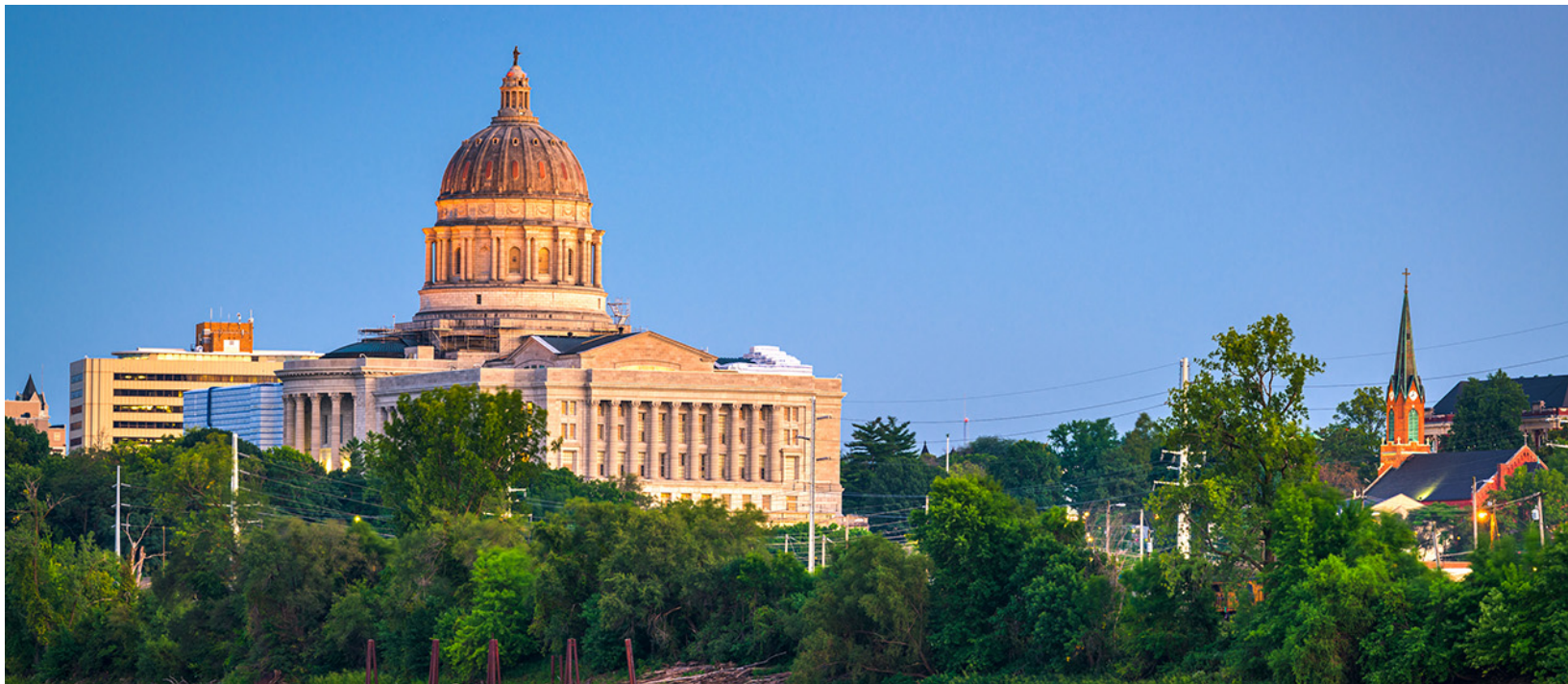




Independent EM&V Audit of the Evergy PY2021 Program Evaluations



Draft Report

Submitted by Evergreen Economics

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Michael'sEnergy

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1 Executive Summary

In January 2021, Evergy (formerly Kansas City Power and Light, KCPL), implemented its Missouri Energy Efficiency Investment Act (MEEIA) Cycle 3 Programs. The MEEIA Cycle 3 Programs covered in this audit include the following:

- **Business Standard Program** – Designed to help commercial and industrial (C&I) customers save energy through a broad range of energy efficiency options that address all major end uses and processes. The program offers standard rebates as well as mid-stream incentives. The measures incentivized included lighting, lighting controls, HVAC equipment, and motors.
- **Business Custom Program** - Offered to all Evergy C&I customers, the program provides incentives for a broad range of projects that do not fit within the Business EER – Standard program.
- **Process Efficiency Program** – In 2021 the program’s activities focused on providing retro-commissioning services. The program offers participants recommendations for higher cost system improvements, and incentives are offered on a \$/kWh basis to address the recommendations.
- **Heating, Cooling and Home Comfort** – Designed to help residential customers increase awareness and incorporation of energy efficiency into their homes by providing education and financial incentives. The program encourages home improvements that increase operational energy efficiency and home comfort and consists of three components: 1) Energy Savings Kit, 2) Insulation and Air Sealing, and 3) HVAC.
- **Energy Saving Products** – The program is designed to promote, cultivate, and facilitate the adoption of energy efficient products in residential settings. It is designed to expand both residential customer and sales associate knowledge of and familiarity with the advantages of various energy efficient products and promote efficient product adoption. Customers receive instant discounts for a variety of efficient measures including a selection of LED lighting measures, including standard, specialty, and smart bulbs.
- **Income-Eligible Multifamily** – The program provides income-eligible properties with assistance through energy assessments, program applications, technical support, and upgrade incentives. The program consists of three components: direct install, prescriptive, and custom measures.
- **Home Energy Report (HER) Program** – Distributes home energy reports by paper or mail to educate residential customers about their home energy usage and provides them with information designed to encourage behavior change in energy use.

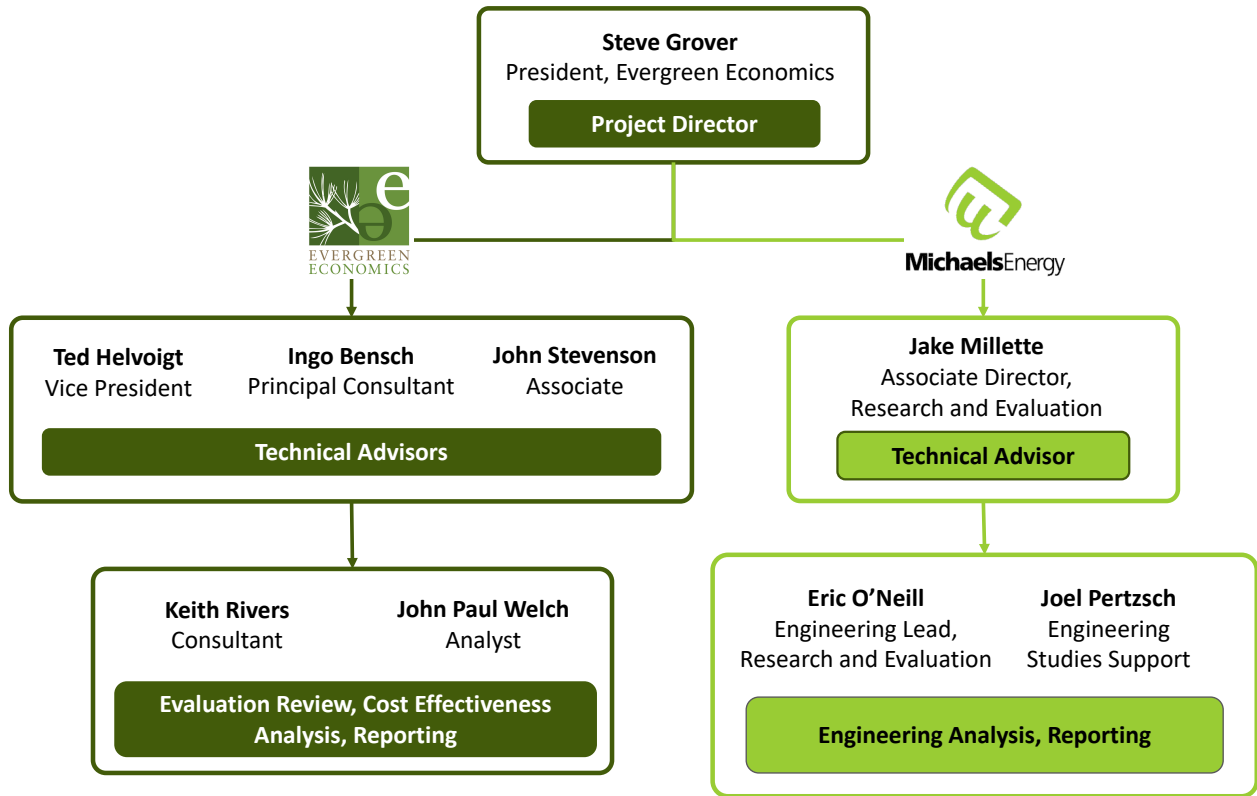
- **Income-Eligible Home Energy Report (IE-HER) Program** – Identical to the HER program except report messaging focuses on low- or no-cost ways to save energy.
- **Home Online and Business Online Energy Audit** – Opt-in online tools that provide energy-saving tips and help customers track their energy usage. The tools encourage customers to take energy-saving actions in their homes and businesses through individual actions and through participation in other Evergy energy efficiency programs. This program claims no savings.
- **Business Smart Thermostat** – Uses automatic event call technology to reduce energy use during peak demand periods. Customers receive notification on their smart thermostat, and a customer’s setpoint will increase between two- and five- degrees Fahrenheit.
- **Business Demand Response** – Provides rebates to C&I customers for curtailing their energy usage during system peak demand periods. When Evergy calls an event, participants reduce their load toward a pre-defined firm power level to create demand savings.
- **Residential Demand Response** – Provides rebates to residential customers for curtailing their energy usage during system peak demand periods. When Evergy calls an event, participants reduce their load toward a pre-defined firm power level to create demand savings. Called upon devices will increase a customer’s setpoint between two- and five- degrees Fahrenheit.
- **Pay As You Save Pilot** – Supports the adoption of energy efficient equipment in residential homes by offsetting the upfront cost associated with major home improvements and upgrades.

To ensure that programs comply with Missouri’s rules regarding electric utility resource planning, the PSC has rules requiring annual impact evaluations and process evaluations. Minimum requirements that evaluations must meet are stipulated in 4 CSR 240-22.070(8).

Evergy contracted with the evaluation teams led by Guidehouse, Inc. (Guidehouse) and ADM Associates (ADM). The evaluation teams conducted comprehensive impact and process evaluations of Evergy Metro’s and Evergy Missouri West’s energy efficiency portfolios in PY2021. For the purposes of this report, the evaluation teams will be referred to as “the Guidehouse team” and “the ADM team”.

In 2021, the Missouri Public Service Commission (PSC) contracted with Evergreen Economics and Michaels Energy (the Evergreen team) to serve in the capacity of EM&V Auditor. 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. Key findings of the Evergreen team’s review are summarized below.

1.1 Summary of Audit Conclusions and Recommendations

Over the last year the audit team has had several meetings with Guidehouse and ADM on analysis methods and were able to come to an agreement on several evaluation issues. Guidehouse and ADM have also addressed many of the comments we made on a draft version of the PY2021 report. Below we identify some remaining issues and areas where we believe the evaluations can be improved.

Free Ridership Estimates

There are several new programs this year where Guidehouse and ADM both assigned a NTG ratio of 1.0, implying that free ridership is zero.

Guidehouse applied a NTG ratio of 1.0 to the Process Efficiency program, a new program in PY2021 with very low participation. Guidehouse states that they will consider doing primary research in PY2022 to provide an updated NTG value, if there is sufficient participation.

