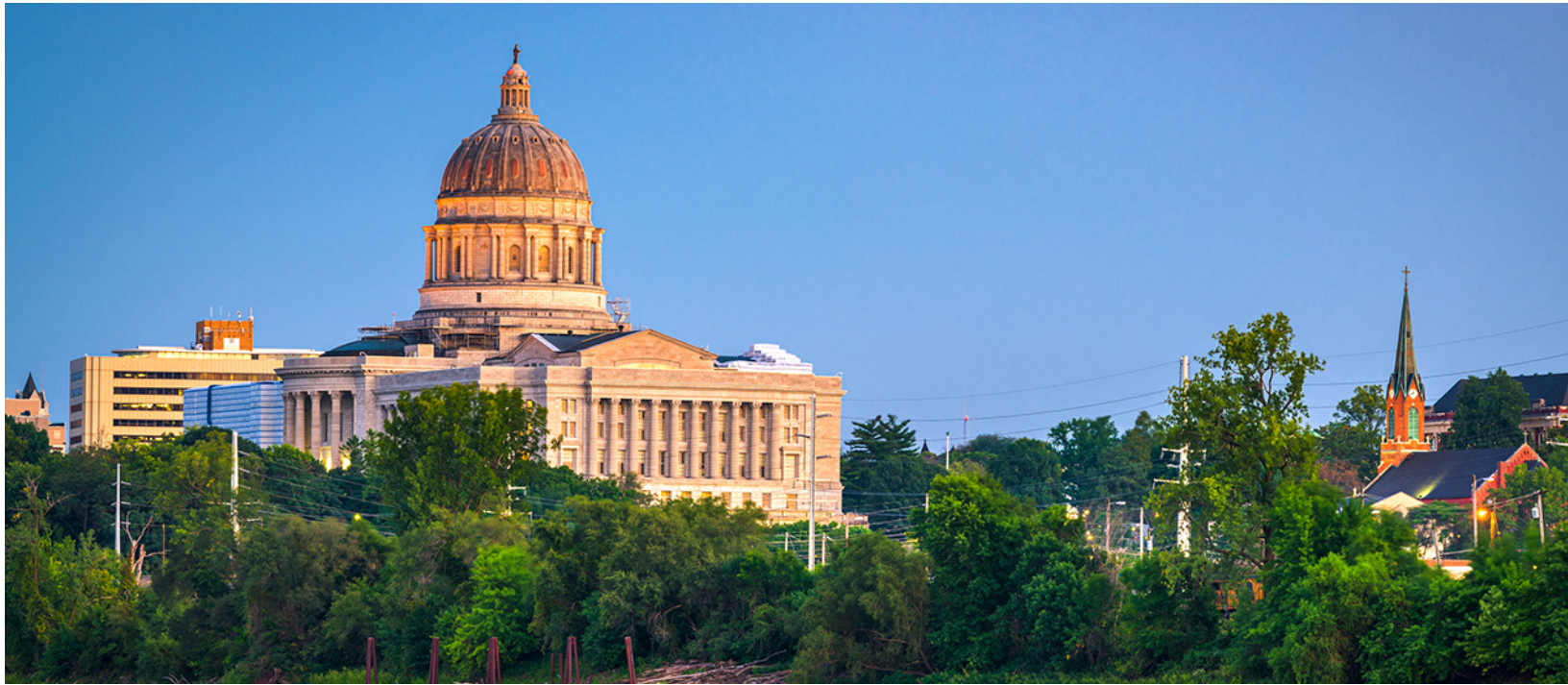




Independent EM&V Audit of the Ameren Missouri PY2023 Program Evaluations



Final Report

Submitted by Evergreen Economics

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MichaelsEnergy

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1 Executive Summary

In 2023, Ameren Missouri continued implementing its Missouri Energy Efficiency Investment Act (MEEIA) Cycle 3 DSM Programs. Ameren Missouri contracted with Opinion Dynamics and its subcontractors to conduct comprehensive evaluations of Ameren Missouri's energy efficiency portfolio for Program Year 2023 (PY2023).

