Skipped)

Central Air Conditioning Free Ridership Questions

The next set of questions specifically pertain to the installation of your central air conditioning system.

D2. **[ASK IF D1=2]** Please think back to when you first spoke with your contractor in regards to replacing and/or installing your central air conditioner. What prompted the conversation? **[INDICATE ALL THAT APPLY]**

1. My air conditioner stopped working (i.e., unit failed)
2. My air conditioner was working, but was having problems (i.e., wasn't cooling properly or was making a noise)
3. Was included in my maintenance contract or part of a regularly scheduled check up
4. To take advantage of the rebate
5. It was time for a tune-up
6. To ensure that it lasts longer
7. To find out if it needs any repairs
8. To keep my air conditioner running efficiently
9. To save energy
10. To lower my energy bill, save money on bills
11. It didn't cost much to discuss upgrading my system with the contractor
12. Reminded by Ameren Missouri advertising
13. Reminded by advertising other than Ameren Missouri
14. Recommended by a family member or friend
15. Other **[SPECIFY:_____]**

98. Don't Know
99. (Skipped)

D3. **[ASK IF D2=1 OR 2]** Did your contractor offer you the option to repair or tune-up your system instead of replacing it?

1. Yes
2. No

98. Don't Know
99. (Skipped)

D3B. **[IF D3= 2]** So, to the best of your knowledge your system was not repairable and had to be replaced?

1. Yes
2. No

98. Don't Know
99. (Skipped)

D4. **[IF D3 =1]** About how much would the repair have cost?

1.Less than $200
2.$200 - $500
3.$500 - $1,000
4.$1,000 – $2,500
5.More than $2,500
98. Don't Know
99. (Skipped)

D5. **[IF D3 =1]** Why did you opt for replacing the unit instead of repairing it? (check all that apply) **[MARK ALL THAT APPLY]**

1.The repair costs were too much; was not worth it
2.I would have had to replace it soon anyway
3.The contractor convinced me installing a high-efficiency model was worth it/ would save me money in the long-run
4.I wanted to take advantage of Ameren Missouri's rebates while available
5.I wanted to take advantage of manufacturer rebates or tax credits while available
6.Other **[SPECIFY:_____]**
98. Don't Know
99. (Skipped)

D6. Without the Ameren Missouri Heating and Cooling program, what is the likelihood you would have purchased a new air conditioner within 12 months? Please answer using a scale from 0 to 10, with 0 being not at all likely and 10 being very likely. **[FORCED RESPONSE – NO SKIP]**

1. **[RECORD 0 TO 10 RATING:___]**

D7. Without the Ameren Missouri Heating and Cooling program, what is the likelihood you would have purchased the exact same air conditioner model as your purchase through the program? **[FORCED RESPONSE – NO SKIP]**

1. **[RECORD 0 TO 10 RATING:___]**

D8. **[IF QUANTITY > 1]** Without the Ameren Missouri Heating and Cooling program what is the likelihood you would have purchased fewer air conditioning systems? **[FORCED RESPONSE – NO SKIP]**

1. **[RECORD 0 TO 10 RATING:___]**

D9. Did you first learn about the Ameren Missouri Heating and Cooling program before or after you decided how energy efficient your equipment would be? **[FORCED RESPONSE – NO SKIP]**

1. Before
2. After

D10. On a scale from 0 to 10, with 0 being not at all important and 10 being very important, how important were each of the following factors in your decision to purchase a high-efficiency air conditioning system. If a factor is not applicable to you, please say so. **[NOTE: RESPONDENTS CAN ALSO STATE THAT A PARTICULAR FACTOR IS NOT APPLICABLE, PLEASE CODE AS 'NA'] [FORCED RESPONSE – NO SKIP]**

1. Ameren Missouri rebate
2. Contractor recommendation
3. Information about energy efficiency provided by Ameren Missouri
4. Interaction with Ameren Missouri program staff
5. Previous participation in an Ameren Missouri rebate program

D11. In your own words, what influence did the Ameren Missouri Heating and Cooling program have on your decision to purchase a high-efficiency air conditioning system? **[FORCED RESPONSE – NO SKIP]**

[RECORD RESPONSE:_____]

E. Heat Pumps

ASK OF PARTICIPANTS WHO HAVE INSTALLED HEAT PUMPS

E1. Did you install your heat pump in a newly constructed home or in an existing home?

1.Newly constructed home
2.Existing home
99. (Skipped)

E2. What type of heating system did you replace and remove before you installed the heat pump?

1.Electric forced air furnace
2.Electric baseboard heat
3.Ground source heat pump
4.Air Source Heat Pump
5.Dual Fuel Heat Pump
6.Gas heating system (boiler, furnace)
7.Other **[SPECIFY:_____]**
8.I kept my previous heating system
9.Nothing – this is new construction
98. Don't Know
99. (Skipped)

E3. What type of cooling system did you replace and remove at the time you installed the heat pump?

1.Window air conditioning unit(s)
2.Room air conditioning unit(s)
3.Air Source Heat Pump
4.Ground Source Heat Pump
5.Central air conditioning system
6.Other **[SPECIFY:_____]**
7.I kept my previous cooling system
8.I didn't have a cooling system
98. Don't Know
99. (Skipped)

Heat Pump Free Ridership Questions

E4. **[IF E1=2]** Please think back when you first spoke with your contractor in regards to replacing and/or installing your heat pump. What prompted the conversation? (check all that apply) **INDICATE ALL THAT APPLY]**

1. My air conditioner or heat pump stopped working (i.e., unit failed)
2. My air conditioner or heat pump was working, but was having problems (i.e., wasn't cooling properly or was making a noise)
3. Maintenance contract / Regularly scheduled check up
4. To take advantage of the rebate
5. It was time for a tune-up
6. To ensure that it lasts longer
7. To find out if it needs any repairs
8. To keep my heat pump running efficiently
9. To save energy
10. To lower my energy bill, save money on bills
11. It didn't cost much to discuss upgrading my system with the contractor
12. Reminded by Ameren Missouri advertising
13. Reminded by advertising other than Ameren Missouri
14. Recommended by a family or friend
15. Other **[SPECIFY:_____]**

98. Don't Know
99. (Skipped)

E5. **[IF E4=1 OR 2]** Did your contractor offer you the option to repair or tune-up your system instead of replacing it?

1. Yes
2. No

98. Don't Know
99. (Skipped)

E6. **[IF E5 = 2]** So, to the best of your knowledge your system was not repairable and had to be replaced?

1. Yes
2. No

98. Don't Know
99. (Skipped)

E7. **[IF E5 =1]** About how much would the repair have cost?

1.Less than $200
2.$200 - $500
3.$500 - $1,000
4.$1,000 – $2,500
5.More than $2,500
98. Don't Know
99. (Skipped)

E8. **[IF E5 =1]** Why did you opt for replacing the unit instead of repairing it? (check all that apply) **[MARK ALL THAT APPLY]**

1.The repair costs were too much; was not worth it
2.I would have had to replace it soon anyway
3.The contractor convinced me installing a high-efficiency model was worth it/ would save me money in the long-run
4.I wanted to take advantage of Ameren Missouri's rebates while available
5.I wanted to take advantage of manufacturer rebates or tax credits while available
6.Other **[SPECIFY:_____]**
98. Don't Know
99. (Skipped)

E9. Before you knew about the heat pump incentive from Ameren Missouri, were you already considering a heat pump as your replacement system?

1.Yes
2.No
98. Don't Know
99. (Skipped)

E10. **[IF E9= 1]** Why were you considering a heat pump?

1.It was more efficient
2.I wanted heating as well
3.I knew about Ameren's incentive
4.I already had a heat pump
5.Other **[SPECIFY:_____]**
98. Don't Know
99. (Skipped)

E11. **[IF E10= 2]** Why did you decide to install a heat pump?

1.It was more efficient
2.I wanted heating as well
3.I found out about Ameren Missouri's incentive
4.The contractor told me about Ameren's incentive
5.The contractor told me about the benefits of a heat pump
6.Other **[SPECIFY:_____]**
98. Don't Know
99. (Skipped)

E12. Without the Ameren Missouri Heating and Cooling program, what is the likelihood you would have purchased a new heat pump system within 12 months? Please answer using a scale from 0 to 10, with 0 being not at all likely and 10 being very likely. **[FORCED RESPONSE – NO SKIP]**

1.**[RECORD 0 TO 10 RATING:___]**

E13. Without the Ameren Missouri Heating and Cooling program, what is the likelihood you would have purchased the same exact heat pump model as your purchased through the program? **[FORCED RESPONSE – NO SKIP]**

1.**[RECORD 0 TO 10 RATING:___]**

E14. **[IF QUANTITY > 1]** Without the Ameren Missouri Heating and Cooling program, what is the likelihood you would have purchased fewer heat pumps systems? **[FORCED RESPONSE – NO SKIP]**

1.**[RECORD 0 TO 10 RATING:___]**

E15. Did you first learn about the Ameren Missouri Heating and Cooling program before or after you decided how energy efficient your new heat pump equipment would be? **[FORCED RESPONSE – NO SKIP]**

1.Before
2.After

E16. On a scale from 0 to 10, with 0 being not at all important and 10 being very important, how important were each of the following factors in your decision to purchase a high-efficiency heat pump system. If a factor is not applicable to you, please say so. **[NOTE: RESPONDENTS CAN ALSO STATE THAT A PARTICULAR FACTOR IS NOT APPLICABLE, PLEASE CODE AS 'NA'] [FORCED RESPONSE – NO SKIP]**

1. Ameren Missouri rebate
2. Contractor recommendation
3. Information about energy efficiency provided by Ameren Missouri
4. Interaction with Ameren Missouri program staff
5. Previous participation in an Ameren Missouri rebate program

F17. In your own words, what influence did the Ameren Missouri Heating and Cooling program have on your decision to purchase a high-efficiency heat pump system? **[FORCED RESPONSE – NO SKIP]**
[RECORD RESPONSE:_____]

F. ECM Questions

ASK OF PARTICIPANTS WHO INSTALLED ONLY ECM MEASURE – NO OTHER MEASURE – EXCEPTION IS F8 AND FOLLOW ONS WHICH ARE ASKED OF HEAT PUMP AND CAC CUSTOMERS (QUESTIONS IN THIS SECTION THAT DO NOT SPECIFICALLY MENTION OTHER MEASURETYPES ARE ONLY ASKED FOR ECM CUSTOMERS)

F1. What type of heating system do you have?
1.Air Source Heat Pump
2.Electric furnace
3.Gas furnace
4.Ground Source Heat Pump
5.Other [**SPECIFY:**_____]
99. (Skipped)

F2. What type of cooling system do you have?
1.Air Source Heat Pump
2.Ground Source Heat Pump
3.Central air conditioner
4.Window air conditioner(s)
5.Other [**SPECIFY:**_____]
6.None
99. (Skipped)

F3. Your new furnace fan (with a high efficiency variable speed motor for your heating and cooling system) is able to vary speed to change the airflow that your heating and cooling system delivers. Did your previous fan have this ability?
1.Yes
2.No
98. Don't Know
99. (Skipped)

F4. Why did you decide to install a new furnace fan? (check all that apply) **[INDICATE ALL THAT APPLY]**

1. My previous fan motor stopped working (i.e., unit failed)
2. My previous fan motor was working, but was having problems (i.e., wasn't cooling properly or was making a noise)
3. I was unsatisfied with the airflow
4. To take advantage of the rebate
5. Maintenance contract / Regularly scheduled check up
6. To keep my air conditioner running efficiently
7. To save energy
8. To lower my energy bill, save money on bills
9. It didn't cost much
10. Reminded by Ameren Missouri advertising
11. Reminded by advertising other than Ameren Missouri
12. Recommended by a family or friend

98. Don't Know
99. (Skipped)

F5. **[ASK IF NOT SMART THERMOSTAT CUSTOMER, OTHERWISE SKIP TO F8]** What type of thermostat do you use to control your heating and cooling equipment?

1. Manual thermostat
2. Programmable thermostat
3. Smart thermostat (may be called learning thermostat)

98. Don't Know
99. (Skipped)

F6. Did you install this thermostat when you installed your new furnace fan?

1. Yes
2. No

98. Don't Know
99. (Skipped)

F7. **[IF F6=1]** What type of thermostat did you have before installing the new thermostat?

1. Manual thermostat
2. Programmable thermostat
3. Smart thermostat (may be called learning thermostat)

98. Don't Know
99. (Skipped)

F8. **[ASK IF CAC OR HEAT PUMP CUSTOMER]** Do you operate your furnace fan in "continuous" mode to circulate air?

1.Yes
2.No
98. Don't Know
99. (Skipped)

F9. **[IF F8=1]** Can you estimate the average number of hours per day it is set to "continuous" for each season?

1.Spring/fall: ___ [0-24]
2.Summer: _____[0-24]
3.Winter: _____ [0-24]
98. Don't Know
99. (Skipped)

F10. **[IF F8=1]** Would you say the time you operate your fan in circulation mode has…

1.Increased?
2.Decreased?
3.Stayed the same?
98. Don't Know
99. (Skipped)

F11. **[IF F10=1 OR 2]** Can you estimate the hours of [**INCREASE/DECREASE**] for each season?