We believe that the NTG of 1.0 for Process Efficiency is almost certainly too high, as all other C&I programs have NTG values less than 1.0. There is also no convincing evidence presented that the Process Efficiency is recruiting hard-to-reach customers, which might provide some justification for assuming zero free ridership and a NTG value of 1.0. If this issue is not researched in PY2022, we recommend that a NTG value from the other C&I programs be used as a placeholder in PY2022 and beyond if needed. For reference, the other PY2021 C&I programs had NTG ratios ranging from 0.79 (Standard) to 0.82 (Custom).

In the residential sector, there is the PAYS financing program for that was initiated in PY2021, and this program also had very low participation in PY2021. ADM assigned a NTG ratio of 1.0 for the PAYS program, and the program is scheduled to receive a full evaluation in PY2022 and therefore should receive an updated free ridership value next year.

Net-to-gross ratios of 1.0 are usually reserved for low income programs and sometimes pilot programs, and neither condition appears to apply to the programs listed above. For new programs, if primary research on free ridership is not conducted, a default 1.0 net-to-gross value should not automatically be assumed unless it is a low income program. In the cases of new programs such as PAYS, a net-to-gross ratio should be assigned from the literature (assuming an appropriately similar financing program can be found). If a comparable evaluation study is not available, then the average value from the relevant Evergy program sector (i.e., residential) should be assigned as a placeholder until the program can receive its own evaluation.

Finally, ADM cites interviews with the PAYS program managers as justification for the 1.0 NTG ratio. This is not appropriate. Free ridership needs to be estimated using data and methods that are as independent from the program implementers as possible, and the program managers clearly have a vested interest (and therefore an obvious conflict of interest) in reporting on free ridership. It is to be expected that the program managers believe free ridership is low for the PAYS program.

The audit team has long argued against using market actor interviews to estimate free ridership for this same reason; contractors and distributors have a clear incentive for telling evaluators that the incentives are effective and that free ridership is low. Customer surveys provide the most

unbiased perspective on the influence of the program, which is why the self-report survey method for a free ridership battery remains the most widely used method for estimating free ridership.¹

Existing Heating Type Assumptions

In the draft version of the report for the residential Heating, Cooling and Home Comfort (HCHC) program, the audit team questioned the assumptions used for existing heating system for the air sealing and attic insulation measures. For homes where heating type data were not available, ADM assumed a default baseline of electric heat for all homes, which results in much higher savings estimates. The audit team pointed out that ADM's default assumption of electric heat was too generous, as gas heat is very common and likely a more accurate assumption when no other information is available.

In response to our comment, ADM looked at homes where heat type information was available and found that approximately 95 percent were gas heat and 5 percent were electric. What ADM did not do was take the logical and expected next step and use this finding to adjust the PY2021 savings for these measures in the final evaluation report. We recommend that the savings be adjusted for PY2021 using the new allocation of heating system type (95% gas/5% electric) for the air sealing and attic insulation measures. This same allocation method should be applied in future years for those homes where existing heating type is not available.

Spillover Estimates in Residential Programs

Two of the largest Evergy residential programs are Energy Products and HCHC, and both of these include spillover adjustments that are not adequately supported by the evaluation research.

For the Energy Products program, the ADM report states that they “conducted a benchmarking study” of 8 different programs and took the average to get a participant spillover value of 7 percent. A more accurate description is that they referenced a benchmarking study that was conducted by a different firm and published in an evaluation report for Entergy Arkansas (2017). The table from the Entergy report is produced below along with the participant spillover values. Note that there are only 6 studies included (not 8), and the average from these studies is 8 percent, not 7 percent that ADM uses in their report.

¹ Sometimes the issue of social desirability bias is raised with customer surveys, with the theory that customers will tend to overstate the effectiveness of the rebates as they do not want to admit in the survey that they took the rebate money when it was not actually needed. In the audit team's experience, however, the issue of social desirability is greatly exaggerated; participants are often very forthcoming in surveys about how little a role the incentive played in their ultimate equipment decision.

Table 1: Studies Cited by ADM for Participant Spillover

Study	Participant Spillover
Progress Energy Carolinas 2012	7%
Xcel Energy Minnesota 2012	10%
Public Service Company of New Mexico 2013	11%
Xcel Energy Colorado 2015	8%
ComEd Illinois 2015	7%
Ameren Illinois 2015	7%
Average	8%

Source: Entergy Arkansas Evaluation Report PY2017 (Table 4-30)

There are significant problems with using these values for the Evergy Energy Products program. First, the reports are all outdated, with half from the 2012-2013 era when CFLs were still a significant part of residential lighting programs. Additionally, New Mexico has since eliminated spillover as being eligible for claimed savings for all its programs. A second issue is that the reports listed do not contain full reference information, just the title and year as shown in the table above, so it is difficult to determine if these programs are comparable to Evergy's in terms of design, rebate levels, and market outreach.

The Xcel Colorado study appears to include a lighting market study by Cadmus and therefore likely includes the same market analysis model that the audit team heavily criticized as part of the Ameren MO evaluations back when Cadmus was the lead evaluator. As ADM acknowledges in the stakeholder workshop on the draft report, at least one of these studies includes market effects in the spillover calculation, which are not allowed in Missouri. If the lighting market analysis in the Cadmus report is similar to what they did for Ameren MO in prior years, then market effects would be included in their estimate of spillover for Xcel Colorado.

Due to all these problems, we do not recommend that this list of reports be used to calculate participant spillover for the PY2021 Energy Products program. And since this same source was apparently used by ADM for PY2020, there is not an adequate recent value that we can apply to this program for PY2021. We recommend that participant spillover be set at zero for PY2021 and for future years until an acceptable value can be researched specific to the Energy Products program.

Non-participant Spillover

For the Heating, Cooling, and Home Comfort (HCHC) program the non-participant spillover rate is 14 percent, which is much higher than the 2 percent estimated for this same program for PY2020. ADM explains that the higher spillover rate is due to a larger sample for the non-participant population survey (1,026 in 2021 vs. 553 in 2020). However, the sample in PY2020 is large enough to produce representative results and so an increase in sample size should not lead to such a large increase in the spillover rate. With a representative sample in both years, we would not expect the spillover *rate* to change significantly, and certainly not have a 7X increase in a single year.

ADM provided the audit team with the NPSO measure breakdown along with the savings value, which are provided in the table below. Of the 247,202 kWh of non-participant spillover claimed in PY2021, 59 percent come from large equipment purchases (central AC, heat pumps, ductless heat pumps) and an additional 24 percent come from LED purchases. As discussed below, we have significant concerns with counting these measures as spillover.

Table 2: Measure Included in Residential NPSO Spillover

Measure	PY2020 Quantity	PY2021 Quantity	PY2021 kWh savings	% of PY2021 NPSO
Central AC	4	27	35,222	14%
Heat Pump		11	52,869	21%
Ground Source Heat Pump	0	6	52,805	21%
Ductless Heat Pump	0	4	6,899	3%
Air Sealing	2	17	18,056	7%
Attic Insulation	1	8	4,231	2%
LED lightbulbs	11	187	59,106	24%
Faucet Aerators	0	5	181	0%
Low Flow Showerheads	0	11	13,123	5%
Pipe Insulation	0	16	1,108	0%
Smart Power Strips	0	9	3,502	1%
Total	18	301	247,202	100%

The fundamental problem with the spillover estimate is that no evidence is provided that Evergy is having any influence at all on these non-participant purchases. To justify such a high spillover, the evaluators need to clearly show how knowledge of the Evergy program (or some other efficiency promotional work by Evergy) caused them to purchase an energy efficient measure outside the program.

In the non-participant survey, ADM screens possible spillover purchases by asking about awareness of the Evergy program. For the question of why the customer did not get a rebate (Q # NPSO3), the possible responses are:

1. Was not aware there was a rebate available
2. Did not have the time to complete rebate application
3. Found out about rebate too late
4. Contractor I worked with did not offer Evergy rebates/discounts
5. Submitted a rebate application that was rejected

If a respondent answers “Was not aware there was a rebate available” then they are ruled ineligible, and all other responses are automatically counted as non-participant spillover. But the response “Found out about the rebate too late” is essentially the same as being unaware. And the other responses “Contractor did not offer Evergy rebates” and “Submitted a rebate application that was rejected” both indicate that the measure might actually have been standard efficiency or otherwise ineligible for the program, and therefore should not be considered for spillover. None of these responses provide any evidence that Evergy had any influence on the equipment purchase.

Even with better response options, using a single question on awareness falls far short of what is required for developing a credible spillover estimate. Simple awareness of an Evergy program is not sufficient to show influence; more questions need to be asked to understand this relationship. At a minimum, respondents need to be asked about the influence that Evergy had on their purchase, and whether or not this influence was a major or minor factor in their final equipment choice.

For comparison, in the Ameren Missouri evaluation² ODC uses multiple questions to determine if a purchase should be counted as spillover. To qualify as non-participant spillover, the respondent and measure had to meet the following criteria:

- Aware that Ameren Missouri provides rebates or discounts on energy efficiency equipment or aware of at least one specific program.
- At least one element of Ameren Missouri’s program marketing and outreach motivated the respondent to adopt the measure.

² Ameren Missouri Program Year Volume 2: Residential Portfolio Appendices (June 10, 2022), p. 67.

- The respondent had a valid reason for considering the measure to be energy efficient.
- Though aware of Ameren Missouri rebates or programs, the respondent had a valid reason for not applying for an Ameren Missouri rebate/participating.
- The respondent had a valid energy saving reason for installing the measure.
- The measure generates electric savings (thermostats or water measures that could also generate gas savings)
- For recycled appliances, the appliance was removed from the electric grid.

We recommend that a similar multi-question screening process be applied for the Evergy residential programs.

An additional problem with the spillover questions is that there is no question that attempts to verify that the larger measures such as central air conditioners and heat pumps were actually an energy efficient model and not standard efficiency. When customers are asked about what they purchased outside the program, the responses include the label “energy efficient” but there is no other guidance provided as to what qualifies as “energy efficient”, and no other follow-up questions to confirm that they are in fact energy efficient. More questions need to be added to confirm that these purchases are truly energy efficient.

Another problematic issue is the inclusion of LED purchases as part of the spillover calculation, as LEDs through many channels are already rebated through Evergy’s upstream lighting program, and consumers often do not realize that they are receiving a discount from the program. As a result, much of the LED savings that are being counted as non-participant spillover are likely already being counted as savings through the upstream lighting portion of the Energy Products program. A follow up question could be asked as to which store they purchased the LED at, and then remove those LEDs that were purchased at stores that participate in the upstream lighting program.

A final problem is the inclusion of ‘non-like’ spillover measures in the NPSO calculation. It appears from the report text that non-like measures are included in both the participant and non-participant spillover estimates. The audit team has long maintained that spillover should only be calculated for measures that are eligible for the program, and measures that are considered ‘non-like’ would fall outside this definition. We recommend excluding non-like measures from all spillover calculations as it is much more difficult to attribute these purchases to the program or utility, and as noted above no evidence of Evergy influence on these purchases has been presented.

Due concerns about the scoring of the spillover questions, the lack of a credible link between Evergy program activities and the non-participant purchases, the possible double counting of LED savings, and the inclusion of non-like measures, we do not recommend that NPSO numbers be accepted for PY2021. For PY2021, we recommend that the NPSO revert back to 2 percent used in the PY2020 for the HCHC program.

Table 3 summarizes the recommended changes for PY2021 for the participant spillover and non-participant spillover values. We recommend that these values be used for future years until new spillover research can be conducted specific to the Evergy programs that addresses the problems identified above. Future values should also remove non-like measures for both the participant and non-participant spillover calculations.