The programs covered in this audit include:

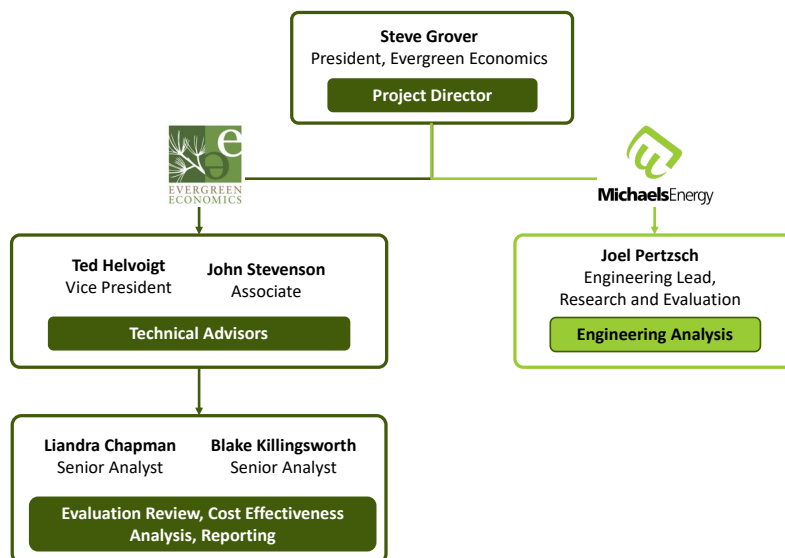
- **Heating and Cooling (HVAC)** – The Heating, Ventilation, and Air Conditioning (HVAC) Program obtains energy and demand savings through improvements in the operating performance of existing residential cooling units or replacement of central air conditioning (CAC) units and heat pumps. The program 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)** – This program is designed to raise customer awareness of the benefits of high-efficiency products and to educate residential customers to save energy cost-effectively. The program's target market is all of Ameren Missouri's residential customers.
- **Multifamily Market Rate (MFMR)** – The Multifamily Market Rate 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.
- **Pay As You Save (PAYS)** – 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.
- **Single-Family Income Eligible (SFIE)** – The Residential Single-Family Income Eligible Program, formerly known as the CommunitySavers 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. The program includes two participation channels: (1) the Single-Family channel; (2) the Grant channel.
- **Multifamily Income Eligible (MFIE)** – The Multifamily Income Eligible 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.



- Community LED Lighting Program** – The Community LED Lighting Program was launched in PY2022 by Ameren Missouri and is an upstream offering that provides discounted or free LEDs to income eligible communities throughout its service territory. Similar to the Residential Lighting Program offered in previous MEEIA cycles, Ameren Missouri continued to offer the rebates through the Discount Retailer channel. Additionally, a new delivery channel was introduced, which provides free LEDs to residential customers through partnerships with foodbanks located in communities with high concentrations of income eligible customers.
- Business Social Services (BSS)** – This 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** – Designed to help businesses identify and implement energy saving projects, the Business portfolio includes the Custom, Standard, Retro-Commissioning, and Small Business Direct Install programs.
- Demand Response** – The Residential and Business Demand Response programs are designed to control the cooling load with the help of smart thermostats to achieve peak demand savings and energy savings.

In 2023, 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 Opinion Dynamics evaluation team. Figure 1 shows the audit team members and organization, the individual team members by firm, and the associated audit responsibilities.

Figure 1: Evergreen Audit Team Organization





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 PY2023 evaluation indicates that all evaluation reports 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

Over the last year, the audit team has had several meetings with Opinion Dynamics on analysis methods and were able to reach an agreement on a few remaining evaluation issues. Opinion Dynamics has also addressed the comments the audit team made on a draft version of the PY2023 evaluation report. As a consequence, we have no additional comments or recommendations relating to the PY2023 evaluation.

Many of the audit issues in prior years were related to net impact estimation methods. For PY2023, however, the unanimous stipulation agreement directed the evaluation to use a net-to-gross ratio of 0.825 for most programs, while maintaining the existing 1.0 net-to-gross ratio assigned to the low income programs. As a result, there were no net impact issues remaining for the audit team to address in the current evaluation report.

Our sole recommendation is 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 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.

2 Introduction

The Missouri Energy Efficiency Investment Act (MEEIA) was passed in 2009, launching a new era for energy efficiency programs in Missouri. The Missouri Public Service Commission (the PSC) adopted four administrative rules (4 CSR 240-3.163, 4 CSR 240-3.164, 4 CSR 240-20.093, and 4 CSR 240-20.094, referred to as “MEEIA rules”) to implement MEEIA. MEEIA directs the PSC to permit electric corporations to implement PSC-approved demand side management (DSM) programs, with a goal of achieving cost-effective demand-side savings.

