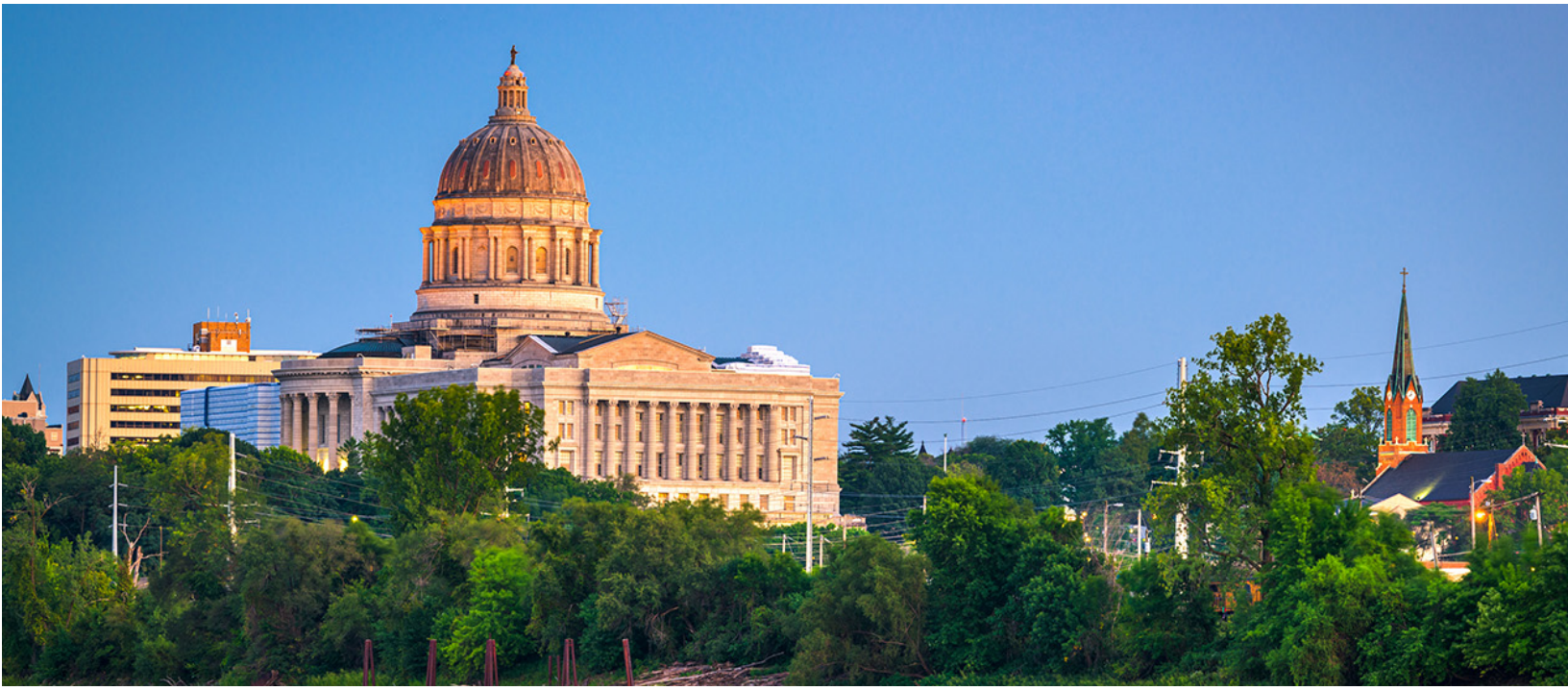
Independent EM&V Audit of the Ameren Missouri PY2024 Program Evaluations



Submitted by Evergreen Economics

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1 Executive Summary

In 2024, Ameren Missouri continued implementing its Missouri Energy Efficiency Investment Act (MEEIA) Cycle 3 DSM Programs. Ameren Missouri contracted with ADM Associates to conduct comprehensive evaluations of Ameren Missouri's energy efficiency portfolio for Program Year 2024 (PY2024).