Table 3: Recommended Changes to PY2021 Spillover

Program	PY2021 Evergy Report Value	PY2021 Audit Recommended Value
HCHC		
Participant SO	2%	2%
Non-participant SO	14%	2%
Energy Products		
Participant SO	7%	0%
Non-participant SO	0%	0%

Summary of Changes Recommended to PY2021 Savings

In summary, the audit team is recommending the following changes to the PY2021 Evergy savings numbers:

1. For the Heating, Cooling, and Home Comfort Program, change the NPSO rate from 14 percent to 2 percent. This reduces net savings for this program by 1,159,725 kWh (12%).
2. For the Energy Products Program, change the participant spillover rate from 7 percent to 0 percent. This reduces net savings for this program by 3,699,887 kWh (7%)
3. For the air sealing and insulation measures, change the baseline heating assumptions as discussed above to reflect a more accurate allocation of existing heating types between gas and electric. The effect on PY2021 savings is indeterminant as we could not calculate the impact from the information provided in the evaluation report. These comprise about 7 percent (517,683 kWh) of total HCHC net kWh savings, and this adjustment will substantially reduce the savings for these two measures.



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.³ MEEIA directs the PSC to permit electric corporations to implement Commission-approved demand side management (DSM) programs, with a goal of achieving cost-effective demand-side savings.

In 2009, the State of Missouri and Evergy reached an agreement to create Evergy Metro’s and Evergy Missouri West’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 KCP&L-MO (Case No. EO-2012-0142). In early 2016, the PSC approved MEEIA Cycle 2 DSM programs for KCP&L-MO (Case No. EO-2015-0055). For PY2020, program evaluation reports were filed for Evergy as part of Case No. EO-2019-0132.

The PY2021 Evergy programs covered in this audit include:

- **Business Standard Program** – Designed to help commercial and industrial (C&I) customers save energy through a broad range of energy efficiency options that address all major end uses and processes. The program offers standard rebates as well as mid-stream incentives. The measures incentivized included lighting, lighting controls, HVAC equipment, and motors.
- **Business Custom Program** - Offered to all Evergy C&I customers, the program provides incentives for a broad range of projects that do not fit within the Business EER – Standard program.
- **Process Efficiency Program** – In 2021 the program’s activities focused on providing retro-commissioning services. The program offers participants recommendations for higher cost system improvements, and incentives are offered on a \$/kWh basis to address the recommendations.
- **Heating, Cooling and Home Comfort** – Designed to help residential customers increase awareness and incorporation of energy efficiency into their homes by providing education and financial incentives. The program encourages home improvements that increase operational energy efficiency and home comfort and consists of three components: 1) Energy Savings Kit, 2) Insulation and Air Sealing, and 3) HVAC.

³ The PSC is currently in the process of revising the MEEIA rules.

- **Energy Saving Products** – The program is designed to promote, cultivate, and facilitate the adoption of energy efficient products in residential settings. It is designed to expand both residential customer and sales associate knowledge of and familiarity with the advantages of various energy efficient products and promote efficient product adoption. Customers receive instant discounts for a variety of efficient measures including a selection of LED lighting measures, including standard, specialty, and smart bulbs.
- **Income-Eligible Multifamily** – The program provides income-eligible properties with assistance through energy assessments, program applications, technical support, and upgrade incentives. The program consists of three components: direct install, prescriptive, and custom measures.
- **Home Energy Report (HER) Program** – Distributes home energy reports by paper or mail to educate residential customers about their home energy usage and provides them with information designed to encourage behavior change in energy use.
- **Income-Eligible Home Energy Report (IE-HER) Program** – Identical to the HER program except report messaging focuses on low- or no-cost ways to save energy.
- **Home Online and Business Online Energy Audit** – Opt-in online tools that provide energy-saving tips and help customers track their energy usage. The tools encourage customers to take energy-saving actions in their homes and businesses through individual actions and through participation in other Evergy energy efficiency programs. This program claims no savings.
- **Business Smart Thermostat** – Uses automatic event call technology to reduce energy use during peak demand periods. Customers receive notification on their smart thermostat, and a customer’s setpoint will increase between two- and five-degrees Fahrenheit.
- **Business Demand Response** – Provides rebates to C&I customers for curtailing their energy usage during system peak demand periods. When Evergy calls an event, participants reduce their load toward a pre-defined firm power level to create demand savings.
- **Residential Demand Response** – Provides rebates to residential customers for curtailing their energy usage during system peak demand periods. When Evergy calls an event, participants reduce their load toward a pre-defined firm power level to create demand savings. Called upon devices will increase a customer’s setpoint between two- and five-degrees Fahrenheit.
- **Pay As You Save Pilot** – Supports the adoption of energy efficient equipment in residential homes by offsetting the upfront cost associated with major home improvements and upgrades.

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.”⁴

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
 - 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, process evaluations should** address the following five questions:
 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?

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

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?

Evergy contracted with Guidehouse, Inc. and ADM Associates as the Evaluation, Measurement & Verification (EM&V) contractors to conduct comprehensive impact and process evaluations of Evergy Metro's and Evergy Missouri West's energy efficiency portfolio. Guidehouse evaluated the commercial energy efficiency programs, and ADM conducted evaluations of the residential energy efficiency and demand response programs.

In 2021, the PSC contracted with Evergreen Economics and Michaels Energy (the Evergreen team) to serve in the capacity of EM&V Auditor 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. The following report presents Evergreen Economics' review of the Evergy Metro and Evergy Missouri West program evaluations for PY2021.

To conduct this review, the Evergreen team conducted the following 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;
- Verified that the cost effectiveness calculation inputs used the final net impact numbers from the final evaluation reports; and
- Reviewed specific evaluation tools and methodologies used for calculating program savings, including selected measure-level savings calculations, and survey methods for developing net program impacts.

The remainder of this audit report is organized as follows. First, a summary of the impact and process evaluation results are provided in the following sections. After these summaries, we present our review of the cost effectiveness calculations where we confirm that the calculation inputs used match the results from the PY2021 evaluation. The final section presents the audit conclusions and recommendations.

3 Impact Evaluation Summary

This section summarizes the results and key findings and recommendations from the impact evaluations of Evergy Metro’s and Evergy Missouri West’s residential and business energy efficiency program portfolios.

3.1 Summary of Impact Evaluation Methods

Guidehouse and ADM followed the Missouri Code of State Regulations 4 CSR-240-22-070 (8), completing impact evaluations for each Evergy Metro and Every Missouri West program that reported energy savings in 2021. Missouri regulations state that programs should be evaluated using one or both methods and one or both protocols detailed below.

1) *Impact Evaluation Methods*

“At a minimum, comparisons of one or both of the following types shall be used to measure program and rate impacts in a manner that is based on sound statistical principles:

- a) Comparisons of pre-adoption and post-adoption loads of program or demand-side rate participants, corrected for the effects of weather and other intertemporal differences.
- b) Comparisons between program and demand-side rate participants’ loads and those of an appropriate control group over the same time period.”

2) *Load Impact Measurement Protocols*

“The evaluator shall develop load impact measurement protocols designed to make the most cost-effective use of the following types of measurements, either individually or in combination:

- a) Monthly billing data, hourly load data, load research data, end-use load metered data, building and equipment simulation models, and survey responses.
- b) Audit and survey data on appliance and equipment type, size and efficiency levels, household or business characteristics, or energy-related building characteristics.”

Table 4 summarizes Guidehouse’s and ADM’s methods and protocols for each program. The labels in columns three and four align with the Missouri requirements discussed above.

Table 4: Impact Evaluation Methods and Protocols

Program	Evaluator	Impact Method	Impact Protocol	Description
Commercial and Industrial Programs				
Business Standard Program	Guidehouse	1a	2a and 2b	Tracking database review, deemed measure savings review
Business Custom Program	Guidehouse	1a	2b	Tracking database review, Desk/phone reviews, engineering analysis
Process Efficiency Program	Guidehouse	1a	2b	Tracking database review, engineering desk review
Residential Programs				
Heating, Cooling and Home Comfort	ADM	1a	2b	Tracking database review, deemed measure savings review, supporting documentation review, participant and general population surveys, ENERGY STAR data review
Energy Saving Products	ADM	1a	2b	Tracking database review, deemed measure savings review, general population surveys, ENERGY STAR data review
Income-Eligible Multifamily	ADM	1a	2b	Tracking database review, deemed measure savings review, property manager surveys, ENERGY STAR data review
Educational and Behavioral Programs				

Program	Evaluator	Impact Method	Impact Protocol	Description
Online Business Energy Audit*	Guidehouse	N/A	N/A	N/A
Online Home Energy Audit*	ADM	N/A	N/A	N/A
Home Energy Report	ADM	1b	2a	Tracking database review, participant and general population surveys, billing consumption data review, NOAA weather data review
Income-Eligible Home Energy Report	ADM	1b	2a	Tracking database review, participant and general population surveys, billing consumption data review, NOAA weather data review
Demand Response (DR) Programs				
Business Demand Response	ADM	1a	2a	Tracking database review, billing consumption data review, schedule of program events, NOAA weather data review
Residential Demand Response	ADM	1b	2a	Tracking database review, schedule of program events, NOAA weather data review
Business Smart Thermostat	ADM	1b	2a	Tracking database review, schedule of program events, NOAA weather data review
Products & Services Incubator				
Pay As You Save	ADM	1a	2a	Tracking database review, deemed measure savings review
Energy-Saving Trees	ADM	1a	2a	Tracking database review, deemed measure savings review, participant survey
Energy Efficiency Nonprofits	ADM	1a	2a	
HVAC Quality Install	ADM	1a	2a	

* No savings were claimed for this program in PY2021.

3.1.1 Net-to-Gross Calculation Methods

Guidehouse and ADM developed net-to-gross (NTG) ratios for selected Evergy Metro and Evergy Missouri West's programs to estimate net program savings. Net savings are the portion of total estimated savings that are directly attributable to a specific energy efficiency program. Net savings estimates typically account for one or more of the following:

- **Free Ridership (FR)** – Program savings attributable to program participants who would have implemented a program measure or practice in the absence of the program.
- **Participant Spillover (PSO)** – Additional energy savings achieved when a program participant installs energy efficiency measures or practices as a result of the program's influence outside the efficiency program.
- **Nonparticipant Spillover (NPSO)** – Additional energy savings achieved when a nonparticipant implements energy efficiency measures or practices because of the program's influence (e.g., through exposure to the program).

The NTG ratio for each program adjusts gross program savings to account for the presence of free ridership, participant spillover, and non-participant spillover. The general formula for calculating the NTG ratio is:

$$\text{NTG Ratio} = 1 - \text{FR rate} + \text{PSO rate} + \text{NPSO rate}$$

Guidehouse applied NTG ratios developed over the course of the MEEIA Cycle 3 in PY2021 for the Business Standard program, while the Custom program NTG ratio was estimated using the PY1 free ridership and participant spillover rates and a PY2 non-participant spillover rate. Additionally, Guidehouse applied a deemed NTG value of 1.0 for the Process Efficiency program due to only having two projects completed in PY2 that accounted for less than 1 percent of total portfolio savings. Guidehouse plans to conduct NTG research for the Process Efficiency program beginning in PY3. NTG ratios were not calculated by Guidehouse for the Business Online Energy Audit program as they did not claim savings.

ADM performed new research to determine NTG ratios for the Heating, Cooling, and Home Comfort and Energy Saving Products programs. ADM did not calculate an NTG ratio for the Home Online Energy Audit program as it did not claim any savings.