1.Spring/fall: [**SPECIFY:**_____0-24]
2.Summer: [**SPECIFY:**_____0-24]
3.Winter: [**SPECIFY:**_____0-24]
98. Don't Know
99. (Skipped)

ECM Free Ridership Questions

F12. Without the Ameren Missouri Heating and Cooling program, what is the likelihood you would have purchased a new furnace fan within 12 months? Please answer using a scale from 0 to 10, with 0 being not at all likely and 10 being very likely. **[FORCED RESPONSE – NO SKIP]**

1.**[RECORD 0 TO 10 RATING:___]**

F13. Without the Ameren Missouri Heating and Cooling program, what is the likelihood you would have purchased the same exact furnace fan model as your purchase through the program? **[FORCED RESPONSE – NO SKIP]**

1.**[RECORD 0 TO 10 RATING:___]**

F14. **[IF QUANTITY > 1]** Without the Ameren Missouri Heating and Cooling program, what is the likelihood you would have purchased fewer furnace fans? **[FORCED RESPONSE – NO SKIP]**

1. **[RECORD 0 TO 10 RATING:___]**

F15. Did you first learn about the Ameren Missouri Heating and Cooling program before or after you decided how energy efficient your new furnace fan would be? **[FORCED RESPONSE – NO SKIP]**

1. Before
2. After

F16. On a scale from 0 to 10, with 0 being not at all important and 10 being very important, how important were each of the following factors in your decision to purchase a high-efficiency furnace fan. If a factor is not applicable to you, please select "not applicable". **[NOTE: RESPONDENTS CAN ALSO STATE THAT A PARTICULAR FACTOR IS NOT APPLICABLE, PLEASE CODE AS 'NA'] [FORCED RESPONSE – NO SKIP]**

1. Ameren Missouri rebate
2. Contractor recommendation
3. Information about energy efficiency provided by Ameren Missouri
4. Interaction with Ameren Missouri program staff
5. Previous participation in an Ameren Missouri rebate program

G17. In your own words, what influence did the Ameren Missouri Heating and Cooling program have on your decision to purchase a high-efficiency furnace fan? **[FORCED RESPONSE – NO SKIP]**

[RECORD RESPONSE:_____]

G. Smart Thermostat

ASK OF PARTICIPANTS WHO HAVE INSTALLED SMART THERMOSTATS IN THE EFFICIENT PRODUCTS PROGRAM AND ALSO PARTICIAPTED IN THE HVAC PROGRAM

INTRO TEXT: Next, we have a few questions about the smart thermostat(s) that you purchased and installed. The answers to these questions are important because they will help Ameren Missouri determine how much energy is being saved as a direct result of their energy efficiency program.

G1. **[IF QTY=1:** Our records indicate that you purchased a [**THERMOSTAT BRAND**] "smart" thermostat, is this correct? **IF QTY > 1:** Our records indicate that you purchased **[QTY]** [**THERMOSTAT BRAND**] "smart" thermostats, is this correct?

1. Yes
2. No, purchased another kind of thermostat (please specify):

   G1a. [**SPECIFY:_____**]

98. Don't Know
99. (Skipped)

G2. **[IF QTY=1]** Is the smart thermostat currently installed in your home? **[IF QTY>1]** Are all of the smart thermostats that you purchased currently installed in your home?

1. Yes
2. **[INCLUDE OPTION IF QTY> 1]** Only one is installed
3. **[INCLUDE OPTION IF QTY> 2]** Only two are installed
4. **[IF QTY= 1]** No **[IF QTY> 1]** None are installed

98. Don't Know
99. (Skipped)

[IF H2a= 1,2, or 3] H3a1. Where was the thermostat that you purchased installed?

1. My primary residence
2. A vacation property or part-year residence
3. Property that I own but rent to someone else
4. Someone else's residence (such as a relative)
5. Some other situation, please specify: **[SPECIFY:_____]**
6. Don't Know

[IF H3a= 1,2,3, or 4] H3a2. Where were the smart thermostat(s) that you purchased installed?

1. My primary residence
2. A vacation property or part-year residence
3. Property that I own but rent to someone else
4. Someone else's residence (such as a relative)
5. Some other situation, please specify: **[SPECIFY:_____]**
6. Don't Know

[IF H3a1 or H3a2 = 2,3,4,5]

H3a3. Is Ameren Missouri the electricity provider for this property?

1. Yes
2. No

98. Don't Know
99. (Skipped)

G3. **[IF G2= 4 AND QTY=1]** Was the thermostat installed and then removed, or has it not been installed yet? **[IF G2= 2, 3 / OR IF G2= 4 AND QTY>1]** Were any of these thermostats installed and then removed, or have they not been installed yet?

1.Installed and removed
2.Not installed yet
3.Given to someone else / installed at another property
4.**[OPTION APPEARS IF QTY>1]** Some other situation, please describe: **[RECORD RESPONSE _____]**
98. Don't Know
99. (Skipped)

G4. **[IF G3 = 1]** Why did you install and then remove the smart thermostat(s)? [**RANDOMIZE RESPONSE ORDER EXCEPT FOR OTHER AND DON'T KNOW, MARK ALL THAT APPLY**]

1.Too difficult to use
2.Did not adjust temperatures correctly
3.Thermostat broke
4.Did not think it was saving energy
5.I preferred my previous thermostat
6.Other reason (please specify) **[RECORD RESPONSE _____]**
98. Don't Know **[EXCLUSIVE RESPONSE]**
99. (Skipped)

G5. **[IF G3 = 2 AND QTY=1]** Why has the smart thermostat not been installed in your home yet? **[IF G3 = 2 AND QTY>1]** Why haven't all the smart thermostats been installed in your home yet?

1. **[SPECIFY: _____]**
98. Don't Know
99. (Skipped)

[IF G2= 4 THEN SKIP TO H1 NOW]

G6. Is the function on your smart thermostat that senses when you are home or away working? (This function is also called "geofencing" or "occupancy sensing.")

1.Yes
2.No
98. Don't Know
99. (Skipped)

G7. Is your smart thermostat connected to the internet?

1.Yes
2.No
98. Don't Know
99. (Skipped)

G8. **[ASK IF QTY=1 AND G2= 1 / OR IF G2= 2, 3]** What type of heating and cooling systems is the smart thermostat connected to? **[OR IF QTY>1 AND G2= 1 / OR IF G2= 3]** What types of heating and cooling systems are your smart thermostats connected to? (check all that apply) **[MARK ALL THAT APPLY]**

1.High-efficiency central air conditioner
2.Standard-efficiency central air conditioner
3.Air Source Heat Pump
4.Ground Source Heat Pump
5.Ductless Heat Pump
6.High-efficiency gas furnace
7.Standard-efficiency gas furnace
8.High-efficiency electric furnace
9.Standard-efficiency electric furnace
10.Some other heating or cooling system **[SPECIFY:_____]**
98. Don't Know **[EXCLUSIVE RESPONSE]**
99. (Skipped)

G9. **[ASK IF QTY=1 AND G2= 1 / OR IF G2= 2]** What type of thermostat did you replace with the smart thermostat? **[SELECT ONE]** **[OR IF QTY>1 AND G2= 1 / OR IF G2= 3]** What type(s) of thermostat did you replace with the smart thermostats? **[SELECT UP TO 2 IF QTY=2, SELECT UP TO 3 IF QTY=3]**

1.My new smart thermostat(s) are installed in a newly-constructed home
2.My new smart thermostat(s) replaced other smart thermostat(s) (may also be called "learning" thermostats)
3.Replaced a programmable thermostat (a thermostat that can be programmed, but is not "smart" or connected to communication devices)
4.Replaced a traditional/manual thermostat
98. Don't Know **[EXCLUSIVE RESPONSE]**
99. (Skipped)

Smart Thermostat Free Ridership Questions

G10. Without the Ameren Missouri Heating and Cooling program, what is the likelihood you would have purchased a new thermostat within 12 months? Please answer using a scale from 0 to 10, with 0 being not at all likely and 10 being very likely. **[FORCED RESPONSE – NO SKIP]**

1.**[RECORD 0 TO 10 RATING:___]**

G11. Without the Ameren Missouri Heating and Cooling program, what is the likelihood you would have purchased the same exact thermostat model as your purchase through the program? **[FORCED RESPONSE – NO SKIP]**

1.**[RECORD 0 TO 10 RATING:___]**

G12. **[IF TSTAT > 1]** Without the Ameren Missouri Heating and Cooling program, what is the likelihood you would have purchased fewer thermostats? **[FORCED RESPONSE – NO SKIP]**

1.**[RECORD 0 TO 10 RATING:___]**

G13. Did you first learn about the Ameren Missouri Heating and Cooling program before or after you decided which model of thermostat you would purchase? **[FORCED RESPONSE – NO SKIP]**

1.Before
2.After

G14. On a scale from 0 to 10, with 0 being not at all important and 10 being very important, how important were each of the following factors in deciding which thermostat to purchase. If a factor is not applicable to you, please say so. **[NOTE: RESPONDENTS CAN ALSO STATE THAT A PARTICULAR FACTOR IS NOT APPLICABLE, PLEASE CODE AS 'NA'] [FORCED RESPONSE – NO SKIP]**

1. Ameren Missouri rebate
2. Contractor recommendation
3. Information about energy efficiency provided by Ameren Missouri
4. Interaction with Ameren Missouri program staff
5. Previous participation in an Ameren Missouri rebate program

H15. In your own words, please tell me the influence the Ameren Missouri Heating and Cooling program had on your decision to purchase a smart thermostat? **[FORCED RESPONSE – NO SKIP]**

[RECORD RESPONSE:_____]

H. Tune-Up Questions

Tune-Up Free Ridership Questions

H1. Without the Ameren Missouri tune-up program, what is the likelihood you would have purchased a tune-up within 12 months? Please answer using a scale from 0 to 10, with 0 being not at all likely and 10 being very likely. **[FORCED RESPONSE – NO SKIP]**

1. **[RECORD 0 TO 10 RATING:___]**

H2. Without the Ameren Missouri tune-up program, what is the likelihood you would have purchased the same type of tune-up rather than a less-expensive and less in-depth tune-up? **[FORCED RESPONSE – NO SKIP]**

1.**[RECORD 0 TO 10 RATING:___]**

H3. **[IF QUANTITY > 1]** Without the Ameren Missouri tune-up program, what is the likelihood you would have purchased fewer tune-ups? **[FORCED RESPONSE – NO SKIP]**

1.**[RECORD 0 TO 10 RATING:___]**

H4. When you first heard of the Ameren Missouri tune-up program, had you already been planning to schedule a tune-up? **[FORCED RESPONSE – NO SKIP]**

1.Yes
2.No

H5. On a scale from 0 to 10, with 0 being not at all important and 10 being very important, how important were each of the following factors in deciding to participate in the Ameren Missouri tune-up program. If a factor is not applicable to you, please select "not applicable". **[NOTE: RESPONDENTS CAN ALSO STATE THAT A PARTICULAR FACTOR IS NOT APPLICABLE, PLEASE CODE AS 'NA'] [FORCED RESPONSE – NO SKIP]**

1. Ameren Missouri rebate
2. Contractor recommendation
3. Information about energy efficiency provided by Ameren Missouri
4. Interaction with Ameren Missouri program staff
5. Previous participation in an Ameren Missouri rebate program

H6. In your own words, what influence did the Ameren Missouri tune-up program have on your decision to purchase this tune-up? **[FORCED RESPONSE – NO SKIP]**

[RECORD RESPONSE:_____]

I. Satisfaction with Ameren Missouri

ASK QUESTIONS OF ALL PARTICIPANTS, REGARDLESS OF WHAT TYPE OF MEASURE THEY HAVE INSTALLED.

I1. Thinking about your overall experiences with Ameren Missouri as your utility, how satisfied would you say you are with Ameren Missouri?

1.Very satisfied
2.Somewhat satisfied
3.Not too satisfied
4.Not satisfied at all
98. Don't Know
99. (Skipped)

I2. **[ASK IF I1= 1, 2, 3 OR 4]** Why are you "[**RATING FROM I1**]" with Ameren Missouri as your utility? Please give us further details on what you like or dislike about Ameren Missouri (check all that apply). **[ALLOW MULTIPLE RESPONSE; show all response options if I1=2 or 3, show response options 1-5 & 10, 98 if I1=1, show response options 6-10 & 98 if I1=4. RANDOMIZE ORDER EXCEPT FOR OTHER AND DON'T KNOW]**

1.Satisfied with the reliable and dependable service
2.Satisfied with the customer service
3.Satisfied with outage response
4.Satisfied with utility rates
5.The incentive/rebate for my equipment or tune-up
6.Dissatisfied with the utility rates
7.Dissatisfied with the reliability of service
8.Dissatisfied with infrastructure maintenance
9.Dissatisfied with customer service
10.Other reasons or comments, please specify [**SPECIFY:** _____]
98. Don't know **[EXCLUSIVE RESPONSE]**
99. (Skipped)

J. All HVAC Participants Customer Demographics

ASK QUESTIONS OF ALL PARTICIPANTS, REGARDLESS OF WHAT TYPE OF MEASURE THEY HAVE INSTALLED.

We are almost finished! There are just a few final questions about your home that will help us with our analysis.

J1. Is the energy used in your home . . .

1.All electric
2.Natural gas and electric
3.Some other combination of energy sources
98. Don't Know
99. (Skipped)

J2. Is your hot water heater electric or gas?