In 2009, the State of Missouri and Ameren Missouri reached an agreement to create Ameren Missouri’s suite of residential and commercial energy efficiency programs, which began in 2013 as MEEIA Cycle 1. The MEEIA Cycle 1 programs ended on December 31, 2015 for Ameren Missouri (Case No. EO-2012-0142). In early 2016, the PSC approved MEEIA Cycle 2 DSM programs for Ameren Missouri (Case No. EO-2015-0055). All Cycle 2 programs were implemented no later than the second quarter of 2016 and ended by February 28, 2019. In 2019, Ameren Missouri began implementing its Missouri Energy Efficiency Investment Act (MEEIA) Cycle 3 DSM Programs (Case No. EO-2018-00211).

To ensure that programs comply with Missouri’s rules regarding electric utility resource planning, the PSC has long-term resource planning rules that contain requirements for impact evaluations and process evaluations. The goal of the impact and process evaluations is “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

Key requirements of the evaluations as outlined in 4 CSR 240-22.070(8) include the following:

- Utilities are expected to complete annual full process and impact evaluations for each DSM program.
- At a minimum, impact evaluations should
 1. “develop methods of estimating the actual load impacts of each demand-side program” using one or both of the following methods:
 - a. Comparisons of pre-adoption and post-adoption loads of program participants, corrected for the effects of weather and other intertemporal differences”; and

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

- b. “Comparisons between program participants’ loads and those of an appropriate control group over the same time period”.
2. “develop load-impact measurement protocols that are designed to make the most cost-effective use of the following types of measurements, either individually or in combination: monthly billing data, load research data, end-use load metered data, building and equipment simulation models, and survey responses or audit data on appliance and equipment type, size and efficiency levels, household or business characteristics, or energy-related building characteristics”.
 3. Develop protocols to collect data regarding demand-side program market potential, participation rates, utility costs, participant costs, and total costs.
- At a minimum, the following five questions should be addressed:
 1. What are the primary market imperfections that are common to the target market segment?
 2. Is the target market segment appropriately defined or should it be further subdivided or merged with other segments?
 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 segment?
 4. Are the communication channels and delivery mechanisms appropriate for the target segment?
 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?

In 2023, the PSC contracted with Evergreen Economics and Michaels Energy (the Evergreen team) to serve in the capacity of EM&V Independent Auditor to review program evaluation activities. The audit involved verifying compliance with 4 CSR 240-22.070(8) in addition to assessing the overall quality, scope, and accuracy of the program evaluation reports. The following report presents the Evergreen team’s review of the Ameren Missouri program evaluations for PY2023.

To conduct this review, the Evergreen team conducted the following audit activities:

- Reviewed each program’s evaluation report in its entirety, including impact, process, and cost effectiveness methodologies and results;
- Reviewed the evaluation survey instruments and responses (where available) to confirm that the methodologies used were reasonable and consistent with best practices and that reported findings aligned with the data collected; and
- Reviewed specific evaluation tools and methodologies used for calculating program savings, including selected measure-level 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 Opinion Dynamics evaluation reports.

3.1 Summary of Impact Evaluation Methods and Results

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. The program includes two participation channels: (1) the Single-Family channel; (2) the Grant channel.

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. Interviews with the program manager and implementation staff were also conducted to understand any changes made to the program for PY2023.

Multifamily Income-Eligible

The Multifamily Income-Eligible program is designed to offer a one-stop-shop approach to assist owners and operators of multifamily properties where residents meet certain income-related requirements. The ultimate goal of the program is to overcome barriers to completing comprehensive retrofits in multifamily buildings and deliver long-term energy savings and bill reductions opportunities to Ameren Missouri customers. Eligible measures include lighting, HVAC, building shell, domestic hot water, and refrigeration measures.

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. Interviews with the program manager and implementation staff were also conducted to understand any changes made to the program for PY2023.

Business Social Services Program

The Business Social Services Programs target market consists of commercial, nonprofit, and tax-exempt business customers that provide social services to the low-income public in federally designated opportunity zones. The BSS Program offers no-cost LED interior lighting equipment and low-cost equipment of other end uses.

PY2023 evaluation used participation data and the TRM savings algorithms to estimate the gross energy and demand impacts. Interviews with the program manager and implementation staff were also completed to understand any changes that occurred in PY2023.