Additionally, ADM applied a deemed NTG ratio of 1.0 for the following programs in PY2021:

- The **Income-Eligible Multifamily** program, due to the specific targeting of the low-income sector and the small contributions of the program to the overall portfolio savings, which do not justify the cost of conducting primary research needed to adjust the NTG ratio from stipulated values.

- The **Demand Response** programs (Business Demand Response, Residential Demand Response, and Business Smart Thermostats), because customers are compensated only if they reduce their load during the peak demand window, presumably eliminating spillover and free ridership.
- The **Home Energy Reports** program because it is designed as a randomized control trial.

3.2 Summary of Impact Evaluation Findings

In this section, we provide a summary of the energy savings goals and accomplishments across Evergy Metro and Every Missouri West's energy efficiency program portfolio. Table 5 and Table 6 show Evergy Metro's energy efficiency targets, *ex ante* gross values, *ex post* gross values, the *ex post* net savings (evaluated) and net achievement compared to the targets for energy savings (kWh) and demand reductions (kW), respectively. Table 7 and Table 8 show these same values compared to energy savings (kWh) and demand reductions (kW) for Evergy Missouri West. To ensure clarity, these terms are defined as follows:

- **Ex Ante Gross Savings:** Annualized savings reported by Evergy Metro and Evergy Missouri West or calculated using tracked program activity to TRM savings values.
- **Ex Post Gross Savings:** Annualized savings calculated and provided by the evaluation team.
- **Net Savings Ex Post:** *Ex post* savings multiplied by the NTG ratio, accounting for free ridership, spillover effect, and market effects.
- **PSC-Approved Targets:** Annualized savings targets for the residential and commercial and industrial (C&I) sectors.

Table 5 summarizes the Evergy Metro results for energy savings. Evergy Metro's commercial portfolio achieved 19 percent of the three-year target net savings goal in 2021 at 20,100,169 kWh. The Business Standard and Custom programs reached 15 percent and 39 percent of their targets respectively.

In contrast, the residential portfolio achieved 115 percent of the three-year target net savings goal in 2021 at 18,072,603 kWh. Of the three residential programs, only the Energy Saving Products program reached its three-year target, achieving 147 percent of its goal. The Heating, Cooling, and Home Comfort and the Income-Eligible Multifamily programs achieved 58 percent and 83 percent of their targets respectively.

The Home Energy Reports and the Income-Eligible Home Energy Reports programs collectively met 133 percent of their target net savings in 2021 at 16,654,895 kWh. More specifically, the Home Energy Reports program met 158 percent of its target, while the Income-Eligible program met 51 percent of its savings goal.



The Pilot Portfolio achieved 22 percent of the three-year net savings goal in 2021 at 412,560 kWh. The Energy Saving Trees, Quality Install, and Energy-Efficiency Non- Profit pilots achieved 23 percent of their combined target, while the Pay As You Save pilot met 6 percent of its savings goals.

Finally, the demand response portfolio achieved 66 percent of the three-year target net savings goal in 2021 at 913,534 kWh. Although the Business Demand Response program did not claim any savings in 2021, the Business Smart Thermostat and Residential Demand Response programs met 65 percent and 66 percent of their savings goals respectively.

Table 5: Evergy Metro Portfolio Energy Savings in PY2021, kWh

Program	Evaluator	Ex Ante Gross Savings	Ex Post Gross Savings	Gross Realization Rate	MEEIA 3-Year Cycle 3 Targets	Net Savings Ex Post	% of Target Reached
Business Standard Program	Guidehouse	11,162,365	10,386,880	93%	53,977,377	8,216,022	15%
Business Custom Program	Guidehouse	13,412,567	14,563,905	109%	30,239,803	11,884,147	39%
Process Efficiency Program	Guidehouse	0	0	N/A	19,454,539	0	0%
Total Commercial Portfolio		24,574,932	24,950,785	102%	103,671,720	20,100,169	19%
Heating, Cooling and Home Comfort	ADM	3,794,464	3,559,472	94%	4,814,841	2,800,318	58%
Energy Saving Products	ADM	24,864,849	23,687,319	95%	9,722,590	14,310,993	147%
Income-Eligible Multifamily	ADM	1,020,431	961,292	94%	1,160,994	961,292	83%
Total Residential Portfolio		29,679,744	28,208,083	95%	15,698,425	18,072,603	115%
Home Energy Report	ADM	17,764,315	15,173,099	91%	9,579,000	15,173,099	158%
Income-Eligible Home Energy Report	ADM	496,111	1,481,796	299%	2,928,146	1,481,796	51%
Total Educational Portfolio*		18,260,426	16,654,895	91%	12,507,146	16,654,895	133%
Pay As You Save	ADM	10,020	10,020	100%	155,855	10,020	6%
Energy-Saving Trees	ADM	186,388	178,419	96%		178,419	
Quality Install	ADM	3,447	3,545	103%	1,755,800	3,545	23%
Energy-Efficiency Non-Profit	ADM	220,576	220,576	100%		220,576	
Total Pilot Portfolio		420,431	412,560	98%	1,911,655	412,560	22%
Residential Demand Response	ADM	931,022	875,466	94%	1,329,516	875,466	66%
Business Smart Thermostat	ADM	19,306	38,068	197%	58,312	38,068	65%
Total Demand Response Portfolio**		950,328	913,534	96%	1,387,828	913,534	66%

*Online Energy Audit programs are not part of MEEIA Targets for Energy or Demand Savings.

**The Business Demand Response Program did not claim any energy savings.

Table 6 displays the Evergy Metro results for demand savings. The residential and education portfolios both exceeded their targets, achieving 122 percent and 179 percent of their respective goals. The commercial portfolio fared similarly to its energy savings performance, meeting 27 percent of its demand savings target.

Of the residential programs, the Energy Saving Products is the only program that met their goal, achieving 254 percent of their demand savings targets. The Heating, Cooling and Home Comfort met 86 percent of their goal, followed by the Income-Eligible Multifamily program which met 49 percent of its three-year target.

Similar to energy savings targets, the Pilot Portfolio achieved 19 percent of its demand savings targets in 2021 at 55 kW. The Quality Install and Energy-Efficiency Non-Profit met 20 percent of its combined target, while the Pay As You Save Pilot met 9 percent of its goal.

In contrast with its energy savings performance, the Demand Response portfolio met its demand savings goal, achieving 113 percent of its target demand savings. The Business Demand Response program was most successful, achieving 150 percent of its demand savings goal, while the Residential Demand Response and Business Smart Thermostat programs met 60 percent and 30 percent of their respective demand savings targets.

Table 6: Evergy Metro Portfolio Demand Savings in PY2021, kW

Program	Evaluator	<i>Ex Ante</i> Gross Savings	<i>Ex Post</i> Gross Savings	Gross Realization Rate	MEEIA 3 -Year Cycle 3 Targets	Net Savings <i>Ex Post</i>	% of Target Reached
Business Standard Program	Guidehouse	2,467	1,808	73%	8,523	1,430	17%
Business Custom Program	Guidehouse	2,451	2,768	113%	4,834	2,259	47%
Process Efficiency Program	Guidehouse	0	0	N/A	182	N/A	0%
Total Commercial Portfolio		4,918	4,576	93%	13,538	3,689	27%
Heating, Cooling and Home Comfort	ADM	2,661	2,640	99%	2,225	1,915	86%
Energy Saving Products	ADM	3,204	3,046	95%	725	1,839	254%
Income-Eligible Multifamily	ADM	123	113	92%	228	113	49%
Total Residential Portfolio		5,989	5,799	97%	3,177	3,866	122%
Home Energy Report	ADM	3,922	2,549	65%	1,200	2,549	212%
Income-Eligible Home Energy Report	ADM	172	249	145%	366	249	68%
Total Educational Portfolio*		4,095	2,798	71%	1,566	2,798	179%
Pay As You Save	ADM	2	2	100%	18	2	9%
Quality Install	ADM	4	4	100%	264	4	20%
Energy-Efficiency Non-Profit	ADM	49	49	100%		49	
Total Pilot Portfolio**		55	55	100%	281	55	19%
Business Demand Response	ADM	23,213	22,524	97%	15,000	22,524	150%
Residential Demand Response	ADM	6,425	5,979	93%	9,957	5,979	60%
Business Smart Thermostat	ADM	161	127	79%	426	127	30%
Total Demand Response Portfolio		29,799	28,630	96%	25,383	28,630	113%

*Online Energy Audit Programs are not part of MEEIA targets for Energy or Demand Savings

**The Energy-Saving Trees Pilot did not claim any demand savings.

Table 7 shows Evergy Missouri West’s energy efficiency targets, *ex ante* gross values, *ex post* gross values, the evaluated *ex post* net savings (evaluated) and net achievement compared to the targets for energy savings (kWh).

Evergy Missouri West’s commercial portfolio achieved 30 percent of the three-year target net savings goal in 2021 at 23,413,060 kWh. The Business Custom program reached its three-year target at 131 percent of the energy savings goal. The Business Standard and Process Efficiency programs reached 21 percent and 2 percent of their targets respectively.

The residential portfolio achieved 127 percent of the three-year target net savings goal in 2021 at 24,672,811 kWh. Both the Energy Savings Products and Income-Eligible Multifamily programs exceeded their energy savings goals, reaching 180 percent and 111 percent respectively. The Heating, Cooling, and Home Comfort program did not meet the target, achieving 59 percent of its goal.

The educational portfolio, consisting entirely of the Home Energy Reports program for energy savings, met 111 percent of its target at 22,654,916 kWh.

The Pilot Portfolio achieved 17 percent of the three-year net savings goal in 2021 at 338,727 kWh. The Quality Install and Energy-Efficiency Non-Profit pilots achieved 18 percent of their combined target, while the Pay As You Save pilot met 5 percent of its savings goals.

Finally, the demand response portfolio achieved 64 percent of the three-year target net savings goal in 2021 at 933,697 kWh. Although the Business Demand Response program did not claim any savings in 2021, the Business Smart Thermostat and Residential Demand Response programs achieved 80 percent and 63 percent of their savings goals respectively.

Table 7: Evergy MO West Portfolio Energy Savings in PY2021, kWh

Program	Evaluator	<i>Ex Ante</i> Gross Savings	<i>Ex Post</i> Gross Savings	Gross Realization Rate	MEEIA 3 -Year Cycle 3 Targets	Net Savings <i>Ex Post</i>	% of Target Reached
Business Standard Program	Guidehouse	11,967,648	12,439,712	104%	46,646,197	9,839,812	21%
Business Custom Program	Guidehouse	16,644,699	16,081,967	97%	10,016,241	13,122,885	131%
Process Efficiency Program	Guidehouse	467,795	450,363	96%	20,470,674	450,363	2%
Total Commercial Portfolio		29,080,142	28,972,042	100%	77,133,113	23,413,060	30%
Heating, Cooling and Home Comfort	ADM	6,796,548	6,140,260	90%	7,767,640	4,612,617	59%
Energy Saving Products	ADM	30,519,963	29,168,216	96%	10,416,978	18,743,260	180%
Income-Eligible Multifamily	ADM	1,429,036	1,316,934	92%	1,181,931	1,316,934	111%
Total Residential Portfolio		38,745,547	36,625,410	95%	19,366,549	24,672,811	127%
Home Energy Report	ADM	23,194,337	22,654,916	98%	20,355,375	22,654,916	111%
Total Educational Portfolio*		23,194,337	22,654,916	98%	20,355,375	22,654,916	111%
Pay As You Save	ADM	7,179	7,179	100%	155,855	7,179	5%
Quality Install	ADM	1,952	1,724	88%	1,860,665	1,724	18%
Energy-Efficiency Non-Profit	ADM	329,824	329,824	100%		329,824	
Total Pilot Portfolio		338,955	338,727	100%	2,016,520	338,727	17%
Residential Demand Response	ADM	944,615	888,248	94%	1,402,388	888,248	63%
Business Smart Thermostat	ADM	23,049	45,449	197%	56,736	45,449	80%
Total Demand Response Portfolio**		967,664	933,697	96%	1,459,124	933,697	64%

*Online Energy Audit Programs are not part of MEEIA targets for Energy or Demand Savings

**The Business Demand Response Program did not claim any energy savings.



Table 8 displays Evergy Missouri West's results for demand savings. Like Evergy Metro, Evergy Missouri West's residential and education portfolios both exceeded their targets, achieving 127 percent and 149 percent of their respective goals. The commercial portfolio met 42 percent of its of its target.