1.Electric
2.Gas
98. Don't Know
99. (Skipped)

J3. Which of the following best describes your home or residence? **[SELECT ONE RESPONSE]**

1.Single-family home (not a duplex, townhome, or apartment)
2.Manufactured or modular home
3.Mobile home
4.Row house or townhome
5.Two or three family attached residence
6.Apartment with four or more units
7.Condominium
8.Other **[SPECIFY: _____]**
98. Don't Know
99. (Skipped)

J4. Do you own or rent this residence?

1.Own
2.Rent
98. Don't Know
99. (Skipped)

J5. Approximately how many square feet of living space does your home have? Don't include the basement unless it is a space that you consider "lived in".

1.Less than 1,000 square feet
2.1,000 to less than 1,500 square feet
3.1,500 to less than 2,000 square feet
4.2,000 to less than 2,500 square feet
5.2,500 to less than 3,000 square feet
6.3,000 or more square feet
98. Don't Know
99. (Skipped)

J6. When was your home built?

1.After 2008
2.2005-2008
3.2001-2004
4.1980-2000
5.Before 1980
98. Don't Know
99. (Skipped)

J7. Counting yourself, how many people normally live in your household on a full-time basis? Please include everyone who lives in your home, whether or not they are related to you, and exclude anyone just visiting or children who may be away at college or in the military.

1.Please enter a number: **[RECORD NUMERIC RESPONSE:_____]**
99. (Skipped)

End of survey message for those who get to last page of the survey (eligible for drawing): Those are all of our questions! Click to the next page to verify your information for the prize drawing. **[CONTINUE TO SWEEPSTAKES VERIFICATION]**

Termination for non-aware or ineligible ECM - without thermostat (eligible for drawing): That is all of our questions. You are eligible to enter the prize drawing. **[CONTINUE TO SWEEPSTAKES VERIFICATION]**

Termination for non-aware or ineligible ECM - with thermostat (eligible for drawing): That is all of our questions at this time. We may email you an invitation to take another survey about your smart thermostat purchase. You are eligible to enter the prize drawing. **[CONTINUE TO SWEEPSTAKES VERIFICATION]**

Termination for HVAC employee screen (eligible for drawing): We are not surveying households where somebody works with heating and cooling equipment about this program. However, you are still eligible to enter the prize drawing. **[CONTINUE TO SWEEPSTAKES VERIFICATION]**

Termination for Ameren employee screen (not eligible for drawing): We are not surveying Ameren Missouri employee households about this program. We appreciate your participation and thank you for your time. **[TERMINATE]**

J8. As a token of our appreciation, you are eligible to participate in a random drawing to win one of five $100 gift cards that we are awarding to Ameren Missouri customers who take this survey (see details below).

No purchase necessary to enter to win. Must be 18 years or older to participate or win. The odds of winning are dependent upon the number of persons participating in the drawing. The drawing starts on June 1, 2018 and ends on February 28, 2019. Winners will be randomly selected on March 15, 2019. Visit Ameren.com/Sweepstakes for official rules, odds of winning and entry details. Sponsor: Ameren Missouri.

How would you like to receive your gift card if you win the drawing?

1.Mail the gift card to me:

[PLEASE PROVIDE YOUR NAME AND ADDRESS:_____]

2.Send me an "e-card" gift certificate by email:

J9. **[PLEASE PROVIDE YOUR EMAIL ADDRESS:_____]**

1.I do not want to participate in the drawing.

99. (Skipped)

Closing message for respondents who enter drawing:

We appreciate your participation and thank you for your time.
Prize winners will be randomly selected on March 15, 2019.
Visit Ameren.com/Sweepstakes for official rules, odds of winning and entry details.
Sponsor: Ameren Missouri.

Closing message for respondents who decline to enter drawing:

This completes the survey. We appreciate your participation and thank you for your time.

Appendix F. Follow-up Participant Survey

CADMUS

Ameren Missouri 2018 Online HVAC Follow-Up Survey

A. All HVAC Measures – Verification and Program Awareness

ASK QUESTIONS OF ALL PARTICIPANTS, REGARDLESS OF WHAT TYPE OF MEASURE THEY HAVE INSTALLED.

INTRO: Thank you for participating in Ameren Missouri's Heating and Cooling Program. We would like to know more about your experience with the program. Instructions for participating in the prize drawing for participating in the survey are provided at the end of these questions.

A1. Our records indicate that you received a rebate for **[ASK IF MEASURETYPE ≠ TUNE-UP]** installing a new high efficiency **[MEASURENAME] [ASK IF MEASURETYPE = TUNE-UP]** an equipment tune-up. Is this correct? **[FORCED RESPONSE (NO SKIP)]**

1. Yes
2. No, I did not receive a rebate

A2. **[IF A1=2]** Why did you not receive a rebate?

1. I did not participate in the Ameren Missouri Heating and Cooling Program **[TERMINATE]**
2. I participated in the Ameren Missouri Heating and Cooling Program, but my rebate has not arrived yet **[TERMINATE]**
3. Some other reason, please specify: **[SPECIFY: _____]** **[TERMINATE]**

98. Don't Know **[TERMINATE]**
99. (Skipped) **[TERMINATE]**

A3. **[ASK IF MEASURETYPE = FURNACE FAN]** Did you install your new furnace fan with a new furnace, or did you install it with an existing furnace?

1. I installed it with a new furnace
2. I installed it with an existing furnace

98. Don't Know **[TERMINATE]**
99. (Skipped) **[TERMINATE]**

A4. **[ASK IF A3=1]** Do you have a central air conditioner or heat pump?

1. Yes
2. No **[TERMINATE]**

98. Don't Know **[TERMINATE]**
99. (Skipped) **[TERMINATE]**

A5. **[ASK IF A4 = 1]** Did you install the air-conditioner or heat pump when you installed the furnace?

1. Yes
2. No **[TERMINATE]**
98. Don't Know **[TERMINATE]**
99. (Skipped) **[TERMINATE]**

A6. **[ASK IF A5 = 1]** Why did you not get a rebate for the air conditioner or heat pump?

1. I did get a rebate from Ameren Missouri **[TERMINATE]**
2. Because my contractor said it did not qualify **[TERMINATE]**
3. The efficiency was too low **[TERMINATE]**
4. Because I did not get a new indoor cooling coil my install didn't qualify **[TERMINATE]**
5. Because I was unable to get a valid AHRI certificate, thus did not qualify for a rebate **[TERMINATE]**
6. **[SPECIFY:_____]** **[TERMINATE]**
98. Don't Know **[TERMINATE]**
99. (Skipped) **[TERMINATE]**

A7. Are you or any members of your household employed by Ameren Missouri or by a company that sells, installs, or services heating and cooling equipment? **[FORCED RESPONSE (NO SKIP OR DK)]**

1. Yes, I or someone in my household works for Ameren Missouri **[TERMINATE]**
2. Yes, I or someone in my household works for a company that sells, installs or services heating and cooling equipment **[TERMINATE]**
3. No one in my household works for the companies listed above

A8. Prior to this survey, were you aware that the rebate you received after **[ASK IF MEASURETYPE ≠ TUNE-UP:** installing your new high efficiency **[MEASURETYPE] [ASK IF MEASURETYPE = TUNE-UP:** your tune-up was provided by Ameren Missouri?

1. Yes
2. No
98. Don't Know
99. (Skipped)

B. All HVAC Measures - Purchase Patterns and Decision-making

ASK QUESTIONS OF ALL PARTICIPANTS, REGARDLESS OF WHAT TYPE OF MEASURE THEY HAVE INSTALLED. MEASURE-SPECIFIC PURCHASE PATTERN AND DECISION-MAKING QUESTIONS WILL BE ADDRESSED IN EACH MEASURE'S SECTION

B1. **[ASK IF MEASURETYPE ≠ TUNE-UP]** What was the primary reason you purchased a new **[MEASURETYPE]**? **[RANDOMIZE ORDER EXCEPT FOR OTHER AND DON'T KNOW, SELECT ONE RESPONSE]**

1. To replace broken equipment
2. To replace aging equipment
3. To improve the comfort of my home
4. To improve the safety of my home
5. The purchase was part of a larger home renovation
6. The equipment is for a newly constructed home
7. To save money on energy costs
8. To help the environment
9. Some other reason, please specify: **[SPECIFY: _____]**

98. Don't Know
99. (Skipped)

B2. **[ASK IF MEASURETYPE = TUNE-UP]** What motivated you to purchase the tune-up service? **[RANDOMIZE ORDER EXCEPT FOR OTHER AND DON'T KNOW; ALLOW MULTIPLE RESPONSES]**

1. My air conditioner stopped working (i.e., unit failed)
2. My air conditioner was working, but was having problems (i.e., wasn't cooling properly or was making a noise)
3. Was included in my maintenance contract or part of a regularly scheduled check up
4. To take advantage of the rebate
5. It was time for a tune-up
6. To ensure that it lasts longer
7. To find out if it needs any repairs
8. To keep my air conditioner running efficiently
9. To save energy
10. To lower energy bill, save money on bills
11. It didn't cost much
12. Reminded by Ameren Missouri advertising
13. Reminded by advertising other than Ameren Missouri
14. Recommended by a family member or friend
15. Other [**SPECIFY:**_____]

98. Don't Know **[EXCLUSIVE RESPONSE]**
99. (Skipped)

C. All HVAC Measures – Participant Satisfaction

ASK QUESTIONS OF ALL PARTICIPANTS, REGARDLESS OF WHAT TYPE OF MEASURE THEY HAVE INSTALLED.

C1. Thinking about your overall satisfaction with Ameren Missouri's Heating and Cooling Program, would you say you are:

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all
98. Don't Know
99. (Skipped)

C2. **[ASK IF C1 = 1, 2, 3 OR 4]** Why are you **[RATING FROM C1]** with Ameren Missouri's Heating and Cooling Program? Select all that apply. **[ALLOW MULTIPLE RESONSES; SHOW ALL RESPONSE OPTIONS IF C1 = 2 OR 3, SHOW RESPONSE OPTIONS 1-5 & 9, 98 IF C1 = 2, SHOW RESPONSE OPTIONS 6-9 & 98 IF C1 = 4]. RANDOMIZE ORDER EXCEPT FOR OTHER AND DON'T KNOW]**

1. Satisfied with the rebates
2. Overall positive program experience
3. The program met my expectations
4. Satisfied with the environmental benefits of the program
5. Satisfied with the contractor
6. Dissatisfied with the rebates
7. Dissatisfied with delays in rebate processing
8. Dissatisfied with the contractor
9. Other **[SPECIFY:_____]**
98. Don't Know **[EXCLUSIVE RESPONSE]**
99. (Skipped)

D. Spillover Questions

D1. Since participating in the Heating and Cooling program, have you added any other energy-efficient products in your home or had any other energy-related services performed that were not discounted through Ameren Missouri? **[FORCED RESPONSE]**

1. Yes
2. No [**SKIP TO NEXT SECTION**]
98. Don't know [**SKIP TO NEXT SECTION**]

D2. **[IF D1=1]** Please select the energy-efficient products or services that you purchased (and installed, if applicable) since your experience with Ameren Missouri's Heating and Cooling program. Select all that apply. **[CHECK ALL THAT APPLY]**

1. Home/building audit
2. Recycled a refrigerator
3. Recycled a freezer

4. Constructed an ENERGY STAR New Home
5. ENERGY STAR refrigerator
6. ENERGY STAR freezer
7. ENERGY STAR clothes washer
8. ENERGY STAR dishwasher
9. ENERGY STAR room air conditioner
   a. How many? [**SPECIFY:** _____]
10. ENERGY STAR air purifier
    D2a. How many? [**SPECIFY:** _____]
11. Variable speed pool pump
12. ENERGY STAR dehumidifier
13. Efficient water heater (other than heat pump water heater)
14. Efficient showerheads
    b. How many of these are currently installed in your home? [**SPECIFY:** _____]
15. Efficient faucet aerators
    c. How many of these are currently installed in your home? [**SPECIFY:** _____]
16. Efficient central air conditioner
17. Air source heat pump
18. Geothermal heat pump
19. Ductless heat pump
20. Dual-fuel heat pump
21. Efficient furnace fan
22. Heat pump water heater
23. Programmable (but not "smart") thermostat
24. Learning or "smart" thermostat
25. Insulation
26. Windows
27. Solar panels
28. Other items
    d. Please specify: [**SPECIFY:** _____]
98. Don't Know [**SKIP TO NEXT SECTION**]
99. (Skipped)

[PRESENT THIS MESSAGE IF D1=1 AND NOTHING SELECTED IN D2]

You did not check any products or services for the last question.

If you did purchase and install any energy-efficient products or services, please use the back arrow below to return to that question and select one or more answers (select "other items" if you do not see your products or services on the list).

If you did NOT purchase and install any energy-efficient products or services, please use the forward arrow below to continue the survey.

D3. **[ASK IF D2=1]** What kind of changes did you make to your home as a result of the audit?

1. [**RECORD RESPONSE:**_____]
99. (Skipped)

D4. **[SKIP IF MEASURE TYPE = TUNE-UP; ASK IF D2=D2.23 OR D2.24]** Did you install your new thermostat(s) when you installed your **[MEASURE TYPE]**?