The portfolios and associated programs covered in this audit include:

- **Residential Portfolio:**
    - **Residential Heating and Cooling (HVAC) Program**: The Residential HVAC Program obtains energy and demand savings through improvements in the operating performance of existing residential cooling units or replacement of central air conditioning (CAC) units and heat pumps. The program offers measures through two channels: a Downstream Channel that focuses on improving the efficiency of HVAC systems at the point of installation and a Midstream Channel that focuses on making super-efficient HVAC systems more broadly available to Ameren Missouri customers.
    - **Residential Efficient Products (REP) Program**: The REP Program is designed to raise customer awareness of the benefits of high-efficiency products and educate residential customers to save energy cost-effectively. The program's target market is all of Ameren Missouri's residential customers.
    - **Pay As You Save (PAYS) Program**: The PAYS Program is a tariff on-bill financing offering that provides energy efficient measures including LEDs, domestic hot water, insulation, air sealing, and HVAC to residential customers. The program targets residential customers with energy usage higher than anticipated given housing characteristics.
    - **Multifamily Market Rate (MFMR) Program**: The MFMR Program was designed to provide a one-stop-shop approach to assist owners and operators of multifamily Market Rate properties to overcome barriers to completing comprehensive retrofits. The program serves multifamily properties that have three or more tenant units and receive electric service from Ameren Missouri.
    - **Residential Demand Response (DR) Program:** The Residential DR Program targets Ameren Missouri electric customers with central air conditioning systems (including heat pumps) or electric heating controlled by eligible smart thermostats. The program provides financial incentives of a $50 enrollment bonus and $25 annually to overcome barriers of customer participation in demand response. Participants may opt-out of events by adjusting thermostat temperature and the program

employs energy optimization software on qualified devices to drive additional savings beyond event periods. The program calls up to 15 summer events annually (May-September) plus potential winter events, with various event types including locational events targeting capacity-constrained feeders, test events, and staggered events that sequentially activate device subsets.

- **Low-Income Portfolio:**
    - **Single-Family Income Eligible (SFIE) Program**: The SFIE Program is designed to provide whole-home energy efficiency upgrades that result in long-term energy savings and bill reduction opportunities to low-income Ameren Missouri customers living in single family properties.
    - **Multifamily Income Eligible (MFIE) Program**: The MFIE Program is designed to deliver long-term energy savings and bill reduction opportunities to income eligible Ameren Missouri customers living in multifamily properties. Property owners and managers of multifamily properties with three or more units and high populations of low-income residents are targeted for the program.
    - **Business Social Services (BSS) Program**: The BSS Program targets commercial, nonprofit, and tax-exempt business customers that provide social services to the low-income public in federally designated opportunity zones. The program provides lighting and other measures at low- or no-cost to social services business customers with qualifying facilities.
- **Business Portfolio**:
    - **Standard Incentive Program:** The Standard Program targets commercial, industrial, and institutional customers (excluding multi-family and low-income) to foster energy awareness and adoption of energy efficient technologies. The program offers prescriptive incentives through registered Trade Allies and non-registered Market Partners including contractors, distributors, wholesale retailers, and local economic and professional associations to mitigate higher costs associated with efficiency projects, focusing on lighting, motors, controls, HVAC, and refrigeration technologies.
    - **Custom Incentive Program:** The Custom Program targets commercial, industrial, and institutional customers with complex and unique projects that don't align with other pre-defined programs. The program provides customer-specific incentive applications with calculations based on projected energy savings for each proposed measure, with projects exceeding $15,000 requiring onsite visits to verify baseline data and energy savings estimates and post-installation measuring capabilities**.**
    - **Small Business Direct Install (SBDI) Program:** The SBDI Program targets small non-residential customers under Small General Service Rate 2(M) encompassing commercial and institutional customers, but excluding multi-family customers who typically lack dedicated facility managers or resources to navigate traditional

efficiency programs. The program provides a simplified, immediate, and streamlined approach where approved Service Providers handle supply, installation, and paperwork to overcome barriers of high upfront costs, insufficient knowledge, and limited time and resources.

- **Retro-Commissioning (RCx) Program:** The RCx Program targets customers seeking to retro-commission existing facilities through comprehensive facility energy studies focusing on equipment optimization. The program provides retro-commissioning services through program-approved contractors designated as Retro-Commissioning Service Providers (RSPs) who conduct facility studies and a Virtual Commissioning component offered through Ameren Missouri's energy partner, Power TakeOff, that uses trained Energy Advisors reviewing energy data remotely to identify unexpected and wasted energy at no cost to small- and medium-sized business customers.
- **Business Demand Response (DR) Program:** The Business DR Program targets commercial, industrial, and institutional customers to reduce loads during peak demand periods through voluntary participation and customized load curtailment strategies. The program utilizes aggregators who handle customer recruitment, enrollment, load reduction nominations, and relationship maintenance to overcome barriers of limited knowledge about demand response benefits and operational concerns. Participants nominate their expected load reduction capacity and may use either direct load control or manual response methods. The program design accommodates both managed customers (with assigned account representatives) and unmanaged customers (engaged through aggregator outreach), with performance-based incentives tied to nominated capacity and actual curtailment performance during events.