Of the residential programs, only the Energy Saving Products program met its goals, achieving 314 percent of its demand savings targets. The Income-Eligible Multifamily and Heating, Cooling, and Home Comfort programs met 87 percent and 88 percent of their respective targets.

The Pilot portfolio fared similarly to its energy savings goals, achieving 21 percent of its three-year demand targets. The Quality Install and Energy-Efficiency Non-Profit pilots met 22 percent of their combined targets, while the Pay As You Save pilot met 13 percent of its goal.

Evergy Missouri West's Demand Response portfolio fared better for demand savings than for energy savings, achieving 91 percent of its target at 57,677 kW. The Business Demand Response program was most successful, achieving 98 percent of its demand savings goal, while the Residential Demand Response and Business Smart Thermostat programs met 61 percent and 22 percent of their respective demand savings targets.

Table 8: Evergy MO West Portfolio Demand Savings in PY2021, kW

Program	Evaluator	<i>Ex Ante</i> Gross Savings	<i>Ex Post</i> Gross Savings	Gross Realization Rate	MEEIA 3 -Year Cycle 3 Targets	Net Savings <i>Ex Post</i>	% of Target Reached
Business Standard Program	Guidehouse	2,309	1,870	81%	7,514	1,479	20%
Business Custom Program	Guidehouse	3,774	2,894	77%	1,587	2,361	149%
Process Efficiency Program	Guidehouse	74	66	90%	227	66	29%
Total Commercial Portfolio		6,156	4,830	78%	9,328	3,907	42%
Heating, Cooling and Home Comfort	ADM	4,361	4,193	96%	3,392	3,001	88%
Energy Saving Products	ADM	3,928	3,690	94%	756	2,372	314%
Income-Eligible Multifamily	ADM	252	195	77%	223	195	87%
Total Residential Portfolio		8,541	8,078	95%	4,371	5,567	127%
Home Energy Report	ADM	4,303	3,806	88%	2,550	3,806	149%
Total Educational Portfolio*		4,303	3,806	88%	2,550	3,806	149%
Pay As You Save	ADM	2	2	100%	18	2	13%
Quality Install	ADM	2	2	80%	291	2	22%
Energy-Efficiency Non-Profit	ADM	61	61	100%		61	
Total Pilot Portfolio		66	65	99%	308	65	21%
Business Demand Response	ADM	50,388	51,095	101%	52,092	51,095	98%
Residential Demand Response	ADM	6,717	6,490	97%	10,609	6,490	61%
Business Smart Thermostat	ADM	167	93	56%	415	93	22%
Total Demand Response Portfolio		57,271	57,677	101%	63,116	57,677	91%

*Online Energy Audit Programs are not part of MEEIA targets for Energy or Demand Savings

Table 9 and Table 10 show estimated free ridership, spillover, and non-participant spillover rates along with the final NTG ratios for both Evergy Metro and Evergy Missouri West's 2021 program portfolios.

Table 9: Evergy Metro Portfolio Estimated Free Ridership, Spillover and NTG Ratio

Program*	Evaluator	Free Ridership	Participant Spillover	Non-participant Spillover	NTG Ratio
Business Standard Program	Guidehouse	25%	2%	2%	79%
Business Custom Program	Guidehouse	24%	4%	2%	82%
Process Efficiency Program	Guidehouse	-	-	-	100%
Online Business Energy Audit	Guidehouse	N/A - Savings not claimed in PY2			
Heating, Cooling and Home Comfort	ADM	37%	2%	14%	79%
Energy Saving Products	ADM	46%	7%	0%	60%
Income-Eligible Multifamily	ADM	ADM assumed a net-to-gross (NTG) value of 1.0 for the IEMF program			
Home Energy Report	ADM	Program is designed as a randomized control, NTG value of 1.0			
Products & Incubator Programs	ADM	ADM assumed a NTG value of 1.0 for the pilot programs			
Business Demand Response	ADM	ADM assumed a NTG value of 1.0 for the Demand Response Programs			
Residential Demand Response	ADM				
Business Smart Thermostats	ADM				

*NTG ratios are rounded to the nearest whole number.

Table 10: Evergy MO West Portfolio Estimated Free Ridership, Spillover and NTG Ratio

Program*	Evaluator	Free Ridership	Participant Spillover	Non-participant Spillover	NTG Ratio
Business Standard Program	Guidehouse	25%	2%	2%	79%
Business Custom Program	Guidehouse	24%	4%	2%	82%
Process Efficiency Program	Guidehouse	-	-	-	100%
Online Business Energy Audit	Guidehouse	N/A - Savings not claimed in PY2			
Heating, Cooling and Home Comfort	ADM	41%	2%	14%	75%
Energy Saving Products	ADM	43%	7%	0%	64%
Income-Eligible Multifamily	ADM	ADM assumed a net-to-gross (NTG) value of 1.0 for the IEMF program			
Home Energy Report	ADM	Program is designed as a randomized control, NTG value of 1.0			
Products & Incubator Programs	ADM	ADM assumed a NTG value of 1.0 for the pilot programs			
Business Demand Response	ADM	ADM assumed a NTG value of 1.0 for the Demand Response Programs			
Residential Demand Response	ADM				
Business Smart Thermostats	ADM				

*NTG ratios are rounded to the nearest whole number.

3.3 Summary of Key Impact Evaluation Recommendations

3.3.1 PY2021 Recommendations

Guidehouse and ADM provided recommendations from the PY2021 program evaluations that seek to guide and improve future impact evaluations. Table 11 below summarizes the evaluator recommendations by program.

Table 11: Evaluator Recommendations by Program

Program	PY2021 Recommendation
Business Standard Program	<p>Provide further guidelines, such as a lumen equivalency range, around what qualifies for the Interior LED 2x4 Linear Ambient Fixtures, Troffers, and Retrofit Kits replacing T8, T12, T5/T5HOs. Guidehouse also recommended this in the PY1 report.</p> <hr/> <p>Revise the savings calculations methodologies and inputs for DX Air measures.</p>
Business Custom Program	<p>The implementation contractor should provide unlocked analysis workbooks.</p> <hr/> <p>The implementation contractor should follow the methodology in the Indoor Horticulture Baseline Memo previously provided.</p> <hr/> <p>All indoor horticulture lighting be DLC-certified</p> <hr/> <p>The implementation contractor should use an 8,760 hourly analysis.</p>
Process Efficiency Program	<p>The implementation contractor should provide unlocked analysis workbooks.</p> <hr/> <p>The implementation contractor should include additional details in the analysis workbooks.</p>
Heating, Cooling, and Home Comfort	<p>Monitor installation rates on an ongoing basis for the Energy Savings Kit sub-program. The sub-program currently performs both direct install (~70 percent) to virtual install (~30 percent), and this comes with trade-offs of lower administration costs but greater risk of non-installation or measure removal. If the Energy Savings Kit sub-program is going to continue to perform virtual installs, additional customer resources, such as educational materials or a direct customer service line, may be needed to keep installation rates high.</p> <hr/> <p>Periodically review the incentive structure for higher-efficiency HVAC systems in the program. When examining the benefit-cost ratios for higher-efficiency HVAC systems, Evergy can assess if incentives can be or need to be revised. Metrics for this may assessment include:</p> <ul style="list-style-type: none"> - Percent of incremental cost covered by incentives. If incremental cost coverage is below 50 percent, Evergy can consider increasing incentives while remaining within boundaries of industry norms for this measure group. - Develop a simplified and more automated application process to reduce the load on trade allies. As it is, some trade allies reported that the application process has many required components that can be easily overlooked. Drop-down options with pre-programmed equipment and AHRI numbers could be utilized to reduce the time it takes for trade allies to look up the information themselves and would reduce input error. <hr/> <p>Add additional data collection requirements to the reporting fields for the program tracking data. The air sealing and attic insulation measures calculate energy savings based on the heating fuel type for each home. Savings are calculated differently based</p>



Program	PY2021 Recommendation
	<p>on whether a home is gas heated or electric heated. However, the heating fuel type is currently not being collected in the tracking data for all air sealing and attic insulation projects in the program, which causes the reported savings calculations to use a default assumption of an electric-heated home. Using the actual heating fuel type for each project would more accurately reflect the energy savings per home and would coincide with the verified savings calculations.</p> <hr/> <p>Consider adding additional measures to the Evergy TRM based on the current mix of measure in the program tracking data. Currently, there are measures in the 2021 program tracking data that are not specifically outlined in the Evergy TRM. This includes measures with multiple baselines as stipulated in the IL TRM. For example, a measure for an air sealing project in a gas heated home or a measure for a ground source heat pump project replacing an existing central AC are not currently included in the Evergy TRM. Adding additional measures to the Evergy TRM based on the program tracking data could help better align the reported and verified savings calculations.</p>
<p>Income-Eligible Multifamily</p>	<p>Consider including a data element to program tracking data that identifies a project property across all measure types (direct install, prescriptive and custom). This may reduce errors in aggregating project level analysis and evaluation. ICF reports that a data element that ties all project applications associated with a premise has been added to the tracking data.</p> <hr/> <p>Using primary key measure identifier for custom measures wherever possible could increase consistency of savings calculations and reduce the calculation burden for direct install or prescriptive measures installed under a custom project application as a custom measure.</p> <hr/> <p>Consider expanding the Evergy TRM to include measures that more accurately reflect measure models that are installed through the program, such as auto-defrost refrigerators.</p> <hr/> <p>Additional data entry controls to verify that unit savings are reported consistently could prevent reduced or inflated claimed savings and improve realization rates. For example, ensuring that LED bulb savings are reported by bulb rather than by fixture, could increase accuracy of reported savings.</p>
<p>Home Energy Report</p>	<p>Evergy and Oracle should assess whether changes made late in the current program year resulted in more thorough review by recipients and, if they did not have this effect, should consider carrying out additional research to determine what drives the thoroughness of report review and how to get customers to read them more thoroughly. Evergy and Oracle can determine whether the changes had the desired effect by continuing to assess customer readership and understanding of, as well as reactions to, the reports.</p>



Program	PY2021 Recommendation
	<p>Energy should consider doing additional research to assess what increases motivation or intent to engage in the recommended behaviors and use that information to increase the effectiveness of its various outreach efforts and tools.</p> <hr/> <p>If it has not yet done so, Oracle may also consider discontinuing the practice of telling recipients (and Energy Analyzer users) they are being compared to their “neighbors.” A one-mile radius encompasses far more homes than many individuals may consider to be a neighbor. This practice may reinforce an inaccurate interpretation of how the comparison is actually made.</p>
<p>Online Home Energy Audit</p>	<p>Energy should consider doing additional research to assess what increases motivation or intent to engage in the recommended behaviors and use that information to increase the effectiveness of its various outreach efforts and tools.</p>
<p>Business Demand Response</p>	<p>Energy staff should continue to work with both the DERMS database provider and the implementation contractor to improve the accuracy of capturing participant performance promptly. After each DR event, providing participant reports of savings will reinforce the program's value to these customers and perhaps encourage greater kW savings efforts.</p> <hr/> <p>The program implementer should continue to look for creative ways to market this program to smaller commercial and industrial customers by scaling the kW enrollment targets. This approach may be especially effective at reaching smaller customers in the more rural Missouri West jurisdiction.</p>
<p>Business Smart Thermostat</p>	<p>Energy staff should continue to reinforce customer messaging regarding program enrollment as there seems to be some lack of customer understanding about the timing of these events.</p> <hr/> <p>Energy should continue to offer free smart thermostats to entice new customers into the program.</p> <hr/> <p>The program implementation staff should continue to monitor activation rates through the multiple email strategy, which has led to noticeable increases in new enrollments.</p>
<p>Residential Demand Response</p>	<p>Energy staff should continue to reinforce customer messaging regarding program enrollment as there seems to be some lack of customer understanding about the timing of these events.</p> <hr/> <p>Energy should continue to offer free smart thermostats to entice new customers into the program.</p> <hr/> <p>The program implementation staff should continue to monitor activation rates through the multiple email strategy, which has led to noticeable increases in new enrollments.</p>

4 Process Evaluation Summary

This section summarizes key methods and findings from the PY2021 process evaluations of Evergy Metro’s and Evergy Missouri West’s residential and business energy efficiency program portfolios. The first subsection summarizes the process evaluation methods used by the evaluation teams and includes an assessment of how the process evaluation aligns with the minimum requirements for demand-side process evaluations set forth by the Missouri Code of State Regulations (CSR).