1. Yes
2. No
98. Don't Know
99. (Skipped)

D5. **[ASK IF D2=D2.23 OR D2.24]** What kind of thermostat did you replace with the **[PROGRAMMABLE THERMOSTAT / SMART THERMOSTAT]**?

1. **[IF D2=24 "ANOTHER"]** Smart thermostat
2. **[D2=23 "ANOTHER"]** Programmable (but not "smart") thermostat
3. Manual thermostat
98. Don't Know
99. (Skipped)

D6. Ask if **[D2= D2.13, D2.14, D2.15, D2.16, D2.17, D2.18, D2.19, D2.20, D2.22, D2.25, D2.26 – ASK FOR EACH]** How do you know that the [**D2 RESPONSE**] is energy efficient? Please enter the efficiency rating if you know it. **[ALLOW MULTIPLE RESPONSE]**

1. Efficiency rating [**RECORD NUMERIC RESPONSE:**_____]

If D2=D2.13 then display 'Energy Factor (EF) rating'
If D2=D2.14 or D2.15 then display 'Gallons per minute (GPM)'
If D2=D2.16 or 19 then display 'Seasonal Energy Efficiency Ratio (SEER)'
If D2=D2.17 then display 'Heat Season Performance Factor (HSPF)'
If D2=D2.18 then display 'Energy Efficiency Ratio (EER)'
If D2=D2.19 then display 'Heat Season Performance Factor (HSPF)'
If D2=D2.20 then display 'Energy Efficiency Ratio (EER)' and 'Coefficient of Performance (COP)'
If D2=D2.22 then display 'Energy Factor (EF) rating'
If D2=D2.25 then display 'R-Value (thermal resistance)'
If D2=D2.26 then display 'U-Factor'

2. Other [**RECORD RESPONSE:**_____]
98. Don't Know
99. (Skipped)

D7. **[ASK if D2 = 25]** How many square feet of insulation did you have installed?
1. [**RECORD NUMERIC RESPONSE:**_____]
99. (Skipped)

D8. **[ASK IF D2 =26]** How many square feet of windows did you have installed?
1. [**RECORD NUMERIC RESPONSE:**_____]
99. (Skipped)

D9. **[ASK IF D2 = 25]** In what location in your home was the insulation installed?
1. [**RECORD RESPONSE:**_____]
99. (Skipped)

D10. **[ASK if D2 = 26]** In what location in your home were the windows installed?
1. [**RECORD RESPONSE:**_____]
99. (Skipped)

D11. [**ASK ONCE FOR EACH ITEM CHECKED IN D2**] Why did you choose to purchase or install the items listed below? [**INSERT TABLE OF CHECKED RESPONSES FROM D2**]
1. **[RECORD RESPONSE]**:_____
99. (Skipped)

D12. Did you receive a rebate, discount, or tax credit for any of the items listed below? (If yes, check all that apply.) [**INSERT TABLE OF CHECKED RESPONSES FROM D2 – ALLOW MULTIPLE RESPONSE**]
1. Yes, from Ameren Missouri
2. Yes, from another organization
3. No
98. Don't Know
99. (Skipped)

D13. [**ASK FOR EACH ITEM WHERE D12 = 2**] What organizations besides Ameren Missouri paid the rebates, or provided discounts or tax credits for the items listed below? [**INSERT TABLE OF CHECKED RESPONSES FROM D2**]
1. [**RECORD RESPONSE:**_____]
99. (Skipped)

D14. [**FOR MEASURES FOR WHICH AMEREN PROVIDES INCENTIVES (D2.9, D2.10, D2.11, 16, 17, 18, 19, 20, 22, 24) , ASK FOR EACH ITEM WHERE D12= 2 OR 3**] Why didn't you apply for a rebate from Ameren Missouri for the purchase of your [**D2 RESPONSE**]?

1. **[RECORD RESPONSE]**:_____
99. (Skipped)

D15. How important was your rebate in the Ameren Missouri program on your decision to purchase or install the [**D2 RESPONSE**]? [**INSERT TABLE OF CHECKED RESPONSES FROM D2**]

1. Not at all important
2. Not too important
3. Somewhat important
4. Very important
98. Don't Know
99. (Skipped)

D16. **[ASK FOR EACH CHECKED ITEM FROM D2]** Prior to purchasing or installing the items listed below, had you heard or read about the benefits of installing this equipment from [***your contractor, Ameren Missouri, or Ameren Missouri's Act on Energy campaign***]?

D2	Yes (1)	No (2)	Don't know (98)
[INSERT 1st CHECKED RESPONSE FROM D2]			
[INSERT 2nd CHECKED RESPONSE FROM D2]			
[INSERT 3rd CHECKED RESPONSE FROM D2]			
[INSERT 4th CHECKED RESPONSE FROM D2]			

D17. **[ASK FOR EACH YES RESPONSE IN D16]** How important was the information the contractor or Ameren Missouri provided about the energy efficiency or money saving benefits on your decision to purchase or install the items listed below? **[INSERT TABLE OF ALL "YES" RESPONSES FROM D16]**

1. Not at all important
2. Not too important
3. Somewhat important
4. Very important
98. Don't Know
99. (Skipped)

E. Central Air Conditioner Questions

ASK QUESTIONS OF PARTICIPANTS THAT HAVE INSTALLED CENTRAL AIR CONDITIONERS

E1. Did you install your central air conditioner in a newly constructed home or in an existing home?

1. Newly constructed home
2. Existing home
99. (Skipped)

E2. Do you have any of the following currently installed in addition to your new efficient air conditioner at your home? Select all that apply. **[INDICATE ALL THAT APPLY]**

1. Air Source Heat Pump
2. Window air conditioner unit(s)
3. Ground Source Heat Pump
4. Ductless Heat Pump
5. Standard-efficiency air conditioner
6. Room air conditioner unit(s)
7. Another high-efficiency air conditioner
8. Space heater(s)
9. High-efficiency gas furnace
10. Standard-efficiency gas furnace
11. High-efficiency electric furnace
12. Standard-efficiency electric furnace
13. Baseboard electric system
14. None of the above **[EXCLUSIVE RESPONSE]**
98. Don't Know**[EXCLUSIVE RESPONSE]**
99. (Skipped)

E3. **[ASK IF D2≠23 OR 24]** What type of thermostat do you use to control your heating and cooling equipment?

1. Manual thermostat
2. Programmable thermostat
3. Smart thermostat (may be called learning thermostat)
98. Don't Know
99. (Skipped)

E4. **[ASK IF E3= 1,2 OR 3]** Did you install this thermostat when you installed your new air conditioning system?

1. Yes
2. No
98. Don't Know
99. (Skipped)

E5. **[ASK IF E4=1]** What type of thermostat did you have before installing the new thermostat?

1. Manual thermostat
2. Programmable thermostat
3. Smart thermostat (may be called learning thermostat)
98. Don't Know
99. (Skipped)

E6. What type of cooling system did you replace and remove when installing your new efficient air conditioning system?

1. Nothing
2. Window air conditioning unit(s)
3. Air source heat pump
4. Room air conditioning unit(s)
5. Ground source heat pump
6. Central air-conditioning
7. Other **[SPECIFY:_____]**
8. I kept my cooling system
9. I didn't have a cooling system
98. Don't Know
99. (Skipped)

F. Heat Pumps

ASK OF PARTICIPANTS WHO HAVE INSTALLED HEAT PUMPS

F1. Did you install your heat pump in a newly constructed home or in an existing home?

1. Newly constructed home
2. Existing home
99. (Skipped)

F2. For what purpose did you install your heat pump?

1. Primarily heating
2. Primarily cooling
3. Both heating and cooling
98. Don't Know
99. (Skipped)

F3. What type of heating system did you replace and remove before you installed the heat pump?

1. Electric forced air furnace
2. Electric baseboard heat
3. Ground source heat pump
4. Air Source Heat Pump
5. Gas heating system (boiler, furnace)
6. Other **[SPECIFY:_____]**
7. I kept my previous heating system
8. Nothing – this is new construction

98. Don't Know
99. (Skipped)

F4. What type of cooling system did you replace and remove before you installed the heat pump?

1. Window air conditioning unit(s)
2. Room air conditioning unit(s)
3. Air Source Heat Pump
4. Ground Source Heat Pump
5. Central air conditioning system
6. Other **[SPECIFY:_____]**
7. I kept my previous cooling system
8. I didn't have a cooling system

98. Don't Know
99. (Skipped)

G. Furnace Fan Questions

ASK OF PARTICIPANTS WHO INSTALLED ONLY ECM MEASURE – NO OTHER MEASURE

G1. [**ALSO ASK OF CAC AND HEAT PUMP CUSTOMERS**] Do you operate your fan in "continuous" mode to circulate air?

1. Yes
2. No

98. Don't Know
99. (Skipped)

G2. **[IF G1=1]** Can you estimate the average number of hours per day it is set to "continuous" for each season?

1. Spring/fall: ___ [0-24]
2. Summer: _____[0-24]
3. Winter: _____ [0-24]

99. (Skipped)

G3. **[IF G1=1]** Would you say the time you operate your fan in circulation mode has…

1. Increased?
2. Decreased?
3. Stayed the same?

98. Don't Know
99. (Skipped)

G4. **[IF G3=1 OR 2]** Can you estimate the hours of [**INCREASE/DECREASE**] for each season?

1. Spring/fall: [**SPECIFY:**_____0-24]
2. Summer: [**SPECIFY:**_____0-24]
3. Winter: [**SPECIFY:**_____0-24]

98. Don't Know
99. (Skipped)

G5. **[ONLY ASK IF MEASURE = FURNACE FAN]** At what point did you determine the exact model and brand you wanted to buy?

1. I knew which model I wanted before calling a contractor
2. I decided after the contractor provided me with options

98. Don't Know
99. (Skipped)

H. Tune-Ups

H1. What type of equipment did the contractor tune up? Select all that apply. **[ALLOW MULTIPLE RESPONSE]**

1. Air Source Heat Pump
2. Ground Source Heat Pump
3. Ductless Heat Pump
4. Room air conditioner unit(s)
5. Central air conditioner
6. Other equipment [SPECIFY: _____]

98. Don't Know **[EXCLUSIVE RESPONSE]**
99. (Skipped)

I. Satisfaction with Ameren Missouri

ASK QUESTIONS OF ALL PARTICIPANTS, REGARDLESS OF WHAT TYPE OF MEASURE THEY HAVE INSTALLED.

I1. Thinking about your overall experiences with Ameren Missouri as your utility, how satisfied would you say you are with Ameren Missouri?

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not satisfied at all

98. Don't Know
99. (Skipped)

I2. **[ASK IF I1= 1, 2, 3 OR 4]** Why are you "[**RATING FROM I1**]" with Ameren Missouri as your utility? Select all that apply. **[ALLOW MULTIPLE RESPONSES; show all response options if I1=2 or 3, show response options 1-5 & 10, 98 if I1=1, show response options 6-10 & 98 if I1=4. RANDOMIZE ORDER EXCEPT FOR OTHER AND DON'T KNOW]**

1. Satisfied with the reliable and dependable service
2. Satisfied with the customer service
3. Satisfied with outage response
4. Satisfied with utility rates
5. The incentive/rebate for my equipment or tune-up
6. Dissatisfied with the utility rates
7. Dissatisfied with the reliability of service
8. Dissatisfied with infrastructure maintenance
9. Dissatisfied with customer service
10. Other reasons [**SPECIFY:** _____]

98. Don't know **[EXCLUSIVE RESPONSE]**
99. (Skipped)

J. All HVAC Participants Customer Demographics

ASK QUESTIONS OF ALL PARTICIPANTS, REGARDLESS OF WHAT TYPE OF MEASURE THEY HAVE INSTALLED.

We are almost finished! There are just a few final questions about your home that will help us with our analysis.

J1. Is the energy used in your home:

1. All electric
2. Natural gas and electric
3. Or some other combination of energy sources

98. Don't Know
99. (Skipped)

J2. Is your hot water heater electric or gas?

1. Electric
2. Gas
98. Don't Know
99. (Skipped)

J3. Which of the following best describes your home or residence? **[SELECT ONE RESPONSE]**

1. Single-family home (not a duplex, townhome, or apartment)
2. Manufactured or modular home
3. Mobile home
4. Row house or townhome
5. Two or three family attached residence
6. Apartment with four or more units
7. Condominium
8. Other **[SPECIFY: _____]**
98. Don't Know
99. (Skipped)

J4. Do you own or rent this residence?

1. Own
2. Rent
98. Don't Know
99. (Skipped)

J5. Approximately how many square feet of living space does your home have? Don't include the basement unless it is a space that you consider "lived in".

1. Less than 1,000 square feet
2. 1,000 to less than 1,500 square feet
3. 1,500 to less than 2,000 square feet
4. 2,000 to less than 2,500 square feet
5. 2,500 to less than 3,000 square feet
6. 3,000 or more square feet
98. Don't Know
99. (Skipped)

J6. When was your home built?

1. After 2008
2. 2005-2008
3. 2001-2004
4. 1980-2000
5. Before 1980

98. Don't Know
99. (Skipped)

J7. Counting yourself, how many people normally live in your household on a full-time basis? Please include everyone who lives in your home, whether or not they are related to you, and exclude anyone just visiting or children who may be away at college or in the military.