In 2024, the Missouri Public Service Commission (PSC) contracted with the Evergreen Economics team to serve in the capacity of Independent Auditor to review the evaluation, measurement, and verification (EM&V) work undertaken by the ADM Associates evaluation team.

The audit team is required to review program evaluation activities and provide comments on compliance with 4 CSR 240-22.070(8) and the overall quality, scope, and accuracy of the program evaluation reports, as well as recommendations to improve the evaluation and reporting process.

A review of the PY2024 evaluation indicates that all evaluation reports data June 10, 2025, are well written, complete, and meet the minimum requirements for impact and process evaluations stipulated in 4 CSR 240-22.070(8).

1.1 Summary of Audit Conclusions and Recommendations

The audit team has reviewed the PY2024 evaluation reports and found them to be comprehensive and compliant with regulatory requirements. ADM Associates has provided thorough documentation of their evaluation methodologies and has appropriately applied TRM algorithms for savings calculations. The evaluation team has also addressed the five required process evaluation questions for all programs.

The evaluation reports demonstrate appropriate use of primary data collection methods, including participant surveys, trade ally interviews, and on-site verification for complex projects, and the use of AMI data to support evaluation activities through validating operating hours and baseline consumption.

The evaluation activities conducted by ADM Associates meet regulatory requirements and generally follow industry practices.

Our sole recommendation remains the same from the PY2023 audit. We recommend that for future years, a statewide Technical Reference Manual (TRM) should be developed so that the same reference document is used to calculate savings for both Ameren Missouri and Evergy. Currently there are separate (but similar) TRM's being used by each utility. Having a single TRM will help ensure that the savings calculations are being done consistently in cases where programs and measures are the same across territories.

2 Introduction

The Missouri Public Service Commission (PSC) established comprehensive evaluation requirements for demand-side management (DSM) programs through regulation 4 CSR 240-22.070(8), ensuring utilities demonstrate program effectiveness and cost-efficiency. These requirements emerged from the 2009 Missouri Energy Efficiency Investment Act (MEEIA), which authorized electric corporations to implement PSC-approved efficiency programs aimed at achieving cost-effective demand-side savings.

Ameren Missouri has operated under three successive MEEIA program cycles: Cycle 1 (2013-2015, Case No. EO-2012-0142), Cycle 2 (2016-2019, Case No. EO-2015-0055), and the current Cycle 3 (2019-present, Case No. EO-2018-00211). Supporting regulations include 4 CSR 240-3.163, 4 CSR 240-3.164, 4 CSR 240-20.093, and 4 CSR 240-20.094.

The regulatory framework mandates comprehensive evaluations to "develop the information necessary to evaluate the cost-effectiveness and improve the design of existing and future demand-side programs and demand-side rates, to improve the forecasts of customer energy consumption and responsiveness to demand-side programs and demand-side rates and to gather data on the implementation costs and load impacts of demand-side programs and demand-side rates for use in future cost-effectiveness screening and integrated resource analysis."[1]

Per 4 CSR 240-22.070(8), utilities must conduct annual impact and process evaluations addressing specific criteria:

Impact Evaluations must:

- Estimate actual load impacts through pre/post participant analysis and/or control group comparisons
- Employ measurement protocols utilizing billing data, load research, metered data, building simulations, and survey responses
- Document market potential, participation rates, and program costs

Process Evaluations must address five core questions:

- Primary market imperfections in the target segment
- Appropriateness of target market definition
- Adequacy of measure mix for end-use needs

[1] 4 CSR 240-22.070(8) Evaluation of Demand-Side Programs and Demand--Side Rates

- Effectiveness of communication channels and delivery mechanisms
- Strategies to overcome market barriers and increase participation

For PY2024, the PSC engaged Evergreen Economics and Michaels Energy as Independent Auditors to assess ADM Associates' evaluation work. This audit verified regulatory compliance, evaluation quality, and methodological rigor through comprehensive review of evaluation reports, data collection instruments, survey results, and savings calculations.