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. As in past years, the Efficient Products Program used two delivery channels including the downstream Mail-In channel and Online Store channel. However, the Online Store channel is the path that almost all participating Ameren Missouri customers use. The following measures are offered through the program:

- Advanced thermostats
- Tier 1 power strips
- Tier 2 power strips
- ENERGY STAR-certified heat pump water heaters (HPWHs)

A total of 16,750 measures were rebated through the Efficient Products Program in PY2023.

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 program manager and implementation staff interviews.

Heating Ventilation and Air Conditioning (HVAC) Program

The HVAC Program obtains energy and demand savings through improvements in the operating performance of existing residential cooling units or replacement of central air conditioning units and heat pumps. The program offers measures through two channels: a Downstream Channel that focuses on encouraging 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.

To calculate verified gross energy and demand savings, Opinion Dynamics used program participant data and engineering algorithms from the TRM. They also calculated the early replacement rate for HVAC systems based on the information provided by customers on their installation terms and conditions (program application) form.

Multifamily Market Rate Program

In PY2023, Ameren Missouri continued to deliver the Multifamily Market Rate Program that started in PY2019. The program is 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.

PY2023 evaluation activities for the Multifamily Market Rate Program included reviewing program materials and the program tracking database, an engineering analysis, and interviews with program manager and implementation staff. To calculate verified gross energy and demand savings, Opinion Dynamics used participant data and engineering algorithms from the TRM.

Pay As You Save Program

PAYS is an on-bill financing program 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.

The evaluation activities for PY2023 included program manager and implementer interviews, along with a review of participation data. Gross impacts were calculated based on TRM algorithms and included a more in-depth review of the Optimiser modeling for Tier1 and Tier 4 measures. A process evaluation explored how copay amounts affected customer attrition between program tiers; this analysis also examined how the time gap between tiers influenced these attrition rates.

Community Lighting

The Community Lighting program is an upstream offering that provides discounted or free LEDs to income eligible communities throughout its service territory. The program offers LEDs through the Discount Retailer channel and through partnerships with foodbanks located in communities with high concentrations of income eligible customers.

The evaluation activities included interviews with the program manager and implementation staff, program material review, and an engineering analysis to calculate verified gross energy and demand savings. A survey of participating food banks was attempted, but due to the very low response rates the survey results were not used to calculate updated in-service rates.

Standard Incentive Program

The Business Standard 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 provides incentives for a range of prescriptive measures.

The PY2023 evaluation included an engineering analysis of lighting measures using TRM algorithms and engineering desk reviews for additional projects. Program manager and implementation staff interviews were also conducted to obtain their perspectives on program operations and to understand any changes that occurred in the prior year.

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 PY2023 evaluation of the Custom program included engineering desk reviews and onsite verification for select end uses. Evaluation activities also included a program material review and interviews with program staff.

Retro-Commissioning Program

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.

Due to lower participation, the historical realization rate was applied to the PY2023 for the impact evaluation. Interviews with the program manager and implementation staff were also conducted for PY2023, along with a review of program materials.

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.

PY2023 evaluation activities included reviewing program materials and the program tracking database, an engineering analysis, and interviews with the program manager and implementation staff. To calculate verified gross energy and demand savings, Opinion Dynamics used participant data and engineering algorithms from the TRM.

3.1.1 Portfolio Level Findings

In this section, we provide a summary of the energy savings goals and accomplishments across Ameren Missouri's PY2023 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.

For energy impacts, the C&I sector was the largest contributor with 104,286 MWh in net savings, which was 65 percent of the total portfolio savings. The Low-Income sector achieved 180 percent of its energy impact goals, but was the smallest contributing sector at 15,562 MWh (10 percent of portfolio energy savings). Similar sector trends were observed for net demand savings and performance against goals.