1. Please enter a number: **[RECORD NUMERIC RESPONSE:_____]**
2. I prefer not to answer this question

99. (Skipped)

End of survey message for those who get to last page of the survey (eligible for drawing): Those are all of our questions! Click to the next page to verify your information for the prize drawing. **[CONTINUE TO SWEEPSTAKES VERIFICATION]**

Termination for non-aware or ineligible ECM (eligible for drawing): That is all of our questions. You are eligible to enter the prize drawing. **[CONTINUE TO SWEEPSTAKES VERIFICATION]**

Termination for HVAC employee screen (eligible for drawing): We are not surveying households where somebody works with heating and cooling equipment about this program. However, you are still eligible to enter the prize drawing. **[CONTINUE TO SWEEPSTAKES VERIFICATION]**

Termination for Ameren employee screen (not eligible for drawing): We are not surveying Ameren Missouri employee households about this program. We appreciate your participation and thank you for your time. **[TERMINATE]**

J8. As a token of our appreciation, you are eligible to participate in a random drawing to win one of five $100 gift cards that we are awarding to Ameren Missouri customers who take this survey (see details below).

No purchase necessary to enter to win. Must be 18 years or older to participate or win. The odds of winning are dependent upon the number of persons participating in the drawing. The drawing starts on June 1, 2018 and ends on February 28, 2019. Winners will be randomly selected on March 15, 2019. Visit Ameren.com/Sweepstakes for official rules, odds of winning and entry details. Sponsor: Ameren Missouri.

How would you like to receive your gift card if you win the drawing?

1. Mail the gift card to me:
   [PLEASE PROVIDE YOUR NAME AND ADDRESS:_____]
2. Street address:
3. City:
4. State:
5. Zip code:
6. Send me an "e-card" gift certificate by email:
   [PLEASE PROVIDE YOUR EMAIL ADDRESS:_____]
7. I do not want to participate in the drawing.

99. (Skipped)

Closing message for respondents who enter drawing:

We appreciate your participation and thank you for your time.
Prize winners will be randomly selected on March 15, 2019.
Visit Ameren.com/Sweepstakes for official rules, odds of winning and entry details.
Sponsor: Ameren Missouri.

Closing message for respondents who decline to enter drawing:

This completes the survey. We appreciate your participation and thank you for your time.

Appendix G. General Population Survey

General Population Survey

January 2019

A. Introduction

[DISPLAY AMEREN MISSOURI STYLE]

Please enter the 5-digit code from the postcard invitation: ☐

[IF CODE IS INVALID, DISPLAY THE FOLLOWING MESSAGE AND DISPAY THE FIVE-DIGIT CODE BOX AGAIN; CLOSE SURVEY AFTER FIVE FAILED ATTEMPTS.]

Sorry, the code you have entered is invalid. Please try again or contact Romi Jones at romi.jones@cadmusgroup.com or (971) 712-7431.

[IF CODE IS VALID, DISPLAY THE FOLLOWING MESSAGE AND CONTINUE SURVEY]

Welcome! Ameren Missouri is conducting its annual study to learn more about how households throughout Missouri use energy. Your responses are very important to us and we will keep them confidential. Complete the survey by **February 22, 2019**, and we will enter you into a drawing for one of five **$100 VISA gift cards**.

The survey will take you about 15 minutes and is intended for the person primarily responsible for your household's energy-related decisions (i.e., the person who is responsible for paying the utility bills or selecting new lighting and appliances).

This survey saves your responses automatically and responses will be submitted when you complete the survey. You can stop and then return to the survey at any time by accessing the survey link provided to you on the postcard. Please access the survey from the same device.

B. Energy Efficiency Attitudes and Barriers

B1. How much energy do you use in your home now compared to five years ago? Would you say…

1. More
2. About the same
3. Less

-98. Don't know

B2. How important is energy efficiency in your daily activities and when making purchasing decisions? Would you say…

1. Very important
2. Somewhat important
3. Not too important
4. Not at all important
-98. DON'T KNOW

B3. Please rate your home's energy efficiency. Would you say it is…

1. Very efficient
2. Somewhat efficient
3. Not too efficient
4. Not at all efficient
-98. DON'T KNOW

B4. Please rate whether you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with each of the following statements: **[RANDOMIZE ORDER] [DROP DOWN SELECTION MENU WITH RESPONSE CHOICES: 1= STRONGLY AGREE; 2=SOMEWHAT AGREE; 3=SOMEWHAT DISAGREE; 4=STRONGLY DISAGREE; -98= DON'T KNOW]**

a) It is important to conserve energy as much as possible
b) Using energy to keep the home comfortable is my top priority
c) I would like to save more energy but do not know where to start
d) I always shop for the lowest prices, even if it takes more time
e) I have already done as much as possible to save energy in my home
f) I have tried a few things to save energy, but have not seen any real savings on my utility bills

B5. What are the main reasons you might decide to conserve energy? Selection up to three options. **[RANDOMIZE ORDER; ACCEPT UP TO THREE RESPONSES]**

1. Reduce energy costs
2. Increase home comfort
3. Protect the environment
4. Increase value of home
5. Other (please specify): _____
-98. Don't know

B6. What are the main reasons you might decide NOT to conserve energy? Selection up to three options. **[RANDOMIZE ORDER; ACCEPT UP TO THREE RESPONSES]**

1. Already saving as much as possible
2. No need to save on energy cost
3. Equipment is too expensive
4. Equipment is hard to find
5. Equipment doesn't work as well
6. Don't think about it much
7. Don't have time
8. Other family members don't turn off lights/equipment
9. Other (please specify):_____
-98. Don't know

B7. What challenges, if any, do you face in saving energy in your home? Selection up to three options. **[RANDOMIZE ORDER; ACCEPT UP TO THREE RESPONSES]**

1. Can't afford it/too expensive
2. Too hard to install/implement
3. Inconvenient/don't have time/too busy
4. Not confident it will save energy/be worth it
5. Afraid it will make home uncomfortable
6. Disruption to home/mess involved with installing improvements
7. Challenges with contractors
8. Don't know where to start
9. No challenges/None
10. Challenges with home construction or age
11. Home is already pretty efficient
12. Other family members are not trying to conserve
13. Other [**SPECIFY:** _____]
-98. DON'T KNOW

C. Energy Efficiency and Program Awareness

C1. If you wanted to know more about energy saving opportunities, where would you look for information? Selection up to three options. **[RANDOMIZE ORDER; ACCEPT UP TO THREE RESPONSES]**

1. TV or radio programs or ads
2. Online articles or ads

3. Print articles or ads (e.g., newspapers or magazines)
4. At a retail location
5. Utility bill or other utility direct mail
6. Email from the utility
7. Discussion with a contractor
8. Word of mouth (family, friends, colleagues)
9. Social media
10. Internet searches by you
11. Utility website
12. Other (please specify):_____
13. I don't want information about ways to save energy

-98. Don't know

C2. Have you ever seen or heard of Ameren Missouri's energy efficiency programs? **[RESPONSE REQUIRED]**

1. Yes
2. No

-98. DON'T KNOW

C3. **[IF C2 = 1]** How familiar are you with Ameren Missouri's energy efficiency programs?

1. Very familiar
2. Somewhat familiar
3. Not too familiar
4. Not at all familiar

-98. DON'T KNOW

C4. **[IF C3 = 1, 2, or 3]** Where do you recall having seen or heard about the Ameren Missouri energy efficiency programs? Select up to three options. **[RANDOMIZE ORDER; ACCEPT UP TO THREE RESPONSES]**

1. TV or radio programs or ads
2. Online articles or ads
3. Print articles or ads (e.g., newspapers or magazines)
4. At a retail location
5. Utility bill or other utility direct mail
6. Email from the utility
7. Discussion with a contractor
8. Word of mouth (family, friends, colleagues)
9. Social media
10. Internet searches by you
11. Utility website
12. Other (please specify):_____

-98. Don't know

C5. **[IF C2 = 1]** Are you familiar with the following programs? **[RANDOMIZE ORDER] [DROP DOWN SELECTION MENU WITH RESPONSE CHOICES: 1= YES; 2=NO; -98= DON'T KNOW]**

1. CommunitySavers Program
2. Efficient Products Program
3. Multifamily Efficient Kits Program
4. School Kits Program
5. Heating and Cooling Program
6. Home Energy Report Program
7. Lighting Program

C6. **[IF YES TO ANY OF C5]** Did you participate in any of these programs in the past year? **[RESPONSE REQUIRED]**

1. Yes
2. No

-98. Don't know

C7. Have you visited any of the Ameren Missouri energy efficiency program websites within the past year, such as the Efficient Products or Heating and Cooling websites?

1. Yes
2. No

-98. Don't know

C8. **[IF C7 = 1]** What information were you looking for on the website? Selection up to three options. **[RANDOMIZE ORDER; ACCEPT UP TO THREE RESPONSES]**

1. Energy saving tips
2. Rebates or incentives
3. Participating contractor or builder
4. Participating retailers
5. Where to recycle my CFLs or non-working LEDs
6. Other (please specify):_____

-98. Don't know

C9. **[IF C7 = 1]** Was the information on the website useful to you?

1. Yes
2. No (please elaborate why):_____

-98. DON'T KNOW

C10. Are you aware that Ameren Missouri offers rebates and discounts for energy-saving equipment in your home? **[RESPONSE REQUIRED]**

1. Yes
2. No **[SKIP TO D1]**

-98. Don't know **[SKIP TO D1]**

C11. From what sources did you hear or read about the Ameren Missouri energy-efficiency rebate opportunities? Selection up to three options. **[RANDOMIZE ORDER; ACCEPT UP TO THREE RESPONSES]**

1. TV or radio programs or ads
2. Online articles or ads
3. Print articles or ads (e.g., newspapers or magazines)
4. At a retail location
5. Utility bill or other utility direct mail
6. Email from the utility
7. Discussion with a contractor
8. Word of mouth (family, friends, colleagues)
9. Social media
10. Internet searches by you
11. Utility website
12. Other (please specify):_____

-98. Don't know

D. Lighting

D1. Have you purchased any CFLs in the last year?

1. Yes
2. No

-98. Don't know

a. **[ASK IF D1 = 1]** How many CFLs did you purchase?

D2. **[ASK IF D1 = 1]** What store or stores did you make your purchase from?

D3. Have you purchased any LEDs in the last year? The kind of LED that can replace a traditional screw-in bulb, not LED nightlights, holiday lights, or flashlights.

1. Yes
2. No
-98. Don't know

a. **[ASK IF D4 = 1]** How many LEDs did you purchase?

☐

D4. **[ASK IF D4 = 1]** What store or stores did you make your purchase from?

☐

E. Cooling

E1. What type of cooling equipment do you have in your home? **[ACCEPT MULTIPLE RESPONSES; RESPONSE REQUIRED]**

1. Central air conditioner
2. Ductless or mini-split heat pump
3. Air-source heat pump
4. Ground-source or geothermal heat pump
5. Portable air conditioner
6. Window or wall air conditioner
7. Evaporative (swamp) cooler
8. Other (please specify): _____
9. None **[SKIP TO SECTION F]**
-98. DON'T KNOW **[SKIP TO SECTION F]**

E2. **[IF E1 ≠ 9 or -98]** How old is the cooling equipment you previously selected? Please indicate the number of years**.**

[Carry forward selected choices] Years ☐

F. Heating

F1. What type of heating equipment do you have in your home? **[ACCEPT MULTIPLE RESPONSES; RESPONSE REQUIRED]**

1. Ductless or mini-split heat pump
2. Air-source heat pump
3. Ground-source or geothermal heat pump
4. Gas furnace/boiler
5. Electric baseboard heating system
6. Electric furnace
7. Other (please specify):_____
8. None **[SKIP TO SECTION G]**

-98. Don't know **[SKIP TO F3]**

F2. How old is the heating equipment you previously selected? Please indicate in number of years.

[Carry forward selected choices] Years ☐

F4. **[If F1 = 7 OR -98]** Is your home heating electric or gas? **[RESPONSE REQUIRED]**

1. Electric
2. Gas

-98. DON'T KNOW

G. Potential Spillover

[IF C6 = 1, SKIP TO SECTION H]

G1. Is your hot water heater electric or gas? **[RESPONSE REQUIRED]**

1. Electric
2. Gas

-98. Don't know

G2. Have you or anyone in your household purchased and installed any energy efficient equipment **in the past year**?