4.1 PY2021 Process Evaluation Findings

This subsection presents overall program process evaluation findings and evaluator recommendations.

4.1.1 Process Evaluation Findings

Guidehouse and ADM presented the process evaluation findings for each program in terms of responses to key evaluation research questions, and responses to the five required process evaluation questions set forth in 4 CSR 240-22.070(9). Overall, the process evaluation findings are complete, thorough, and respond to the mandated questions.

In the following sections, we summarize key process evaluation findings and recommendations.

4.1.2 Customer and Trade Ally Satisfaction

Evergy Metro and Evergy Missouri West’s programs appear to be performing to customer and trade ally satisfaction. The satisfaction results reported (on a five-point or ten-point scale) indicate that the programs are well run and are meeting the needs of customers and trade allies. Table 12 presents a summary of satisfaction results for the Evergy Metro and Evergy Missouri West’s programs.

Table 12: PY2021 Customer and Trade Ally Satisfaction Findings Summary

Program	Participant Satisfaction	Trade Ally Satisfaction
Business Standard Program	The average satisfaction rating for all categories was between 4.0 to 4.9, with the overall satisfaction rating being 4.6	Similar to participant satisfaction, the overall satisfaction rating for trade allies was a rating of 4.6 out of 5.
Business Custom Program	Guidehouse did not conduct participant surveys for the Business Custom Program in PY2021.	Trade allies reported a high level of satisfaction with the Business Custom program, with an overall average satisfaction rating of 4 out of 5.

Program	Participant Satisfaction	Trade Ally Satisfaction
Heating, Cooling and Comfort	97 percent of participants rated their satisfaction as a 4 or a 5.	69 percent of trade allies rated their satisfaction as a 4 or a 5.
Energy Saving Products	36 percent of participants were satisfied with the LED discount, 48 percent were satisfied with the savings on their electric bills, and 79 percent were satisfied with the quality of the LED measures.	N/A
Income-Eligible Multi-Family	90 percent of participants rated the overall program as a 4 or a 5.	N/A
Home Energy Report	Customers reported high overall satisfaction with Evergy, with 77 percent rating their satisfaction a 7 or higher on a 10-point scale.	N/A
Online Home Energy Report	Customers reported high overall satisfaction with Evergy, with 82 percent rating their satisfaction a 7 or higher on a 10-point scale.	N/A
Business Smart Thermostat	75 percent of participants rated their satisfaction with the program overall as a 4 or a 5.	N/A
Residential Demand Response	67 percent of participants rated their satisfaction with the program overall as a 4 or a 5.	N/A
Business Demand Response	65 percent of participants rated their satisfaction with the program overall as a 4 or a 5.	N/A
Pay As You Save	Average customer satisfaction of the energy assessment was a 7.9 on a 10-point scale.	N/A

4.2 Summary of Key Process Evaluation Recommendations

Based on the evaluation findings, Guidehouse and ADM provided overall evaluation conclusions and recommendations for each PY2021 program. Table 13 summarizes the evaluators' recommendations by program.

Table 13: PY2021 Key Process Evaluation Recommendations

Program	PY2021 Recommendation
Business Standard Program	<p>Some customers do not have the lighting knowledge in-house to understand the differences between the lighting measures offered by the program. It also appears there is some confusion on the part of the trade allies. The program should continue efforts to offer additional education, technical support, and potentially new measure categories to:</p> <ul style="list-style-type: none"> • Help customers identify energy efficient lighting projects • Help customers and trade allies with the application process such that they apply for the most appropriate measure category. • Identify areas where there continues to be confusion and provide specific training and examples to address this confusion. <p>The increase in incentives in July 2020 through the end of PY1 helped address the high capital cost of entry for small business customers. This incentive increase was not in place in PY2. Evergy could consider repeating this incentive increase to drive participation in PY3.</p> <hr/> <p>The program should continue efforts to increase participation among the school strata and small businesses such that certain business types do not dominate the program. These efforts have included targeted webinars explaining the benefits of implementing energy conservation, increased incentives for small businesses, and direct outreach to public sector and municipal customers.</p> <hr/> <p>The program should continue the marketing and outreach efforts that led to the increased number of HVAC and cooling measures incentivized in PY2 compared to previous program years. The program could continue to research methods to increase participation in the cooking end-use category because that end use is still seeing low participation even though significant potential for energy savings is likely. The program may need to diversify from lighting measures more in upcoming years as new building codes require highly efficient lighting and lighting controls in certain spaces.</p> <hr/> <p>Guidehouse recommends the following to improve the program’s communication channels and delivery mechanisms:</p> <ul style="list-style-type: none"> • Continue education and training of new and existing trade allies to reduce rebate application errors. • Create accessible targeted marketing materials that can be available on the program’s website.

Program	PY2021 Recommendation
	<p>The program saw low participation from some business types including those that may have been affected by the COVID-19 pandemic such as hotels, motels, restaurants, entertainment centers, and other assembly building types. The program could work to develop targeted marketing and targeted incentive increases for measures such as air conditioners or food service for these building types to increase participation in PY3.</p> <p>The program may benefit by taking a closer look at the types of measures that participants may be installing without the assistance of a trade ally and considering if there are ways to further streamline the application process for those measures.</p>
Business Custom Program	<p>Some customers do not have the in-house engineering expertise to pursue complex custom projects or to understand the benefits of these projects. The program should continue efforts to offer technical support to:</p> <ul style="list-style-type: none"> • Help identify non-standard energy efficiency projects that do not fall in the Business Standard or Process Efficiency programs. • Help customers with the application process including the preapproval and post phase. • Develop new industry-specific outreach campaigns that help customers understand how custom projects benefit customers like them. <p>Evergy's Business Custom program should continue to work to identify new construction projects with the potential for energy savings. These new construction projects may be in new business types such as indoor cannabis growing facilities that have not participated in the program before because they did not exist prior to changes in legislation.</p> <p>The IC should continue to work closely with the CSMs to identify opportunities to keep Tier 1 customers actively participating in Evergy's programs and meet the needs of these larger or national accounts.</p> <p>Trade allies and customers should continue to be encouraged to install non-lighting measures. As the effects of the pandemic begin to lessen, efforts could expand in PY3 to include videos of specific case studies, in-person marketing events similar to the Cycle 3 kickoff event, trade shows, and additional training on the various non-lighting measures available through the Business Custom program.</p> <p>Efforts should continue to educate customers and trade allies about the availability of peak load shifting because it can lead to significant savings.</p> <p>Evergy should continue efforts to market and communicate about the Business Custom program as part of the broader marketing efforts of Evergy's business programs, including the Business Standard and Process Efficiency programs. These efforts were shown in previous program years to lead to increased participation among smaller business customers in the Business Custom program.</p>



Program	PY2021 Recommendation
	<p>Evergy and the IC should continue to offer technical support and education accessible to all customers. In some cases, the final incentives provided were lower than expected and in other cases they were higher than expected. However, the overall satisfaction with the program was very high in PY2, indicating the communication mechanisms are appropriate for most of the target market but may not be accessible for all eligible customers and trade allies. Further efforts to identify trade ally and customer communication issues through the Trade Ally Advisory Board meetings should be pursued. In addition, the IC could conduct follow-up interviews with any participants that express confusion or dissatisfaction to identify avenues to reduce such instances in PY3.</p> <p>Incentive levels for non-lighting end uses should be reviewed annually to ensure they are significant enough to increase participation in the program without increasing FR and to consider the time and effort needed to complete the Business Custom application. The evaluation team also recommends that incentive levels for exterior lighting measures be reviewed as trade allies reported having higher labor costs for exterior projects.</p> <p>Some customers provided feedback in PY2 indicating they found the application process confusing. Evergy and the IC should work toward alleviating customer confusion by continuously improving the program application. Considerations should be made toward creating an online tool that could help simplify the application process for small and medium customers.</p>
<p>Process Efficiency Program</p>	<p>RCx projects can be complex and difficult to understand from a requirements standpoint. The program should continue efforts to educate and offer additional technical support to the trade allies, customers, and CSMs to:</p> <ul style="list-style-type: none"> • Understand the program better. • Help identify energy efficiency projects. • Develop RCx-specific outreach campaigns that help customers understand how these measures benefit customers like them. <hr/> <p>Evergy should work with CSMs to ensure they have the training and expertise needed to help customers identify energy savings in their facilities through an in-depth audit and face-to-face interactions. The CSMs could also work more closely with IC to help identify potential projects and work with IC staff to support the customer through the application process.</p> <hr/> <p>Evergy could consider targeting and adding more measures similar to the compressed air leaks survey and repairs to facilitate engagement with the customers.</p> <hr/> <p>Evergy is leveraging multiple avenues to reach customers and trade allies. Evergy should consider RCx-focused events for customers to generate awareness about the measures similar to the C&I Business Energy Solution Forum event at Arrowhead Stadium. In addition, the IC team should continue with the plan to collect customer testimonials to help build trust and program awareness.</p>