Table 1: PY2023 Portfolio Energy Savings, MWh

Program	<i>Ex Ante</i> Gross Savings	Gross Realizatio n Rate	<i>Ex Post</i> Gross Savings	NTG Ratio	<i>Ex Post</i> Net Savings	Net Target Savings	% of Net Target
Community Lighting	9,843	162.8%	16,022	100%	16,022	3,610	444%
Multifamily Income-Eligible	7,371	95.7%	7,055	100%	7,055	5,853	121%
Single Family Income-Eligible	1,270	88.4%	1,122	100%	1,122	1,087	103%
Business Social Services	3,738	101.0%	3,775	100%	3,775	5,012	75%
Total Low-Income Portfolio	22,222	125.9%	27,974	100%	27,974	15,562	180%
HVAC	38,239	78.4%	29,966	82.5%	24,747	26,571	93%
Efficient Products	7,599	99.7%	7,575	82.5%	6,250	3,747	167%
Multifamily Market Rate	3,207	87.7%	2,814	82.5%	2,321	3,763	62%
Pay As You Save	865	84.4%	731	82.5%	603	7,713	8%
Total Residential Portfolio	49,910	82.4%	41,116	82.5%	33,921	41,794	81%
Standard	50,743	90.9%	46,149	82.5%	38,073	51,715	74%
Custom	48,082	85.5%	41,109	82.5%	33,915	37,075	91%
Small Business Direct Install	4,174	97.8%	4,085	82.5%	3,370	10,781	31%
Retro-Commissioning	3,148	98.8%	3,110	82.5%	2,566	4,715	54%
Total C&I Portfolio	106,147	89.0%	94,453	82.5%	77,924	104,286	75%
Total Portfolio	178,279	91.7%	163,543	85.5%	139,819	161,642	86.5%

Table 2: PY2023 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
Community Lighting	1.51	162.9%	2.46	100%	2.46	0.54	455%
Multifamily Income-Eligible	2.26	89.5%	2.03	100%	2.03	1.60	127%
Single Family Income-Eligible	0.63	89.6%	0.56	100%	0.56	0.46	123%
Business Social Services	0.73	102.0%	0.75	100%	0.75	0.98	76%
Total Low-Income Portfolio	5.13	112.9%	5.79	100%	5.79	3.58	162%
HVAC	25.03	74.1%	18.55	82.5%	15.30	15.61	98%
Efficient Products	2.76	99.7%	2.76	82.5%	2.27	1.32	172%
Multifamily Market Rate	1.23	81.4%	0.98	82.5%	0.81	2.06	39%
Pay As You Save	0.32	91.2%	0.29	82.5%	0.24	3.59	7%
Total Residential Portfolio	29.32	77.0%	22.58	82.5%	18.63	22.58	82%
Standard	14.29	98.6%	14.09	82.5%	11.63	12.85	90%
Custom	17.95	87.3%	15.67	82.5%	12.93	16.55	78%
Small Business Direct Install	0.80	101.0%	0.81	82.5%	0.67	2.14	31%
Retro-Commissioning	1.26	96.7%	1.22	82.5%	1.00	1.96	51%
Total C&I Portfolio	34.30	92.7%	31.79	82.5%	26.23	33.50	78%
Total Portfolio	68.75	87.5%	60.16	84.2%	50.65	59.66	84.9%

Figure 2 and Figure 3 highlight the savings achievements by sector and for the entire portfolio. For energy, the PY2023 programs achieved 86.5 percent of the overall portfolio savings goals. Similarly, for demand impacts the programs achieved 84.9 percent of the overall portfolio target for PY2023.

Figure 2: PY2023 Net Energy Savings by Sector (MWh)