1. Yes
2. No **[SKIP TO G13]**

-98. Don't know

G3. Have you or anyone in your household purchased and installed **energy efficient** versions of the following equipment **in the past year**? **[RANDOMIZE ORDER; ACCEPT MULTIPLE RESPONSES; RESPONSE REQUIRED]**

1. Room air conditioner
2. Room air purifier
3. Pool pump

4. Showerhead
5. Kitchen faucet aerator
6. Bathroom faucet aerator
7. Hot water pipe insulation for your hot water heater
8. Furnace fan with ECM (Electronically Commutated Motor)
9. Filter whistle
10. Heat pump water heater
11. Learning or "smart" thermostat
12. Air-source heat pump
13. Ductless or mini-split heat pump
14. Duel-fuel heat pump
15. Ground-source or geothermal heat pump
16. Central air conditioner
17. Other (please specify): _____
18. None

-98. Don't know

G4. How many pieces of each equipment did you install? If you selected *hot water pipe insulation*, please indicate the length in feet. **[RESPONSE REQUIRED]**

[Carry down selected responses] Amount ☐

[IF G3 = 12 OR -98 SKIP TO G15]

[RESPONSES TO G3 COMBINED MAKE UP THE 'CONSIDERATION SET' FOR THE "SPILLOVER QUESTIONS" (G7–G13). IF RESPONSES ARE MORE THAN THREE, THEN THE CONSIDERATION SET BECOMES A SET OF THREE RANDOMLY SELECTED RESPONSES]

G7. **[FOR EACH PRODUCT IN "CONSIDERATION SET"]** How do you know the **[INSERT PRODUCT FROM 'CONSIDERATION SET']** is energy efficient? **[RANDOMIZE ORDER; CHOOSE ONLY ONE RESPONSE; RESPONSE REQUIRED]**

1. It's ENERGY STAR-certified
2. The retailer/dealer/contractor told me it was
3. Information about the product from packaging, websites, etc.
4. Other (please specify):_____

-98. Don't know **[NOTE: FAIL]**

G8. **[FOR EACH PRODUCT IN "CONSIDERATION SET"]** Which of the following reasons best describe why you decided to install a **[INSERT PRODUCT FROM 'CONSIDERATION SET']**? **[RANDOMIZE ORDER; CHOOSE ONLY ONE RESPONSE; RESPONSE REQUIRED]**

1. To save energy **[NOTE: PASS]** **[SKIP TO G8]**
2. To save money **[NOTE: PASS]** **[SKIP TO G8]**
3. To replace failing equipment
4. Needed to replace anyway
5. Liked the style
6. Was ready to update
7. To improve comfort
8. Other (please specify): _____

-98. Don't know

G9. **[If G6 ≠ 1 OR 2]** Which of the following reasons best describe why you chose an energy efficient version of a **[INSERT PRODUCT FROM 'CONSIDERATION SET']** **[RANDOMIZE ORDER; CHOOSE ONLY ONE RESPONSE; RESPONSE REQUIRED]**

1. To save energy **[NOTE: PASS]**
2. To save money **[NOTE: PASS]**
3. Liked the style **[NOTE: FAIL]**
4. It had other features that I liked **[NOTE: FAIL]**
5. It was the cheapest product available **[NOTE: FAIL]**
6. It was the only option available **[NOTE: FAIL]**
7. Other (please specify):_____

-98. Don't know **[NOTE: FAIL]**

G10. **[FOR EACH PRODUCT IN THE "CONSIDERATION SET"]** Did you receive a rebate, discount, or tax credit for installing the **[INSERT PRODUCT IN "CONSIDERATION SET"]**? **[RESPONSE REQUIRED]**

1. Yes
2. No **[NOTE: PASS]** **[SKIP TO G10]**

-98. Don't know **[NOTE: FAIL]** **[SKIP TO G12]**

G11. **[ASK FOR EACH PRODUCT IN "CONSIDERATION SET" IF G8 = 1]** Did you get a rebate from Ameren Missouri? **[RESPONSE REQUIRED]**

1. Yes **[NOTE: FAIL]** **[SKIP TO G12]**
2. No **[NOTE: PASS]**

-98. Don't know **[NOTE: FAIL]** **[SKIP TO G12]**

G12. **[ASK FOR EACH PRODUCT IN "CONSIDERATION SET" IF C2 = 1 OR C10 = 1]** Why didn't you or your contractor apply for a rebate through Ameren Missouri for the **[INSERT PRODUCT IN "CONSIDERATION SET"]**? **[RANDOMIZE ORDER; CHOOSE ONLY ONE RESPONSE; RESPONSE REQUIRED]**

1. I am still planning to apply **[NOTE: FAIL]**
2. It was confusing **[NOTE: PASS]**
3. Just forgot about it **[NOTE: PASS]**
4. I wasn't sure my equipment qualified **[NOTE: PASS]**
5. I wanted a different model that did not qualify **[NOTE: FAIL]**
6. I applied, but I did not receive a rebate **[NOTE: FAIL]**
7. Other (please specify):_____

-98. Don't know **[NOTE: FAIL]**

G13. **[ASK FOR EACH PRODUCT IN "CONSIDERATION SET" IF G8 = 1 AND G9 = 2]** Which organization did you get a rebate, discount or tax credit from?

[Text response]

[ASK FOR EACH PRODUCT AND ACTION IN "CONSIDERATION SET"] On a 1 to 4 scale, with 1 meaning "very important", and 4 meaning "not at all important", how important was each of the following elements in your decision to purchase and install a **[INSERT PRODUCT IN "CONSIDERATION SET"]**? **[ADD "Don't know" AND "Not applicable" AS RESPONSE OPTIONS; RANDOMIZE ORDER; RESPONSE REQUIRED]**

a) Information about energy savings from Ameren Missouri's marking or bill insert
b) Ameren Missouri's marketing information from a contractor or retailer
c) Information from colleagues or friends who installed energy efficient equipment and received a rebate from Ameren Missouri
d) Past participation in an Ameren Missouri energy efficiency program
e) Information from the energy assessment conducted at your home through Ameren Missouri

G15. Have you or anyone in your household had a tune-up of your heating or cooling equipment **in the past year**? **[RESPONSE REQUIRED]**

1. Yes
2. No **[SKIP TO H1]**

-98. DON'T KNOW **[SKIP TO H1]**

G16. What equipment was tuned up? **[CHOOSE ONLY ONE RESPONSE; RESPONSE REQUIRED]**

1. My heat pump (which provides both central heating and cooling)
2. My central air conditioner
3. Other (please specify): _____

-98. Don't know **[SKIP TO H1]**

G17. Which of the following reasons best describe why you decided to have the tune-up? **[CHOOSE ONLY ONE RESPONSE; RESPONSE REQUIRED; RANDOMIZE ORDER]**

1. To save energy **[NOTE: PASS]**
2. To save money **[NOTE: PASS]**
3. To improve home comfort **[NOTE: FAIL]**
4. It was part of routine maintenance **[NOTE: FAIL]**
5. To make repairs or replacements **[NOTE: FAIL]**
6. Other (please specify): _____

-98. DON'T KNOW **[NOTE: FAIL]**

G18. Did you receive a rebate, discount, or tax credit for the tune-up? **[RESPONSE REQUIRED]**

1. Yes
2. No **[NOTE: PASS]** **[SKIP TO G18]**

-98. DON'T KNOW **[NOTE: FAIL]** **[SKIP TO G19]**

G19. **[IF G16=1]** Did you get a rebate from Ameren Missouri? **[RESPONSE REQUIRED]**

1. Yes **[NOTE: FAIL]** **[SKIP TO G19]**
2. No **[NOTE: PASS]**

-98. Don't know **[NOTE: FAIL]** **[SKIP TO G19]**

G20. **[ASK IF C2 = 1 OR C10 = 1]** Why didn't you or your contractor apply for a rebate through Ameren Missouri for the tune-up? **[RANDOMIZE ORDER; CHOOSE ONLY ONE RESPONSE; RESPONSE REQUIRED]**

1. I am still planning to apply **[NOTE: FAIL]**
2. It was confusing **[NOTE: PASS]**
3. Just forgot about it **[NOTE: PASS]**
4. I wasn't sure the tune-up qualified **[NOTE: PASS]**
5. I applied, but I did not receive a rebate **[NOTE: FAIL]**
6. Other (please specify): _____

-98. Don't know **[NOTE: FAIL]**

G19. a)–e). On a 1 to 4 scale, with 1 meaning "very important", and 4, meaning "not at all important", how important was each of the following elements in your decision to get a tune-up? **[ADD "Don't know" and "Not applicable" AS RESPONSE OPTIONS; RANDOMIZE ORDER; RESPONSE REQUIRED]**

a) Information about energy savings from Ameren Missouri's marking or bill insert
b) Ameren Missouri's marketing information from a contractor or retailer
c) Information from colleagues or friends who installed energy efficient equipment and received a rebate from Ameren Missouri
d) Past participation in an Ameren Missouri energy efficiency program
e) Information from the energy assessment conducted at your home through Ameren Missouri

H. Customer Demographics

H1. Thinking about your overall experiences with Ameren Missouri as your utility, how satisfied would you say you are with Ameren Missouri?

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not at all satisfied
-98. Don't know

H2. How satisfied are you with the energy efficiency information and the rebates available to you by Ameren Missouri?

1. Very satisfied
2. Somewhat satisfied
3. Not too satisfied
4. Not at all satisfied

-98. Don't know

H3. What type of home do you live in?

1. Single-family home
2. Manufactured or modular
3. Mobile home
4. Row house/townhome
5. Two or three family attached residence
6. Apartment with 4 units or greater
7. Condominium
8. Other (please specify): _____

-98. Don't know

H4. Approximately how many square feet of living space does your home have? Don't include the basement unless it is a space that you consider lived in.

1. Less than 1,000 square feet
2. 1,000 to less than 1,500 square feet
3. 1,500 to less than 2,000 square feet
4. 2,000 to less than 2,500 square feet
5. 2,500 to less than 3,000 square feet
6. 3,000 or more square feet

-98. Don't know

H5. What year was your home built?

1. After 2012
2. 2009-2012
3. 2005-2008
4. 2001-2004
5. 1980-2000
6. Before 1980

-98. Don't know

H6. Do you own or rent this residence?

1. Own
2. Rent

-98. Don't know

H7. Is your home occupied…

1. Year round
2. On a seasonal basis/vacation home

-98. Don't know

H8. What is the highest level of education that you have completed?

1. Less than a high school degree
2. High school degree
3. Technical/trade school program
4. Associates degree or some college
5. Bachelor's degree
6. Graduate/ professional degree, e.g. J.D., MBA, MD, etc.
7. Professional certification, e.g. CPA, CNP, etc.

-98. Don't know

H9. Which of the following categories includes your household's total annual income before taxes?

1. Less than $10,000
2. $10,000 – $14,999
3. $15,000 – $19,999
4. $20,000 – $29,999
5. $30,000 – $39,999
6. $40,000 –$49,999
7. $50,000 – $59,999
8. $60,000 – $74,999
9. $75,000 – $99,999
10. $100,000 – $124,999
11. $125,000 – $149,999
12. $150,000 or more
13. Prefer not to say

Thank you for taking the survey. Your response has been recorded and we have entered you into the drawing for one of five $100 VISA gift cards.

If you are selected to receive one of the five gift cards in the drawing, the gift card will be mailed to you at the same address written on the postcard you received, by March 15, 2019.

Appendix H. Immediate Survey Responses

CADMUS

Immediate Survey Responses

This appendix provides the responses to questions in the Heating and Cooling Program Immediate Survey. This survey was sent by email to PY18 HVAC participants between one and two months after installing their equipment. In PY18 458 respondents completed this survey.

The tables below provide the number of responses to answers to the survey questions. They also provide the percentage of the various responses, where the denominator is the total number of respondents who answered the question, not including respondents who replied "don't know". We did not report initial screening questions that would have disqualified respondents from taking the survey, and we did not report responses to open-ended questions.

All HVAC Measures – Verification and Program Awareness

Table 1 Survey Question A8a Responses (n=316)

Prior to this survey, were you aware that the rebate you received after installing your new high efficiency [Field-MeasureType] was provided by Ameren Missouri?		
Response	**Count of Response**	**Percent of Respondents**
Yes	288	91.14%
No	28	8.86%

Table 2 Survey Question A8b Responses (n=5)

Prior to this survey, were you aware that the rebate you received after your tune up was provided by Ameren Missouri?		
Response	**Count of Response**	**Percent of Respondents**
Yes	4	80%
No	1	20%

Table 3 Survey Question A8c Responses (n=110)

Prior to this survey, were you aware that the rebate you received after installing your new high efficiency and smart thermostat(s) was provided by Ameren Missouri?		
Response	**Count of Response**	**Percent of Respondents**
Yes	100	91%
No	10	9%

Table 4 Survey Question A8d Responses (n=2)

Prior to this survey, were you aware that the rebate you received after your tune-up and purchase of smart thermostat(s) was provided by Ameren Missouri?		
Response	**Count of Response**	**Percent of Respondents**
Yes	1	50%
No	1	50%

Table 5 Survey Question A9 Responses (n=393)

How did you hear about Ameren Missouri's Heating and Cooling Program?		
Response	**Count of Response**	**Percent of Respondents**
From my contractor or installer	261	49.2%
Visited Ameren's Web site	54	10.2%
On my monthly energy statement/bill	37	7.0%
Information that I received by mail from Ameren	37	7.0%
Store representative or salesperson	28	5.3%
Ameren Missouri Home Energy Report	26	4.9%
Family, friend or co-worker	23	4.3%
Information that I received by mail from a contractor	22	4.1%
Television advertisement	13	2.4%
Newspaper	5	0.9%
A brochure from Ameren that I did not receive by mail	4	0.8%
When my rebate check arrived	3	0.6%
Other Web site (which site?)	2	0.4%
Radio	2	0.4%
Signs or displays in a store	2	0.4%
Ameren Missouri representative	1	0.2%
Some other way (please specify)	11	2.1%

All HVAC Measures – Purchase Patterns and Decision-making

Table 6 Survey Question B1 Responses (n=424)