3 Impact Evaluation Summary

This section summarizes the key findings and recommendations from the impact evaluations of Ameren Missouri's low-income, residential, and business energy efficiency program portfolio, as presented in the ADM Associates evaluation reports.

3.1 Summary of Impact Evaluation Methods and Results

3.1.1 Residential Portfolio

Residential Heating Ventilation and Air Conditioning (HVAC) Program

The Residential HVAC Program delivers energy and demand savings by incentivizing high-efficiency central air conditioning systems, heat pumps, and advanced thermostats for residential customers. The program serves both single-family and multifamily homeowners through two distinct delivery approaches: a Downstream Channel working directly with contractors at the installation point, and a Midstream Channel partnering with distributors to increase market availability of super-efficient equipment with SEER2 ratings of 18 or higher.

To calculate verified gross energy and demand savings, ADM used program participant data and engineering algorithms from the TRM. They also collected data through participant surveys, end-user surveys, trade ally surveys, and distributor interviews.

Residential Efficient Products Program

The Efficient Products Program is an umbrella program that incorporates various program partners, products, and program delivery strategies and is flexible by design. As the program evolves and program performance is tracked, Ameren Missouri may revise the assortment of eligible measures, incentive amounts, or qualification criteria. The program uses an online marketplace. The following measures are offered through the program:

- Advanced thermostats
- Power strips
- ENERGY STAR-certified heat pump water heaters (HPWHs)

Evaluation activities included program material and database reviews, an engineering analysis to verify ex ante savings values and estimate ex post gross impacts using the TRM algorithms, and participant surveys.

Pay As You Save Program

The PAYS Program offers on-bill financing enabling residential customers to access energy efficiency improvements including LED lighting, hot water measures, weatherization, and HVAC

upgrades. The program focuses on serving residential customers whose energy consumption exceeds typical usage patterns for comparable housing characteristics. The PAYS Program operates through a four-tier structure, progressing from initial home visits with direct installation of small measures (Tier 1), to comprehensive energy assessments (Tier 2), to development of customized retrofit plans (Tier 3), and finally to implementation of major efficiency improvements with on-bill financing (Tier 4).

The evaluation activities for PY2024 included review of participation data and gross impacts calculated based on TRM algorithms. A supplementary whole-building analysis was conducted using AMI interval data for 65 customers with Tier 4 measure installations.

A key challenge in PY2024 was that only 7 percent of participants completed the full process through Tier 4, limiting the program to 8 percent of its energy savings goal despite strong technical performance of installed measures.

Multifamily Market Rate Program

The Multifamily Market Rate Program continued operations in PY2024, offering comprehensive energy efficiency solutions for property owners and managers of multifamily buildings with four or more units. The program delivers concierge-style services designed to help participants navigate the complexities of implementing energy efficiency improvements across their properties.

PY2024 evaluation activities for the Multifamily Market Rate Program included reviewing program materials and the program tracking database and an engineering analysis. To calculate verified gross energy and demand savings, ADM used participant data and engineering algorithms from the TRM. Limited onsite visits were conducted at two properties covering five units.

Residential Demand Response Program

The Residential DR Program targets customers with eligible smart thermostats controlling central air conditioning or electric heating systems. Participants receive a $50 enrollment bonus and $25 annually. The program enrolled 50,563 accounts in PY2024 (up from 43,340 in PY2023) and conducted 15 events (13 summer, 2 winter) including locational, test, staggered, and winter event types.

ADM used a propensity score matching approach with non-participant customers to establish baselines, employing Euclidean distance matching based on energy usage patterns across different time periods. Weather normalization was performed using cooling/heating degree hours analysis. The evaluation also assessed energy optimization software impacts using matched comparison groups and fixed-effects panel regression.

3.1.2 Low-Income Portfolio

Business Social Services Program

The Business Social Services Program facilitates energy efficiency improvements for organizations serving low-income communities in federally designated opportunity zones. Eligible participants include nonprofit, tax-exempt, and commercial entities providing social services such as family support centers, healthcare facilities, homeless shelters, employment training organizations, and childcare providers. The program delivers fully-funded LED lighting upgrades and subsidized installations of other efficiency measures through approved Service Providers.

PY2024 evaluation activities utilized stratified random sampling based on predicted energy savings to select projects for detailed analysis. The evaluation team reviewed documentation for 29 sampled projects across six strata (ranging from projects under 20 MWh to those exceeding 180 MWh), achieving a relative precision of 8.0% at the 90% confidence level. The sampling approach enabled comprehensive verification of lighting installations, which comprised 100 percent of program participation and savings.