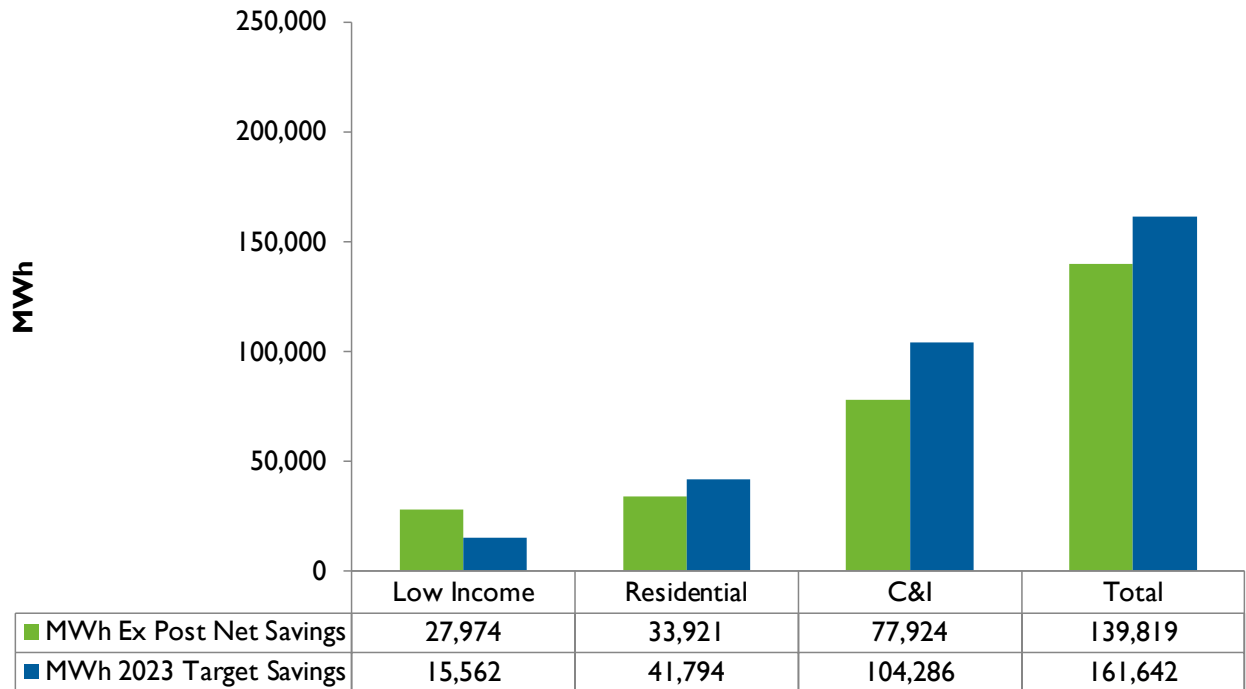
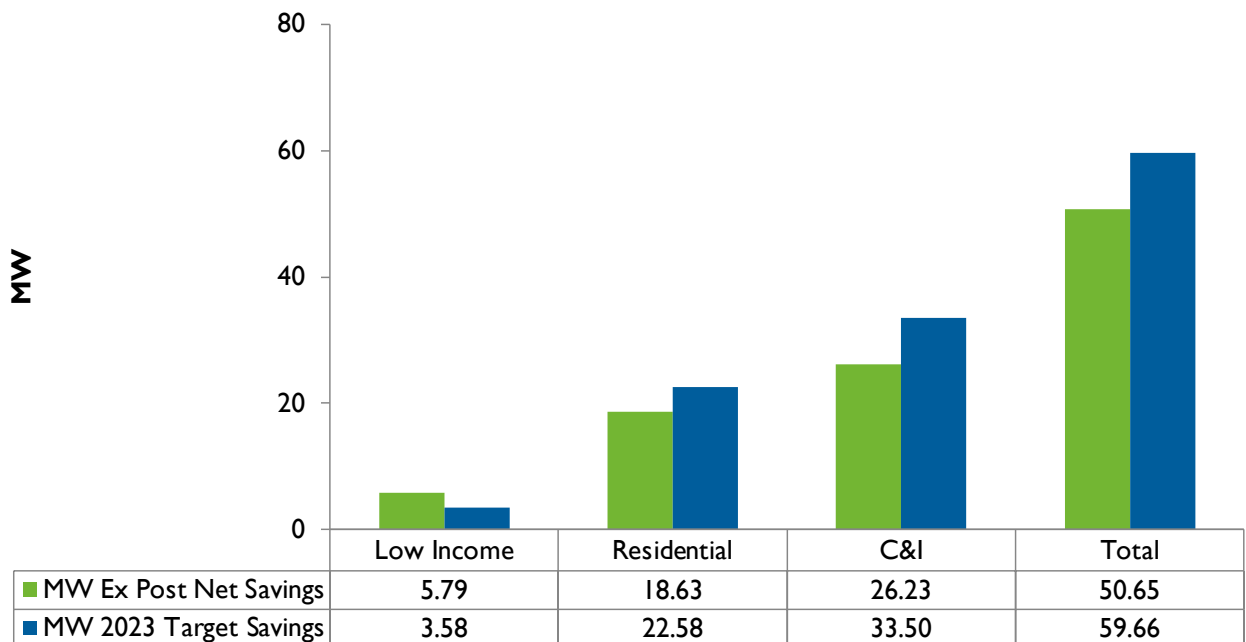
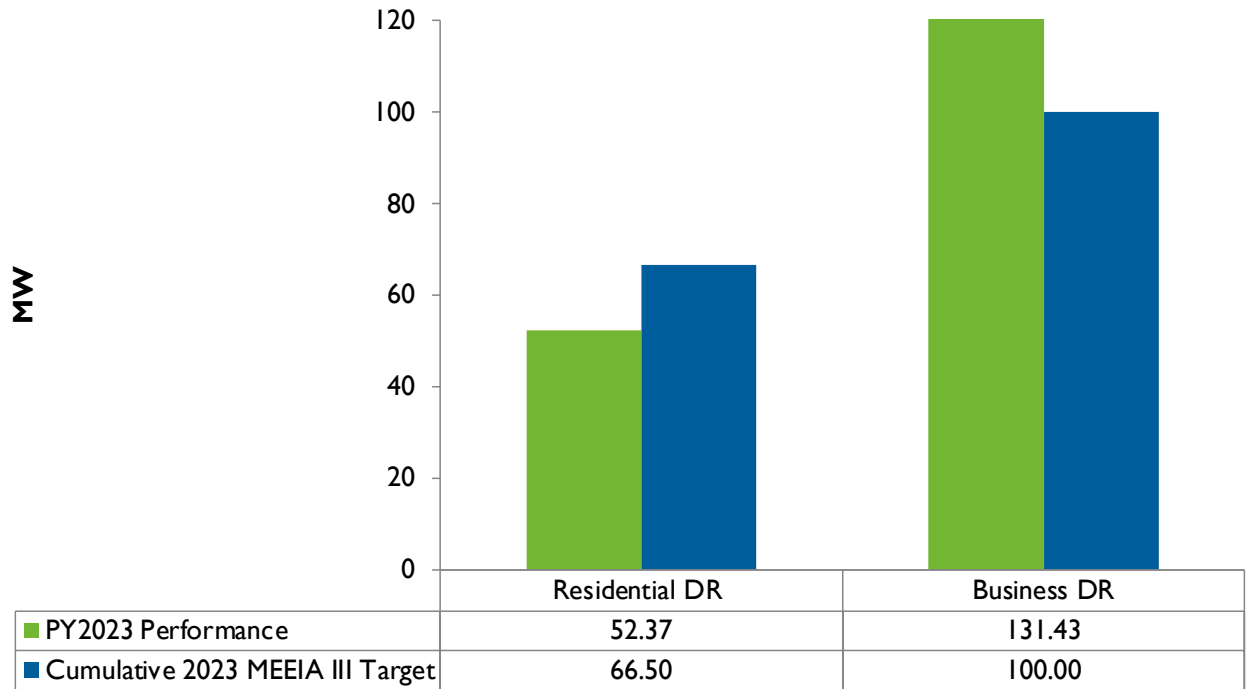