Program	PY2021 Recommendation
	<p>A key challenge to this new program is that customers, trade allies, and CSMs may not completely understand it. Evergy could continue educating all the stakeholders and complete outreach efforts to generate awareness for the program.</p> <p>Evergy could also continue to look for innovative approaches to engage customers similar to the leaks survey and repair incentives being offered. As indicated by the IC, the program should continue to allow wider RCx service provider participation with relevant training to get them up to speed on the program requirements.</p>
Heating, Cooling and Home Comfort	<p>Monitor installation rates on an ongoing basis for the Energy Savings Kit sub-program. The sub-program currently performs both direct install (~70 percent) to virtual install (~30 percent), and this comes with trade-offs of lower administration costs but greater risk of non-installation or measure removal. If the Energy Savings Kit sub-program is going to continue to perform virtual installs, additional customer resources, such as educational materials or a direct customer service line, may be needed to keep installation rates high.</p> <hr/> <p>Periodically review the incentive structure for higher-efficiency HVAC systems in the program. When examining the benefit-cost ratios for higher-efficiency HVAC systems, Evergy can assess if incentives can be or need to be revised. Metrics for this may assessment include:</p> <ul style="list-style-type: none"> - Percent of incremental cost covered by incentives. If incremental cost coverage is below 50 percent, Evergy can consider increasing incentives while remaining within boundaries of industry norms for this measure group. - Develop a simplified and more automated application process to reduce the load on trade allies. As it is, some trade allies reported that the application process has many required components that can be easily overlooked. Drop-down options with pre-programmed equipment and AHRI numbers could be utilized to reduce the time it takes for trade allies to look up the information themselves and would reduce input error. <hr/> <p>Encourage the outreach team to set up in-person trainings for trade allies. Trying to engage trade allies virtually can be much more challenging than in-person meetings where the focus of the trade ally is undivided. All trade allies that had trainings in 2021 described them as being helpful. Creating multiple in-person trainings may increase further trade ally support.</p> <hr/> <p>Add additional data collection requirements to the reporting fields for the program tracking data. The air sealing and attic insulation measures calculate energy savings based on the heating fuel type for each home. Savings are calculated differently based on whether a home is gas heated or electric heated. However, the heating fuel type is currently not being collected in the tracking data for all air sealing and attic insulation projects in the program, which causes the reported savings calculations to use a default assumption of an electric-heated home. Using the actual heating fuel type for each project would more accurately reflect the energy savings per home and would coincide with the verified savings calculations.</p>

Program	PY2021 Recommendation
	<p>Consider adding additional measures to the Evergy TRM based on the current mix of measure in the program tracking data. Currently, there are measures in the 2021 program tracking data that are not specifically outlined in the Evergy TRM. This includes measures with multiple baselines as stipulated in the IL TRM. For example, a measure for an air sealing project in a gas heated home or a measure for a ground source heat pump project replacing an existing central AC are not currently included in the Evergy TRM. Adding additional measures to the Evergy TRM based on the program tracking data could help better align the reported and verified savings calculations.</p>
Energy Saving Products	<p>Provide additional customer education and cross-promotion of programs. Customer awareness of the ESP Program remains somewhat low. Additional educational materials in stores (as permitted by the retailers), as well as promotion through social media, bill inserts, and emails could improve the program performance and customer engagement.</p> <hr/> <p>Continue to develop an online marketplace. Program staff indicated that the online marketplace was successful in PY1 and are exploring additional avenues for marketing the availability of the online marketplace and opportunities to add measures for purchase. The online marketplace provides an avenue to reach hard- to-reach customers and expand to additional measures.</p>
Income-Eligible Multi-Family	<p>Consider including a data element to program tracking data that identifies a project property across all measure types (direct install, prescriptive and custom). This may reduce errors in aggregating project level analysis and evaluation. ICF reports that a data element that ties all project applications associated with a premise has been added to the tracking data.</p> <hr/> <p>Using primary key measure identifier for custom measures wherever possible could increase consistency of savings calculations and reduce the calculation burden for direct install or prescriptive measures installed under a custom project application as a custom measure.</p> <hr/> <p>Consider expanding the Evergy TRM to include measures that more accurately reflect measure models that are installed through the program, such as auto-defrost refrigerators.</p> <hr/> <p>Additional data entry controls to verify that unit savings are reported consistently could prevent reduced or inflated claimed savings and improve realization rates. For example, ensuring that LED bulb savings are reported by bulb rather than by fixture, could increase accuracy of reported savings.</p>
Home Energy Report	<p>Evergy and Oracle should assess whether changes made late in the current program year resulted in more thorough review by recipients and, if they did not have this effect, should consider carrying out additional research to determine what drives the thoroughness of report review and how to get customers to read them more thoroughly. Evergy and Oracle can determine whether the changes had the desired effect by continuing to assess customer readership and understanding of, as well as reactions to, the reports.</p>

Program	PY2021 Recommendation
	<p>Energy should consider doing additional research to assess what increases motivation or intent to engage in the recommended behaviors and use that information to increase the effectiveness of its various outreach efforts and tools.</p> <hr/> <p>If it has not yet done so, Oracle may also consider discontinuing the practice of telling recipients (and Energy Analyzer users) they are being compared to their “neighbors.” A one-mile radius encompasses far more homes than many individuals may consider to be a neighbor. This practice may reinforce an inaccurate interpretation of how the comparison is made.</p>
Online Home Energy Audit	<p>Energy should consider doing additional research to assess what increases motivation or intent to engage in the recommended behaviors and use that information to increase the effectiveness of its various outreach efforts and tools.</p>
Business Demand Response	<p>Energy staff should continue to work with both the DERMS database provider and the implementation contractor to improve the accuracy of capturing participant performance promptly. After each DR event, providing participant reports of savings will reinforce the program's value to these customers and perhaps encourage greater kW savings efforts.</p> <hr/> <p>The program implementer should continue to look for creative ways to market this program to smaller commercial and industrial customers by scaling the kW enrollment targets. This approach may be especially effective at reaching smaller customers in the rural Missouri West jurisdiction.</p>
Residential Demand Response/ Business Smart Thermostat	<p>Energy staff should continue to reinforce customer messaging regarding program enrollment as there seems to be some lack of customer understanding about the timing of these events.</p> <hr/> <p>Energy should continue to offer free smart thermostats to entice new customers into the program.</p> <hr/> <p>The program implementation staff should continue to monitor activation rates through the multiple email strategy, which has led to noticeable increases in new enrollments.</p>
Pay As You Save	<p>Energy and its third-party implementer should continue using "workarounds" regarding data collection, including deploying the data collection app to accelerate program enrollment.</p> <hr/> <p>The program implementer should continue hiring and training qualified data collectors to augment the data collection process further. ADM can support improvements to the program tracking data by re-completing quarterly data reviews and providing feedback to program staff.</p> <hr/> <p>Every program staff should work with the program implementer to fine-tune marketing activities to focus on "high" energy users as that will likely lead to more qualified participants.</p>

Program	PY2021 Recommendation
	<p>ADM should complete a follow-up evaluation to review the energy savings of PY2 projects as part of PY3 M&V activities. Such an evaluation would utilize monthly billing data and a regression model to confirm measure savings as originally proposed in the M&V Plan.</p>
<p>Energy-Saving Trees</p>	<p>Send follow-up emails to monitor the tree delivery and follow-up care to ensure that all trees remain healthy and are planted promptly.</p> <hr/> <p>Consider having the Bridging the Gap volunteers assist homeowners in planting the trees, assuming that an appropriate liability release could be developed.</p> <hr/> <p>Continue to offer driveway drop-offs to ensure that the trees are delivered to the program participants.</p> <hr/> <p>Explore strategies to increase program participation among low and moderate- income residents living in these urban areas. These approaches could include allowing tenants to plant trees or working with the landlords to plant trees in the areas managed by these multifamily buildings.</p> <hr/> <p>Conduct additional surveying efforts to better understand where participants are planting their trees and the reasons some trees.</p>
<p>Energy Efficiency Nonprofits</p>	<p>Energys should consider revising its current smart thermostat installations requirements to include those living in short-term rental properties. The building owner can sign the installation agreement to ensure that the smart thermostats are installed in these premises and remain in place. This modification will provide additional value to both the organizations and Energys.</p> <hr/> <p>Energys should follow up with program participants in six months after measure installation. This follow-up will help remind these participants of the available energy savings opportunities, particularly the recommendations identified through the energy audit. Checking in with these past program participants will also provide additional information needed to help them replace aging HVAC equipment before equipment failure.</p>
<p>HVAC Quality Install</p>	<p>Energys should consider treating the QI pilot program like a traditional "Tune-Up" program rather than a Commissioning program. Trade allies expressed interest in wanting this change for future program years if the pilot persists.</p> <hr/> <p>Targeting HVAC technicians rather than the HVAC contractor may be beneficial in order to boost participation in performing QI HVAC projects in the future. HVAC technicians are more likely to have invested in the MeasureQuick technology and may be more willing to participate in the program.</p>



5 Review of Cost Effectiveness

Guidehouse and ADM calculated the cost effectiveness for the individual Evergy Metro and Evergy Missouri West's energy efficiency and demand response programs, as well as the cost effectiveness of the portfolios of energy efficiency and demand response programs. Guidehouse and ADM calculated cost effectiveness using the five-standard benefit-cost ratios that calculate cost effectiveness from the vantage points of different stakeholder groups:

- **Total Resource Cost (TRC) Test** – Compares the benefits and costs from the perspective of all utility customers, including energy program participants and nonparticipants.
- **Societal Cost Test (SCT)** – Compares the benefits and costs to all stakeholders in the utility service territory, state, or nation as a whole.
- **Utility Cost Test (UCT)** – Compares the benefits and costs to the utility implementing the program.
- **Participant Cost Test (PCT)** – Compares the benefits and costs from the perspective of the customer installing the measure.
- **Ratepayer Impact Measure (RIM) Test** – Compares the benefits and costs from the perspective on non-participating ratepayers, and the impact of energy programs on customer rates.

Guidehouse and ADM conducted these tests in a manner consistent with the 2001 California Standard Practice Manual (SPM).⁵ For this evaluation audit, Guidehouse and ADM provided output files that included measure specific cost and benefit inputs, detailed load shapes, electricity avoided costs, program administration costs, electricity rates, and other assumptions including discount rates.

⁵ California Public Utilities Commission. October 2001. "California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects."

File will automatically download: https://www.cpuc.ca.gov/-/media/cpuc-website/files/uploadedfiles/cpuc_public_website/content/utilities_and_industries/energy_electricity_and_natural_gas/cpuc-standard-practice-manual.pdf

The Evergreen team reviewed residential and commercial summary findings from the portfolio reports and the output files for each program and at the portfolio level to confirm that calculations were performed correctly. The specific audit tasks undertaken were to:

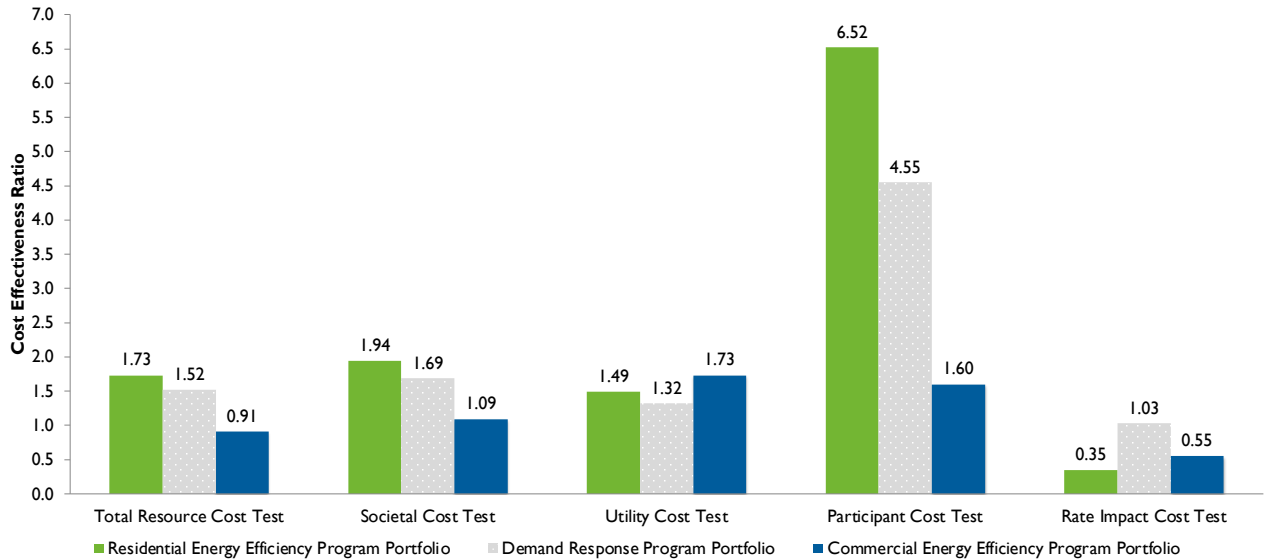
- Confirm summary values included in the final evaluation report matched the values in the results file;
- Confirm that the reported costs matched the costs input into the cost effectiveness input files, including administrative costs, incentive costs, and participant incremental equipment costs;
- Review avoided cost of energy and demand values and confirmed Guidehouse and ADM used appropriate values to calculate program level benefits;
- Confirm that measures received appropriate cost effectiveness input values, from appropriate sources, consistent with the sources used in the Guidehouse and ADM evaluation reports (i.e., kWh savings, expected usable life (EUL), incremental cost); and
- Confirm that discount rates were appropriate.