Multifamily Income-Eligible

The Multifamily Income-Eligible program provides comprehensive energy efficiency services for property owners and managers of buildings housing low-income residents. The program addresses financial and technical barriers by delivering cost-effective retrofits for multifamily properties with four or more units where residents meet income eligibility requirements. Program measures encompass lighting upgrades, HVAC improvements, weatherization, water heating efficiency, and refrigeration equipment.

Evaluation activities included program material and database reviews, and an engineering analysis to verify ex ante savings values and estimate ex post gross impacts using TRM algorithms. Limited onsite visits were conducted at three properties covering 36 units.

Single Family Income-Eligible

The Residential Single-Family Income-Eligible program is designed to provide whole-home energy efficiency upgrades to low-income customers living in single family properties, mobile homes, and triplexes and duplexes.

Evaluation activities included program material and database reviews, an engineering analysis to verify ex ante savings values and estimate ex post gross impacts using TRM algorithms. Limited onsite visits were conducted to provide qualitative feedback on measure installation practices.

3.1.3 Business Portfolio

Standard Incentive Program

The Business Standard program facilitates commercial and industrial energy efficiency upgrades through prescriptive rebates for proven technologies including lighting retrofits, HVAC improvements, motors, controls, and refrigeration systems. The program serves commercial,

industrial, and institutional customers through a network of registered Trade Allies and Market Partners who assist with project implementation and application processes.

The PY2024 evaluation sampled 106 projects across nine strata based on measure type and project size, achieving 9.2% relative precision at 90% confidence. The evaluation team conducted comprehensive documentation reviews examining audit reports, equipment specifications, and calculation methodologies. Verification activities ranged from on-site inspections for complex installations to remote verification through customer interviews and photo documentation for straightforward projects.

Custom Incentive Program

The Business Custom program is designed to promote energy awareness and installation of energy efficient technologies or services by providing incentives to offset the higher cost associated with completing these projects. The program applies to measures that are not deemed and do not fall under the Standard program.

The evaluation included engineering desk reviews and onsite verification for select end uses, with ADM utilizing AMI data to validate operating hours, baseline consumption, and to perform Option C whole-facility analyses where feasible.

Small Business Direct Install Program

The SBDI Program is designed to promote the installation of energy-efficient technologies in small businesses by removing barriers such as high upfront cost, lack of knowledge, and lack of time and resources to investigate energy efficiency opportunities. The program is tailored for small non-residential customers under the Small General Service Rate 2(M), encompassing commercial and institutional customers but excluding multi-family customers.

PY2024 evaluation activities included reviewing program materials and the program tracking database, and an engineering analysis using participant data and TRM algorithms. A stratified sampling approach was used based on predicted energy savings, yielding a gross savings estimate with a relative precision of 8.0% at the 90% confidence level.

Retro-Commissioning Program

RCx Program activities include conducting a retro-commissioning study, benchmarking existing building system performance levels, identifying operating system performance optimization improvements, and, where applicable, providing financial incentives to support implementation of program recommendations. The most common optimization measures involve compressed air, refrigeration, and building systems. The program also includes a Virtual Commissioning component for small- and medium-sized businesses.

Evaluation activities included desk reviews of project documentation and savings calculations, with ADM partnering with BrightLine Group for evaluation of the virtual commissioning component.

Business Demand Response Program

The Business DR Program engages commercial, industrial, and institutional customers through aggregators to voluntarily reduce load during peak periods using customized curtailment strategies. The program enrolled 1,040 accounts representing 207.92 MW of nominated capacity (152% of goal), spanning diverse industries with manufacturing and agriculture/mining providing the largest per-account reductions.

ADM utilized the program's established "highest 4 of 5" baseline methodology, using the four highest consumption days from the five most recent non-holiday weekdays preceding each event. Symmetrical baseline adjustments were applied based on the two-hour period before event dispatch, capped at 75 percent of provisional baseline. Weather sensitivity analysis was conducted but found minimal impact on overall results.