Figure 3: PY2023 Net Demand Savings by Sector (MW)



Finally, the demand response program savings and comparison with the cumulative MEEIA III savings targets is shown in Figure 4. The residential demand response programs remain short of the cumulative goals, while the business programs have exceeded their overall goal by 31 percent.

Figure 4: PY2023 Demand Response Program Impacts and Cumulative Targets (MW)





4 Process Evaluation Summary

In accordance with *Non-Unanimous Stipulation and Agreement Regarding the Implementation of Certain MEEIA Programs Through Plan Year 2023 and Motion for Expedited Treatment* (Stipulation PY2023) there were no formal process evaluations conducted for existing programs with the exception of some limited process evaluation conducted for the PAYS program. Additionally, interviews were conducted with the BizSavers program staff, along with analysis of participant tracking data for BizSavers and the demand response programs, that provided process-related information for PY2023.

Based on the evaluation results (predominantly from prior years), 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 team did respond to the five required process evaluation 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 audit team reviewed the responses in the PY2023 evaluation reports and found that the evaluation team provided substantive, updated responses to the five key questions that are clearly linked to the most recent evaluation findings.

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 Review of Cost Effectiveness

The Evergreen team reviewed low-income, residential, and business summary findings from the portfolio reports and the appropriate DSMore output files. This process involved reviewing the low-income, residential, and business program DSMore aggregate files to confirm that calculations were performed correctly. This review was similar to those conducted in prior audits, with specific tasks including the following:

- Confirm that the reported program summary values matched those in the DSMore results file;
- Confirm that the reported costs matched the costs included in the DSMore input files;
- Report current (PY2023) program results and compare against previous year results (PY2022).