What was the primary reason you purchased a new [Measure Type]?		
Response	**Count of Response**	**Percent of Respondents**
To replace broken equipment	125	29.5%
To replace aging equipment	235	55.4%
To improve the comfort of my home	8	1.9%
To improve the safety of my home	1	0.2%
The purchase was part of a larger home renovation	8	1.9%
The equipment is for a newly constructed home	6	1.4%
To save money on energy costs	33	7.8%
To help the environment	3	0.7%
Some other reason (Please specify)	5	1.2%

Table 7 Survey Question B2 Responses (n=10)

What motivated you to purchase the tune-up service?		
Response	**Count of Response**	**Percent of Respondents**
To take advantage of the rebate	2	20%
To keep my air conditioner running efficiently	2	20%
To save energy	2	20%
Was included in my maintenance contract or part of a regularly scheduled check up	1	10%
To find out if it needs any repairs	1	10%
Reminded by advertising other than Ameren Missouri	1	10%
Other (please specify):	1	10%

ALL HVAC Measures – Participant Satisfaction

Table 8 Survey Question C3 Responses (n=420)

Thinking about your overall satisfaction with Ameren Missouri's Heating and Cooling Program, would you say you are:		
Response	**Count of Response**	**Percent of Respondents**
Very satisfied	389	92.6%
Somewhat satisfied	30	7.1%
Not satisfied at all	1	0.2%

Table 9 Survey Question C4 Responses (n=420)

Why are you [RATING FROM D3] with Ameren Missouri's Heating and Cooling Program? Please give us further details on what you like or dislike about this rebate program (check all that apply).		
Response	**Count of Response**	**Percent of Respondents**
Satisfied with the rebates	257	23.3%
Overall positive program experience	234	21.2%
Satisfied with the contractor	233	21.1%
Satisfied with the environmental benefits of the program	177	16.0%
The program met my expectations	170	15.4%
Dissatisfied with delays in rebate processing	4	0.4%
Dissatisfied with the rebates	1	0.1%
Other reasons or comments, please specify:	27	2.4%

Central Air Conditioner Questions

Table 10 Survey Question D1 Responses (n=372)

Did you install your central air conditioner in a newly constructed home or in an existing home?		
Response	**Count of Response**	**Percent of Respondents**
Newly constructed home	1	0.3%
Existing home	371	99.7%

Table 11 Survey Question D2 Responses (n=371)

Please think back to when you first spoke with your contractor in regards to replacing and/or installing your central air conditioner. What prompted the conversation?		
Response	**Count of Response**	**Percent of Respondents**
My conditioner was working, but was having problems (i.e., wasn't cooling properly or was making noise)	132	21.5%
My air conditioner stopped working (i.e., unit failed)	105	17.1%
To lower my energy bill, save money on bills	84	13.7%
To save energy	63	10.3%
To keep my air conditioner running efficiently	47	7.7%
To take advantage of the rebate	32	5.2%
To ensure that it lasts longer	29	4.7%
To find out if it needs any repairs	17	2.8%
Was included in my maintenance contract or a part of a regularly scheduled check up	15	2.4%
It was time for a tune-up	15	2.4%
Recommended by a family member or friend	13	2.1%
Reminded by Ameren Missouri advertising	10	1.6%
It didn't cost much to discuss upgrading my system with the contractor	9	1.5%
Reminded by advertising other than Ameren Missouri	1	0.2%
Other (please specify)	41	6.7%

Table 12 Survey Question D3 Responses (n=205)

Did your contractor offer you the option to repair or tune-up your system instead of replacing it?		
Response	**Count of Response**	**Percent of Respondents**
Yes	148	72.2%
No	57	27.8%

Table 13 Survey Question D3b Responses (n=52)

So, to the best of your knowledge your system was not repairable and had to be replaced?		
Response	**Count of Response**	**Percent of Respondents**
Yes	46	88.5%
No	6	11.5%

Table 14 Survey Question D4 Responses (n=82)

About how much would the repair have cost?		
Response	**Count of Response**	**Percent of Respondents**
Less than $200	4	4.9%
$200-$500	12	14.6%
$500-$1,000	33	40.2%
$1,000-$2,500	22	26.8%
More than $2,500	11	13.4%

Table 15 Survey Question D5 Responses (n=148)

Why did you opt for replacing the unit instead of repairing it?		
Response	**Count of Response**	**Percent of Respondents**
I would have had to replace it soon anyway	95	33.9%
The repair costs were too much; was not worth it	59	21.1%
The contractor convinced me installing a high-efficiency model was worth it/would save me money in the long-run	51	18.2%
I wanted to take advantage of Ameren Missouri's rebates while available	42	15.0%
I wanted to take advantage of manufacturer rebates or tax credits while available	22	7.9%
Other (please specify)	11	3.9%

Heat Pumps

Table 16 Survey Question E1 Responses (n=47)

Did you install your heat pump in a newly constructed home or in an existing home?		
Response	**Count of Response**	**Percent of Respondents**
Newly constructed home	8	17%
Existing home	39	83%

Table 17 Survey Question E2 Responses (n=43)

What type of heating system did you replace and remove before you installed the heat pump?		
Response	**Count of Response**	**Percent of Respondents**
Electric forced air furnace	25	58%
Ground source heat pump	2	5%
Air Source Heat Pump	7	16%
Nothing - this is new construction	5	12%
Gas heating system (boiler, furnace)	2	5%
Other (please specify)	2	5%

Table 18 Survey Question E3 Responses (n=41)

What type of cooling system did you replace and remove at the time you installed the heat pump?		
Response	**Count of Response**	**Percent of Respondents**
Air Source Heat Pump	8	20%
Ground Source Heat Pump	2	5%
Central air conditioning system	25	61%
Other (please specify)	1	2%
I didn't have a cooling system	5	12%

Table 19 Survey Question E4 Responses (n=39)

Please think back to when you first spoke with your contractor in regards to replacing and/or installing your heat pump. What prompted the conversation?		
Response	**Count of Response**	**Percent of Respondents**
To lower my energy bill, save money on bills	16	21%
To save energy	14	18%
My air conditioner or heat pump stopped working (i.e., unit failed)	11	14%
To take advantage of the rebate	11	14%
My air conditioner or heat pump was working, but was having problems (i.e., wasn't cooling properly or was making a noise)	10	13%
Maintenance contract/Regularly scheduled check up	2	3%
To find out if it needs any repairs	2	3%
To keep my heat pump running efficiently	2	3%
It was time for a tune-up	1	1%
To ensure that it lasts longer	1	1%
Reminded by Ameren Missouri advertising	1	1%
Recommended by a family or friend	1	1%
Other (please specify)	5	6%

Table 20 Survey Question E5 Responses (n=17)

Did your contractor offer you the option to repair or tune-up your system instead of replacing it?		
Response	**Count of Response**	**Percent of Respondents**
Yes	11	65%
No	6	35%

Table 21 Survey Question E6 Responses (n=5)

So, to the best of your knowledge your system was not repairable and had to be replaced?		
Response	**Count of Response**	**Percent of Respondents**
Yes	4	80%
No	1	20%

Table 22 Survey Question E7 Responses (n=6)

About how much would the repair have cost?		
Response	**Count of Response**	**Percent of Respondents**
$200-$500	1	17%
$500-$1,000	2	33%
$1,000-$2,500	1	17%
More than $2,500	2	33%

Table 23 Survey Question E8 Responses (n=11)

Why did you opt for replacing the unit instead of repairing it?		
Response	**Count of Response**	**Percent of Respondents**
I would have had to replace it soon anyway	6	26%
I wanted to take advantage of Ameren Missouri's rebates while available	6	26%
The contractor convinced me installing a high-efficiency model was worth it/would save me money in the long-run	4	17%
The repair costs were too much; was not worth it	3	13%
I wanted to take advantage of manufacturer rebates or tax credits while available	3	13%
Other (please specify)	1	4%

Table 24 Survey Question E9 Responses (n=41)

Before you knew about the heat pump incentive from Ameren Missouri, were you already considering a heat pump as your replacement system?		
Response	**Count of Response**	**Percent of Respondents**
Yes	30	73%
No	11	27%

Table 25 Survey Question E10 Responses (n=30)

Why were you considering a heat pump?		
Response	**Count of Response**	**Percent of Respondents**
It was more efficient	14	47%
I wanted heating as well	1	3%
I already had a heat pump	11	37%
Other (please specify)	4	13%

ECM Questions

Question F1 – F7 were only asked to participants who installed only ECM measures, with no other measure. No responses were provided to these questions.

Table 26 Survey Question F8 Responses (n=352)

Do you operate your furnace fan in "continuous" mode to circulate air?		
Response	**Count of Response**	**Percent of Respondents**
Yes	86	24%
No	266	76%

Table 27 Survey Question F10 Responses (n=67)

Would you say the time you operate your fan in circulation mode has…		
Response	**Count of Response**	**Percent of Respondents**
Increased?	24	36%
Decreased?	4	6%
Stayed the same?	39	58%

Satisfaction with Ameren Missouri

Table 28 Survey Question I1 Responses (n=398)

Thinking about your overall experiences with Ameren Missouri as your utility, how satisfied would you say you are with Ameren Missouri?		
Response	**Count of Response**	**Percent of Respondents**
Very satisfied	309	78%
Somewhat satisfied	84	21%
Not too satisfied	5	1%

Table 29 Survey Question I2 Responses (n=398)

Why are you "[RATING FROM I1]" with Ameren Missouri as your utility? Please give us further details on what you like or dislike about Ameren Missouri?		
Response	**Count of Response**	**Percent of Respondents**
Satisfied with the reliable and dependable service	254	26%
The incentive/rebate for my equipment or tune-up	219	23%
Satisfied with the customer service	164	17%
Satisfied with the outage response	150	16%
Satisfied with utility rates	103	11%
Dissatisfied with the utility rates	36	4%
Dissatisfied with customer service	5	1%
Dissatisfied with the reliability of service	3	0.3%
Dissatisfied with infrastructure maintenance	3	0.3%
Other reasons or comments, please specify	26	3%

All HVAC Participants Customer Demographics

Table 30 Survey Question J1 Responses (n=401)

Is the energy used in your home . . .

Response	Count of Response	Percent of Respondents
All electric	58	14%
Natural gas and electric	330	82%
Some other combination of energy sources	13	3%

Table 31 Survey Question J2 Responses (n=393)

Is your hot water heater electric or gas?		
Response	**Count of Response**	**Percent of Respondents**
Electric	90	23%
Gas	303	77%

Table 32 Survey Question J3 Responses (n=404)

Which of the following best describes your home or residence?		
Response	**Count of Response**	**Percent of Respondents**
Single-family home (not a duplex, townhome, or apartment)	373	92%
Mobile home	2	0%
Row house or townhome	9	2%
Two or three family attached residence	11	3%
Condominium	7	2%
Other (Please specify)	2	0%

Table 33 Survey Question J4 Responses (n=401)

Do you own or rent this residence?		
Response	**Count of Response**	**Percent of Respondents**
Own	398	99%
Rent	3	1%

Table 34 Survey Question J5 Responses (n=393)

Approximately how many square feet of living space does your home have? Don't include the basement unless it is a space that you consider "lived in".		
Response	**Count of Response**	**Percent of Respondents**
Less than 1,000 square feet	18	5%
1,000 to less than 1,500 square feet	78	20%
1,500 to less than 2,000 square feet	103	26%
2,000 to less than 2,500 square feet	89	23%
2,500 to less than 3,000 square feet	46	12%
3,000 or more square feet	59	15%

Table 35 Survey Question J6 Responses (n=393)

When was your home built?		
Response	**Count of Response**	**Percent of Respondents**
After 2008	15	4%
2005-2008	11	3%
2001-2004	45	11%
1980-2000	133	34%
Before 1980	189	48%

Table 36 Survey Question J7 Responses (n=445)

Counting yourself, how many people normally live in your household on a full-time basis? Please include everyone who lives in your home, whether or not they are related to you, and exclude anyone just visiting or children who may be away at college or in the military.		
Response	**Count of Response**	**Percent of Respondents**
Please enter a number:	399	90%
System	46	10%

Appendix I. Follow-up Survey Responses

Follow-Up Survey Responses

This appendix provides the responses to questions in the Heating and Cooling Program Follow-Up Survey. This survey was sent by email to PY18 HVAC participants between six months after installing their equipment. In PY18 844 respondents completed this survey.

The tables below provide the number of responses to answers to the survey questions. They also provide the percentage of the various responses, where the denominator is the total number of respondents who answered the question, not including respondents who replied, "don't know". We did not report initial screening questions that would have caused a respondent to be terminated from the survey.