3.2 Portfolio Level Findings

In this section, we provide a summary of the energy savings and demand reduction goals and accomplishments across Ameren Missouri's PY2024 energy efficiency program portfolio, as reported by the evaluation teams. Key impact evaluation terms are defined as follows:

- **PSC-Approved Targets:** Annualized savings targets for the residential and commercial and industrial (C&I) sectors.
- ***Ex Ante* Gross Savings:** Annualized savings reported by Ameren Missouri or calculated using tracked program activity and the Ameren Missouri TRM savings values.
- ***Ex Post* Gross Savings:** Annualized savings calculated and provided by the evaluation team.
- ***Ex Post* Net Savings:** *Ex post* gross savings multiplied by the net-to-gross ratio, accounting for free ridership, participant spillover, and non-participant spillover.
- **Net-to-Gross (NTG) Ratio:** *Ex post* net savings divided by *ex post* gross savings.

Table 1 and Table 2 show Ameren Missouri's energy efficiency targets, *ex ante* gross values, *ex post* gross values, the *ex post* net savings (evaluated) and performance against savings goals.

Table 1: PY2024 Portfolio Energy Savings, MWh

Program	*Ex Ante* Gross Savings	Gross Realization Rate	*Ex Post* Gross Savings	NTG Ratio	*Ex Post* Net Savings	Net Target Savings	% of Net Target
Multifamily Income-Eligible	9,452	92%	8,674	100%	8,674	8,048	108%
Single Family Income-Eligible	752	85%	639	100%	639	1,087	59%
Business Social Services	5,706	106%	6,076	100%	6,076	5,012	121%
Total Low-Income Portfolio	**15,910**	**97%**	**15,389**	**100%**	**15,389**	**14,147**	**109%**
HVAC	36,200	107%	38,894	65%	25,281	23,031	110%
Efficient Products	5,637	96%	5,412	65%	3,518	3,367	104%
Multifamily Market Rate	497	122%	605	65%	393	5,013	8%
Pay As You Save	2,857	95%	2,720	65%	1,768	2,717	65%
Total Residential Portfolio	**45,192**	**105%**	**47,631**	**65%**	**30,960**	**34,128**	**91%**
Standard	38,224	101%	38,591	65%	25,084	39,547	63%
Custom	53,637	93%	49,805	65%	32,373	29,246	111%
Small Business Direct Install	6,323	94%	5,955	65%	3,871	7,981	49%
Retro-Commissioning	5,694	100%	5,709	65%	3,711	3,339	111%
Total Business Portfolio	**103,878**	**96%**	**100,060**	**65%**	**65,039**	**80,113**	**81%**
Total Portfolio	**164,980**	**99%**	**163,080**	**68%**	**111,388**	**128,388**	**87%**

Table 2: PY2024 Portfolio Demand Savings, MW

Program	*Ex Ante* Gross Savings	Gross Realization Rate	*Ex Post* Gross Savings	NTG Ratio	*Ex Post* Net Savings	Net Target Savings	% of Net Target
Multifamily Income-Eligible	2.61	90%	2.34	100%	2.34	2.21	106%
Single Family Income-Eligible	0.54	82%	0.44	100%	0.44	0.46	96%
Business Social Services	1.08	107%	1.15	100%	1.15	0.98	118%
Total Low-Income Portfolio	**4.24**	**93%**	**3.94**	**100%**	**3.94**	**3.65**	**108%**
HVAC	20.93	116%	24.26	65%	15.77	13.53	117%
Efficient Products	2.15	92%	1.98	65%	1.29	1.17	110%
Multifamily Market Rate	0.17	103%	0.18	65%	0.12	2.34	5%
Pay As You Save	1.45	96%	1.39	65%	0.90	1.48	61%
Total Residential Portfolio	**24.70**	**113%**	**27.81**	**65%**	**18.08**	**18.52**	**98%**
Standard	12.69	100%	12.74	65%	8.28	9.83	84%
Custom	16.14	101%	16.34	65%	10.62	13.06	81%
Small Business Direct Install	1.20	95%	1.14	65%	0.74	1.59	47%
Retro-Commissioning	2.24	102%	2.29	65%	1.49	1.39	107%
Total Business Portfolio	**32.26**	**101%**	**32.51**	**65%**	**21.13**	**25.87**	**82%**
Total Portfolio	**61.20**	**105%**	**64.26**	**67%**	**43.15**	**48.04**	**90%**

For the energy efficiency portfolio, the PY2024 programs achieved 87 percent of the overall portfolio savings goals. Similarly, for demand impacts the energy efficiency programs achieved 90 percent of the overall portfolio target for PY2024.