Confirm summary values reported matched the values in the DSMore results files

The Evergreen team reviewed the reported summary cost-effectiveness values as well as the net lifetime benefit and cost values to confirm the reported values matched the DSMore aggregate file results. The review consisted of checking all five cost-effectiveness tests for both the residential and business portfolio files. No discrepancies were found.

Confirm that the reported costs matched the costs input into the DSMore cost-effectiveness input files;

The Evergreen team reviewed the costs reported in each DSMore aggregate file for each program and compared them against the reported costs in the evaluation reports. No discrepancies were found.

Table 3 presents the total net lifetime benefits from low-income, residential, and business programs reported in the PY2023 EM&V reports for both the TRC and UCT tests.

Table 3: PY2023 Net Lifetime Benefits per Program

Program	Net TRC Lifetime Benefit	Net UCT Lifetime Benefit
Single Family – Income Eligible	(\$548,238)	(\$1,575,770)
Multifamily – Income Eligible	\$3,407,521	\$1,150,666
Community Lighting	\$9,932,243	\$8,308,286
Pay As You Save	(\$926,660)	(\$820,073)
Business Social Services	\$1,767,278	\$1,100,198
Heating and Cooling	\$9,736,640	\$10,976,020
Efficient Products	\$1,225,075	\$1,486,311
Multifamily Market Rate	\$742,388	\$481,033
Residential Demand Response	\$1,557,811	\$181,131
Business Standard	\$20,403,151	\$22,013,914
Business Custom	\$12,343,167	\$22,428,537
Small Business Direct Install	\$1,522,459	\$1,305,748
Retro-Commissioning	\$1,483,093	\$1,563,479
Business Demand Response	\$9,245,245	\$7,100,126

Table 4 compares the results of the four cost effectiveness tests between PY2022 and PY2023.³

³ SCT results were calculated as part of the evaluation; however, they are excluded from the table below because they are equivalent to TRC results due to two factors: 1) Ameren Missouri does not include non-energy impacts in cost-effectiveness testing, and 2) Ameren Missouri uses the same planning assumptions for both tests, including the discount rate.

Table 4: Cost Effectiveness Test Results

Program	TRC		UCT		RIM		PCT	
	2022	2023	2022	2023	2022	2023	2022	2023
Single Family – Income Eligible	0.38	0.61	0.29	0.35	0.22	0.23	3.19	6.46
Multifamily – Income Eligible	1.30	2.40	0.81	1.25	0.37	0.35	5.31	11.43
Community Lighting	1.74	14.37	0.98	4.51	0.38	0.36	N/A	N/A
Pay As You Save	0.61	0.37	0.71	0.40	0.40	0.24	3.03	3.45
Business Social Services	3.41	3.61	1.95	1.82	0.56	0.42	7.56	9.91
Heating and Cooling	1.74	1.75	1.90	1.94	0.66	0.51	4.06	6.01
Efficient Products	1.24	1.42	1.36	1.55	0.53	0.46	3.94	5.59
Multifamily Market Rate	1.59	1.67	1.61	1.35	0.58	0.39	4.47	11.87
Residential Demand Response	1.33	1.38	0.93	1.03	0.92	0.99	N/A	N/A
Business Standard	3.22	3.20	3.97	3.88	0.79	0.58	6.24	7.98
Business Custom	1.55	1.68	3.60	3.82	0.92	0.69	1.86	2.78
Small Business Direct Install	3.02	3.20	2.51	2.44	0.61	0.45	8.00	11.47
Retro-Commissioning	2.61	3.65	2.53	4.26	0.65	0.80	6.09	7.26
Business Demand Response	1.44	4.26	1.44	2.43	1.36	2.35	N/A	N/A

6 Audit Conclusions

Over the last year, the audit team has had several meetings with Opinion Dynamics on analysis methods and were able to reach an agreement on a few remaining evaluation issues. Opinion Dynamics has also addressed the comments the audit team made on a draft version of the PY2023 evaluation report. As a consequence, we have no additional comments or recommendations relating to the PY2023 evaluation.

Many of the audit issues in prior years were related to net impact estimation methods. For PY2023, however, the unanimous stipulation agreement directed the evaluation to use a net-to-gross ratio of 0.825 for most programs, while maintaining the existing 1.0 net-to-gross ratio assigned to the low income programs. As a result, there were no net impact issues remaining for the audit team to address in the current evaluation report.

Our sole recommendation is that, for future years, a statewide TRM 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.