All HVAC Measures – Verification and Program Awareness

Table 1 Survey Question A8 Responses (n=782)

Prior to this survey, were you aware that the rebate you received after installing your new high efficiency [Field-MeasureType] was provided by Ameren Missouri?		
Response	**Count of Response**	**Percent of Respondents**
Yes	709	90.7%
No	73	9.3%

Table 2 Survey Question A8 Responses (n=40)

Prior to this survey, were you aware that the rebate you received after your tune-up was provided by Ameren Missouri?		
Response	**Count of Response**	**Percent of Respondents**
Yes	32	80.0%
No	8	20.0%

All HVAC Measures – Participant Satisfaction

Table 3 Survey Question B1 Responses (n=791)

What was the primary reason you purchased a new [Field-MeasureType]?		
Response	**Count of Response**	**Percent of Respondents**
To replace broken equipment	326	41.2%
To replace aging equipment	377	47.7%
To improve the comfort of my home	24	3.0%
To improve the safety of my home	1	0.1%
The purchase was part of a larger home renovation	6	0.8%
The equipment is for a newly constructed home	3	0.4%
To save money on energy costs	41	5.2%
To help the environment	3	0.4%

Other reason, please specify:	10	1.3%

Table 4 Survey Question B2 Responses (n=40)

What motivated you to purchase the tune-up service? - Selected Choice		
Response	**Count of Response**	**Percent of Respondents**
To keep my air conditioner running efficiently	16	19.8%
It was time for a tune-up	13	16.0%
To take advantage of the rebate	10	12.3%
To find out if it needs any repairs	10	12.3%
To ensure that it lasts longer	9	11.1%
To save energy	7	8.6%
It didn't cost much	5	6.2%
My air conditioner stopped working (i.e., unit failed)	2	2.5%
My air conditioner was working, but was having problems (i.e., wasn't cooling properly or was making a noise)	2	2.5%
Reminded by Ameren Missouri advertising	2	2.5%
Reminded by advertising other than Ameren Missouri	2	2.5%
Recommended by a family member or friend	2	2.5%
Was included in my maintenance contract or part of a regularly scheduled check up	1	1.2%

All HVAC Measures - Participant Satisfaction

Table 5 Survey Question C1 Responses (n=814)

Thinking about your overall satisfaction with Ameren Missouri's Heating and Cooling Program, would you say you are:		
Response	**Count of Response**	**Percent of Respondents**
Very satisfied	692	85.0%
Somewhat satisfied	119	14.6%
Not too satisfied	3	0.4%

Table 6 Survey Question C2 Responses (n=814)

Why are you "[QID353-ChoiceGroup-SelectedChoices]" with Ameren Missouri's Heating and Cooling Program? Select all that apply. - Selected Choice		
Response	**Count of Response**	**Percent of Respondents**
Satisfied with the rebates	516	23.4%
Overall positive program experience	489	22.2%
Satisfied with the contractor	436	19.8%
The program met my expectations	353	16.0%
Satisfied with the environmental benefits of the program	346	15.7%
Dissatisfied with the rebates	11	0.5%

Why are you "[QID353-ChoiceGroup-SelectedChoices]" with Ameren Missouri's Heating and Cooling Program? Select all that apply. - Selected Choice		
Response	**Count of Response**	**Percent of Respondents**
Dissatisfied with delays in rebate processing	10	0.5%
Dissatisfied with the contractor	8	0.4%
Other reason, please specify:	33	1.5%

Spillover Questions

Spillover Question Frequencies are not reported here.

Central Air Conditioner Questions

Table 7 Survey Question E1 Responses (n=707)

Did you install your central air conditioner in a newly constructed home or in an existing home?		
Response	**Count of Response**	**Percent of Respondents**
Newly constructed home	3	0.4%
Existing home	704	99.6%

Do you have any of the following currently installed in addition to your new efficient air conditioner at your home? Select all that apply.		
Response	**Count of Response**	**Percent of Respondents**
High-efficiency gas furnace	262	40.8%
Standard-efficiency gas furnace	159	24.8%
Space heater(s)	66	10.3%
Another high-efficiency air conditioner	34	5.3%
Standard-efficiency air conditioner	29	4.5%
High-efficiency electric furnace	25	3.9%
Window air conditioner unit(s)	20	3.1%
Standard-efficiency electric furnace	14	2.2%
Room air conditioner(s)	13	2.0%
Baseboard electric system	7	1.1%
Air Source Heat Pump	6	0.9%
Ductless Heat Pump	6	0.9%
Ground Source Heat Pump	1	0.2%

What type of thermostat do you use to control your heating and cooling equipment?		
Response	**Count of Response**	**Percent of Respondents**
Manual thermostat	100	23.0%
Programmable thermostat	334	77.0%

Did you install this thermostat when you installed your new air conditioning system?		
Response	**Count of Response**	**Percent of Respondents**

Yes	346	56.4%
No	267	43.6%

Table 8 Survey Question E5 Responses (n=340)

What type of thermostat did you have before installing the new thermostat?		
Response	**Count of Response**	**Percent of Respondents**
Manual thermostat	129	37.9%
Smart thermostat (may be called learning thermostat)	24	7.1%
Programmable thermostat	187	55.0%

What type of cooling system did you replace and remove when installing your new efficient air conditioning system? - Selected Choice		
Response	**Count of Response**	**Percent of Respondents**
Nothing	1	0.1%
Window air conditioning unit(s)	7	1.0%
Air source heat pump	4	0.6%
Room air conditioning unit(s)	1	0.1%
Central air-conditioning	657	95.8%
Other (please specify)	5	0.7%
I kept my cooling system	9	1.3%
I didn't have a cooling system	2	0.3%

Heat Pumps

Table 9 Survey Question F1 Responses (n=71)

Did you install your heat pump in a newly constructed home or in an existing home?		
Response	**Count of Response**	**Percent of Respondents**
Newly constructed home	4	5.6%
Existing home	67	94.4%

For what purpose did you install your heat pump?		
Response	**Count of Response**	**Percent of Respondents**
Primarily heating	3	4.2%
Primarily cooling	2	2.8%
Both heating and cooling	66	93.0%

What type of heating system did you replace and remove before you installed the heat pump? - Selected Choice		
Response	**Count of Response**	**Percent of Respondents**
Electric forced air furnace	29	43.3%
Electric baseboard heat	2	3.0%
Ground source heat pump	2	3.0%
Air Source Heat Pump	20	29.9%
Nothing - this is new construction	4	6.0%
Gas heating system (boiler, furnace)	5	7.5%
Other (please specify)	4	6.0%
I kept my previous heating system	1	1.5%

What type of cooling system did you replace and remove before you installed the heat pump? - Selected Choice		
Response	**Count of Response**	**Percent of Respondents**
Window air conditioning unit(s)	3	4.4%
Air Source Heat Pump	20	29.4%
Ground Source Heat Pump	3	4.4%
Central air conditioning system	34	50.0%
Other (please specify)	1	1.5%
I kept my cooling system	1	1.5%
I didn't have a cooling system	6	8.8%

Furnace Fan Questions

Table 10 Survey Question G1 Responses (n=779)

Do you operate your fan in "continuous" mode to circulate air?		
Response	**Count of Response**	**Percent of Respondents**
Yes	139	20.1%
No	553	79.9%

Table 11 Survey Question G3 Responses (n=114)

Would you say the time you operate your fan in circulation mode has…		
Response	**Count of Response**	**Percent of Respondents**
Increased?	38	33.3%
Decreased?	15	13.2%
Stayed the same?	61	53.5%

Tune-Ups

Table 12 Survey Question H1 Responses (n=41)

What type of equipment did the contractor tune up? Select all that apply. - Selected Choice		
Response	**Count of Response**	**Percent of Respondents**
Central air conditioner	28	77.8%
Air Source Heat Pump	2	5.6%
Ground Source Heat Pump	1	2.8%
Room air conditioner unit(s)	1	2.8%
Other equipment, please specify	4	11.1%

Satisfaction with Ameren Missouri

Thinking about your overall experiences with Ameren Missouri as your utility, how satisfied would you say you are with Ameren Missouri?		
Response	**Count of Response**	**Percent of Respondents**
Very satisfied	569	71.3%
Somewhat satisfied	215	26.9%
Not too satisfied	10	1.3%
Not satisfied at all	4	0.5%

Table 13 Survey Question I2 Responses (n=798)

Why are you [Response to I1] with Ameren Missouri as your utility? Select all that apply.		
Response	**Count of Response**	**Percent of Respondents**
Satisfied with the reliable and dependable service	468	25.9%
The incentive/rebate for my equipment or tune-up	393	21.7%
Satisfied with the customer service	287	15.9%
Satisfied with outage response	260	14.4%
Satisfied with utility rates	201	11.1%
Dissatisfied with the utility rates	113	6.3%
Dissatisfied with the reliability of service	17	0.9%
Dissatisfied with infrastructure maintenance	12	0.7%
Dissatisfied with customer service	10	0.6%
Other reasons, please specify:	46	2.5%

Participant Demographics

Table 14 Survey Question J1 Responses (n=793)

Is the energy used in your home:		
Response	**Count of Response**	**Percent of Respondents**
All electric	102	12.9%
Natural gas and electric	662	83.5%
Or some other combination of energy sources	29	3.7%

Table 15 Survey Question J2 Responses (n=793)

Is the energy used in your home:		
Response	**Count of Response**	**Percent of Respondents**
All electric	102	12.9%
Natural gas and electric	662	83.5%
Or some other combination of energy sources	29	3.7%

Table 16 Survey Question J3 Responses (n=761)

Is your hot water heater electric or gas?		
Response	**Count of Response**	**Percent of Respondents**
Electric	157	20.6%
Gas	604	76.2%

Table 17 Survey Question J4 Responses (n=791)

Do you own or rent this residence?		
Response	**Count of Response**	**Percent of Respondents**
Own	785	99.2%
Rent	6	0.8%

Table 18 Survey Question J5 Responses (n=775)

Approximately how many square feet of living space does your home have? Don't include the basement unless it is a space that you consider "lived in".		
Response	**Count of Response**	**Percent of Respondents**
Less than 1,000 square feet	60	7.7%
1,000 to less than 1,500 square feet	158	20.4%
1,500 to less than 2,000 square feet	185	23.9%
2,000 to less than 2,500 square feet	164	21.2%
2,500 to less than 3,000 square feet	89	11.5%
3,000 or more square feet	119	15.4%

Table 19 Survey Question J6 Responses (n=779)

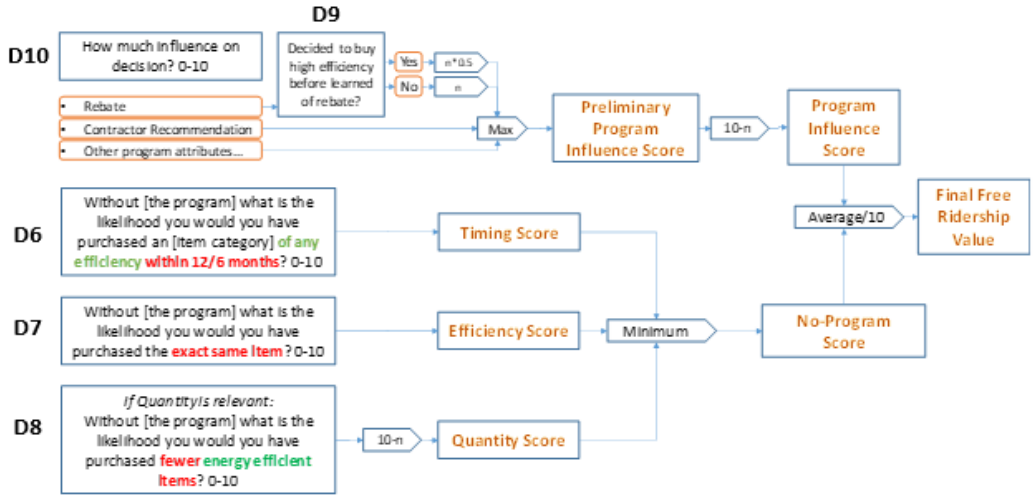
When was your home built?		
Response	**Count of Response**	**Percent of Respondents**
After 2008	18	2.3%
2005-2008	42	5.4%
2001-2004	62	8.0%
1980-2000	259	33.2%
Before 1980	398	51.1%

Table 20 Survey Question J7 Responses (n=800)

Counting yourself, how many people normally live in your household on a full-time basis? Please include everyone who lives in your home, whether or not they are related to you, and exclude anyone just visiting or children who may be away at college or in the military. - Please enter a number: - Text		
Response	**Count of Response**	**Percent of Respondents**
None	4	0.6%
1	93	13.3%
2	343	49.2%
3	115	16.5%
4	82	11.8%
5	42	6.0%
6	15	2.2%
7	2	0.3%
10	1	0.1%

Appendix J. Illinois TRM NTG Flow Chart

Residential Prescriptive Rebate (With No Audit) Free Ridership



D11 In your own words, what influence did the Ameren Missouri Heating and Cooling program have on your decision to purchase a high-efficiency air conditioning system? **[FORCED RESPONSE – NO SKIP]**

[RECORD RESPONSE:_____]

Evaluation analyst will assess the response to the D11 open ended question and its consistency with the other questions, and, if warranted based on clear information, they will adjust either the preliminary score, timing score, efficiency score, or quantity score based on expert judgement. If an inconsistency exists and the open-ended response does not resolve the inconsistency, the respondent will be removed from the calculation. All instances of this occurring will be documented in the final report.

For example, if a respondent rated the influence of the Ameren rebate on their decision to purchase high-efficiency equipment as '10 – Very important' (D10) but also gave a rating of '10 – Very likely' to question D7, question D11 would be asked and the open ended response would be evaluated by the analyst to consider whether to apply an adjustment to the respondents freeridership component scores.

2019 Illinois Statewide Technical Reference Manual for Energy Efficiency. Version 7.0. Volume 4: Cross-Cutting Measures and Attachments. Section 4.4. http://ilsagfiles.org/SAG_files/Technical_Reference_Manual/Version_7/Final_9-28-18/IL-TRM_Effective_010119_v7.0_Vol_4_X-Cutting_Measures_and_Attach_092818_Final.pdf