There were also two demand response focused Ameren programs in PY2024. The Residential Demand Response Program achieved 62 percent of demand reduction goals, and the Business Demand Response Program achieved 123 percent of goals. Overall, the two demand response focused programs achieved 103 percent of their demand reduction goals.

4 Process Evaluation Summary

The PY2024 evaluation included process evaluation activities for all programs to meet the requirements for demand-side process evaluations as set by the Public Service Commission in 4 CSR 240-22.070(8).[2]

The evaluation reports confirm that the evaluation team addressed the five required process evaluation questions. Each report contains dedicated sections under "Process Evaluation Findings" that specifically address these five questions:

- **Question 1:** What are the primary market imperfections common to the target market segment?
- **Question 2:** Is the target market segment appropriately defined, or should it be further subdivided or merged with other market segments?
- **Question 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?
- **Question 4:** Are the communication channels and delivery mechanisms appropriate for the target market segment?
- **Question 5:** What can be done to more effectively overcome the identified market imperfections and to increase the rate of customer acceptance and implementation of each end-use measure included in the program?

The reports documents how the evaluation team used various data collection methods to address these questions, including:

- Participant surveys
- Trade ally interviews
- Nonparticipant surveys
- Program staff interviews
- Documentation reviews

The audit team's review of the PY2024 evaluation reports confirmed that the evaluation team addressed all five key questions with substantive, updated responses that directly tie to the most recent evaluation results.

[2] *Rules of Department of Economic Development, Division 240 - Public Service Commission, Chapter 22 - Electric Utility Resource Planning.* 2011. https://www.sos.mo.gov/cmsimages/adrules/csr/current/4csr/4c240-22.pdf

5 Cost Effectiveness

5.1 Overview

This section presents our review of the cost-effectiveness results from the PY2024 evaluation reports. The PY2024 audit approach focused on comparing reported cost-effectiveness ratios between program years (i.e., to PY2023) to verify consistency and reasonableness of the results, as well as validating results against DSMore outputs.

The PY2024 cost-effectiveness analysis was conducted by Integral Analytics using DSMore software, the same financial modeling tool used in previous years. DSMore calculates the value of energy efficiency measures on an hourly basis, accounting for variations in weather patterns and energy costs using over 30 years of historical weather data.

5.2 Methodology

Our audit approach for PY2024 consisted of:

- **Verification:** Confirm that the reported program summary values and reported costs matched those in the DSMore results files.
- **Cross-Year Comparison Analysis**: Compare the PY2024 cost-effectiveness ratios (Table 3, Table 4 and Table 5) and net lifetime benefits (Table 6 and Table 7) against the PY2023 values.

5.3 Cost-Effectiveness Evaluation Findings

The Evergreen team reviewed the reported summary cost-effectiveness ratio values for all five cost-effectiveness tests and compared them to the DSMore file values. No discrepancies were found.

Table 3, Table 4 and Table 5 compares the results of the cost effectiveness tests between PY2023 and PY2024 for the residential portfolio, low-income portfolio, and business portfolio, respectively.

Table 3: Cost-Effectiveness Ratios Comparison (PY2023 vs PY2024), Residential Portfolio

Program	Test	PY2023	PY2024
Residential HVAC Program	TRC	1.75	1.61
	UCT	1.94	1.96
	RIM	0.51	0.50
	PCT	6.01	5.41
	SCT	-	1.95
Residential Efficient Products Program	TRC	1.42	1.12
	UCT	1.55	1.21
	RIM	0.46	0.42
	PCT	5.59	5.64
	SCT	-	1.33
Pay As You Save® Program	TRC	0.37	0.13
	UCT	0.40	0.13
	RIM	0.24	0.11
	PCT	3.45	2.99
	SCT	-	0.15
Multifamily Market Rate Program	TRC	1.67	1.04
	UCT	1.35	0.93
	RIM	0.39	0.38
	PCT	11.87	8.19
	SCT	-	1.29
Residential Demand Response Program	TRC	1.38	0.90
	UCT	1.03	0.69
	RIM	0.99	0.68
	PCT	-	-
	SCT	-	0.90

Table 4: Cost-Effectiveness Ratios Comparison (PY2023 vs PY2024), Low-Income

Program	Test	PY2023	PY2024
Business Social Services Program	TRC	3.61	4.27
	UCT	1.82	1.90
	RIM	0.42	0.41
	PCT	9.91	16.09
	SCT	-	4.27
Multifamily Income Eligible Program	TRC	2.40	1.58
	UCT	1.25	0.79
	RIM	0.35	0.31
	PCT	11.43	10.72
	SCT	-	1.58
Single Family Income Eligible Program	TRC	0.61	0.38
	UCT	0.35	0.24
	RIM	0.23	0.18
	PCT	6.46	5.95
	SCT	-	0.38

Table 5: Cost-Effectiveness Ratios Comparison (PY2023 vs PY2024), Business Portfolio

Program	Test	PY2023	PY2024
Standard Incentive Program	TRC	3.20	2.85
	UCT	3.88	2.68
	RIM	0.58	0.56
	PCT	7.98	10.20
	SCT	-	3.90
Custom Incentive Program	TRC	1.68	3.09
	UCT	3.82	3.22
	RIM	0.69	0.59
	PCT	2.78	10.13
	SCT	-	4.01
Small Business Direct Install Program	TRC	3.20	2.30
	UCT	2.44	1.63
	RIM	0.45	0.40
	PCT	11.47	16.28
	SCT	-	3.75
Retro-Commissioning Program	TRC	3.65	3.63
	UCT	4.26	2.63
	RIM	0.80	0.76
	PCT	7.26	15.29
	SCT	-	5.57
Business Demand Response Program	TRC	4.26	4.24
	UCT	2.43	2.18
	RIM	2.35	2.17
	PCT	-	-
	SCT	-	4.24

The Evergreen team reviewed the net lifetime benefit and cost values from the TRC and UCT tests to confirm the reported values matched the DSMore aggregate file results. No discrepancies were found.

Table 6 and Table 7 presents the total net lifetime benefits from low-income, residential, and business programs reported in the PY2023 and PY2024 EM&V reports for both the TRC and UCT tests, respectively.

Table 6: Net TRC Lifetime Benefits per Program (PY2023 vs PY2024)

Portfolio	Program	Net TRC Lifetime Benefit	
		PY2023	PY2024
Residential	Residential HVAC Program	$9,736,640	$7,804,624
	Residential Efficient Products Program	$1,225,075	$245,549
	Pay As You Save® Program	($926,660)	($1,168,328)
	Multifamily Market Rate Program	$742,388	$51,260
	Residential Demand Response Program	$1,557,811	($494,713)
Low-Income	Business Social Services Program	$1,767,278	$2,965,539
	Multifamily Income Eligible Program	$3,407,521	$1,837,545
	Single Family Income Eligible Program	($548,238)	($847,500)
Business	Standard Incentive Program	$20,403,151	$12,943,926
	Custom Incentive Program	$12,343,167	$18,199,806
	Small Business Direct Install Program	$1,522,459	$1,384,255
	Retro-Commissioning Program	$1,483,093	$1,688,850
	Business Demand Response Program	$9,245,245	$9,639,849

Table 7: Net UCT Lifetime Benefits per Program (PY2023 vs PY2024)

Portfolio	Program	Net UCT Lifetime Benefit	
		PY2023	PY2024
Residential	Residential HVAC Program	$10,976,020	$10,071,454
	Residential Efficient Products Program	$1,486,311	$391,189
	Pay As You Save® Program	($820,073)	($1,192,845)
	Multifamily Market Rate Program	$481,033	($91,228)
	Residential Demand Response Program	$181,131	($1,909,280)
Low-Income	Business Social Services Program	$1,100,198	$1,834,413
	Multifamily Income Eligible Program	$1,150,666	($1,363,288)
	Single Family Income Eligible Program	($1,575,770)	($1,708,745)
Business	Standard Incentive Program	$22,013,914	$12,510,163
	Custom Incentive Program	$22,428,537	$18,549,154
	Small Business Direct Install Program	$1,305,748	$950,638
	Retro-Commissioning Program	$1,563,479	$1,443,624
	Business Demand Response Program	$7,100,126	$6,827,735

6 Audit Conclusions

ADM sufficiently addressed the comments the audit team made on the draft versions of the PY2024 evaluation reports. All cost-effectiveness values in the reports were verified with the DSMore file values.

Our sole recommendation is consistent with the prior audit: for future years, a statewide TRM should be developed so that the same reference document is used to calculate savings for both utilities. Currently there are two separate (but similar) TRM's being used by each utility, even though essentially the same programs are being offered in both territories. Having a single TRM will help ensure that the savings calculations are being done consistently in cases where programs and measures are the same across territories.