5.1 Cost Effectiveness Results

Figure 2 and Figure 3 present the results of the cost effectiveness tests for Evergy Metro's and Evergy Missouri West's residential, commercial, and demand response portfolios.

Evergy Metro's residential energy efficiency portfolio is cost effective across all tests except the Rate Impact Measure Test, while the demand response portfolio is cost effective across all tests. The commercial energy efficiency portfolio achieves a Total Resource Cost ratio of 0.91 (Figure 2).

Figure 2: Evergy Metro Cost Effectiveness Test Results



Evergy Missouri West’s residential and commercial energy efficiency portfolios are cost effective across all tests except the Rate Impact Measure Test, while the demand response portfolio is cost effective across all tests (Figure 3).

Figure 3: Evergy Missouri West Cost Effectiveness Test Results

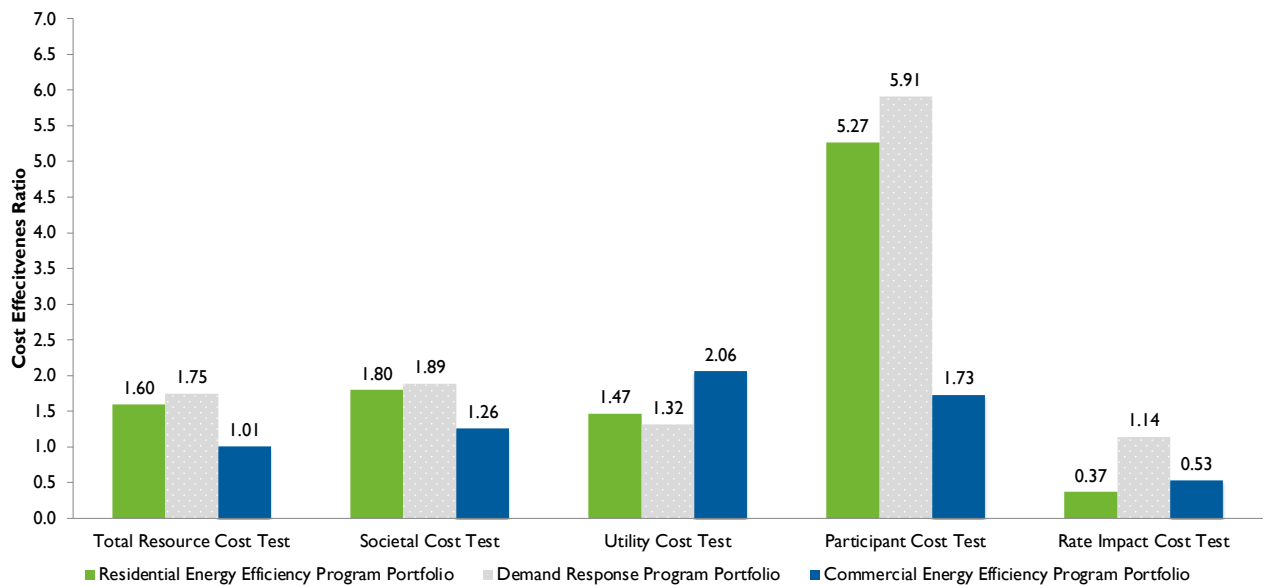




Table 14 and Table 15 present the program specific cost effectiveness test results for Evergy Metro and Evergy Missouri West service territories. Where applicable, we also present the cost effectiveness results for PY2020 for comparison.

Using the PCT test, all programs are cost effective from the participant perspective for both the Evergy Metro and Evergy Missouri West service territories. Only the Business and Residential Demand Response programs are cost effective under the RIM test for both service territories.

Table 14: Evergy Metro Cost Effectiveness Test Results

Program	TRC		SCT		UCT		PCT		RIM	
	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021
Business EER - Standard	1.01	0.86	1.19	1.01	2.31	1.43	1.57	1.54	0.59	0.52
Business EER - Custom	0.91	0.98	1.17	1.19	3.07	2.12	1.20	1.64	0.65	0.58
Process Efficiency Program	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Energy Saving Products	4.95	3.62	5.46	3.96	6.77	2.06	12.00	11.12	0.43	0.37
Heating, Cooling and Home Comfort	1.07	1.04	1.33	1.28	4.08	1.40	1.97	2.53	0.46	0.40
Home Energy Report	1.20	1.54	1.20	1.54	1.20	1.54	--*	--*	0.26	0.25
Income-Eligible Multifamily	0.40	0.47	0.45	0.54	0.35	0.43	N/A	4.16	0.23	0.26
Income-Eligible Home Energy Report	0.29	0.48	0.29	0.48	0.29	0.48	--*	--*	0.16	0.19
Business Demand Response	1.86	1.97	1.86	1.97	1.86	1.07	N/A	N/A	1.86	1.07
Business Smart Thermostat	0.43	1.12	0.51	1.30	0.47	1.24	4.90	2.41	0.32	0.94
Residential Demand Response	1.50	1.39	1.74	1.61	1.76	1.49	2.65	2.99	1.18	1.02

* Ratios are infinite because there are positive benefits and no participant costs.

**Benefit-cost calculations for Educational Programs are not included because no savings are claimed for these programs.

Table 15: Evergy Missouri West Cost Effectiveness Test Results

Program	TRC		SCT		UCT		PCT		RIM	
	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021
Business EER - Standard	0.95	0.94	1.12	1.12	2.21	1.62	1.60	1.77	0.53	0.49
Business EER - Custom	1.38	1.08	1.76	1.39	2.72	2.55	2.47	1.70	0.57	0.57
Process Efficiency Program	N/A	0.23	N/A	0.24	N/A	0.23	N/A	3.53	N/A	0.17
Energy Saving Products	4.77	3.11	5.25	3.40	6.51	1.85	11.66	11.27	0.42	0.35
Heating, Cooling and Home Comfort	1.02	1.02	1.24	1.26	3.94	1.47	1.47	2.02	0.54	0.45
Home Energy Report	1.23	1.35	1.23	1.35	1.23	1.35	--*	--*	0.27	0.29
Income-Eligible Multifamily	0.43	0.45	0.50	0.51	0.44	0.50	7.38	2.49	0.26	0.28
Business Demand Response	1.82	2.45	1.82	2.45	1.82	1.21	N/A	N/A	1.82	1.21
Business Smart Thermostat	0.98	0.85	1.14	0.99	1.08	0.95	5.06	2.60	0.70	0.68
Residential Demand Response	1.48	1.39	1.72	1.61	1.71	1.45	2.12	2.60	1.27	1.08

* Ratios are infinite because there are positive benefits and no participant costs.

**Benefit-cost calculations for Educational Programs are not included because no savings are claimed for these programs.

6 Audit Conclusions

Over the last year the audit team has had several meetings with Guidehouse and ADM on analysis methods and were able to come to an agreement on several evaluation issues. Guidehouse and ADM have also addressed many of the comments we made on the draft reports. Below we identify some remaining issues and areas where we believe the evaluations can be improved.

Free Ridership Estimates

There are several new programs this year where Guidehouse and ADM both assigned a NTG ratio of 1.0, implying that free ridership is zero.

Guidehouse applied a NTG ratio of 1.0 to the Process Efficiency program, a new program in PY2021 with very low participation. Guidehouse states that they will consider doing primary research in PY2022 to provide an updated NTG value, if there is sufficient participation.

We believe that the NTG of 1.0 for Process Efficiency is almost certainly too high, as all other C&I programs have NTG values less than 1.0. There is also no convincing evidence presented that the Process Efficiency is recruiting hard-to-reach customers, which might provide some justification for assuming zero free ridership and a NTG value of 1.0. If this issue is not researched in PY2022, we recommend that a NTG value from the other C&I programs be used as a placeholder in PY2022 and beyond if needed. For reference, the other PY2021 C&I programs had NTG ratios ranging from 0.79 (Standard) to 0.82 (Custom).

In the residential sector, there is the PAYS financing program for that was initiated in PY2021, and this program also had very low participation in PY2021. ADM assigned a NTG ratio of 1.0 for the PAYS program, and the program is scheduled to receive a full evaluation in PY2022 and therefore should receive an updated free ridership value next year.

Net-to-gross ratios of 1.0 are usually reserved for low income programs and sometimes pilot programs, and neither condition appears to apply to the programs listed above. For new programs, if primary research on free ridership is not conducted, a default 1.0 net-to-gross value should not automatically be assumed unless it is a low income program. In the cases of new programs such as PAYS, a net-to-gross ratio should be assigned from the literature (assuming an appropriately similar financing program can be found). If a comparable evaluation study is not available, then the average value from the relevant Evergy program sector (i.e., residential) should be assigned as a placeholder until the program can receive its own evaluation.

Finally, ADM cites interviews with the PAYS program managers as justification for the 1.0 NTG ratio. This is not appropriate. Free ridership needs to be estimated using data and methods that are as independent from the program implementers as possible, and the program managers

clearly have a vested interest (and therefore an obvious conflict of interest) in reporting on free ridership. It is to be expected that the program managers believe free ridership is low for the PAYS program.

The audit team has long argued against using market actor interviews to estimate free ridership for this same reason; contractors and distributors have a clear incentive for telling evaluators that the incentives are effective and that free ridership is low. Customer surveys provide the most unbiased perspective on the influence of the program, which is why the self-report survey method for a free ridership battery remains the most widely used method for estimating free ridership.⁶

Existing Heating Type Assumptions

In the draft version of the report for the residential Heating, Cooling and Home Comfort (HCHC) program, the audit team questioned the assumptions used for existing heating system for the air sealing and attic insulation measures. For homes where heating type data were not available, ADM assumed a default baseline of electric heat for all homes, which results in much higher savings estimates. The audit team pointed out that ADM's default assumption of electric heat was too generous, as gas heat is very common and likely a more accurate assumption when no other information is available.

In response to our comment, ADM looked at homes where heat type information was available and found that approximately 95 percent were gas heat and 5 percent were electric. What ADM did not do was take the logical and expected next step and use this finding to adjust the PY2021 savings for these measures in the final evaluation report. We recommend that the savings be adjusted for PY2021 using the new allocation of heating system type (95% gas/5% electric) for the air sealing and attic insulation measures. This same allocation method should be applied in future years for those homes where existing heating type is not available.

Spillover Estimates in Residential Programs

Two of the largest Evergy residential programs are Energy Products and HCHC, and both of these include spillover adjustments that are not adequately supported by the evaluation research.

For the Energy Products program, the ADM report states that they “conducted a benchmarking study” of 8 different programs and took the average to get a participant spillover value of 7 percent. A more accurate description is that they referenced a benchmarking study that was

⁶ Sometimes the issue of social desirability bias is raised with customer surveys, with the theory that customers will tend to overstate the effectiveness of the rebates as they do not want to admit in the survey that they took the rebate money when it was not actually needed. In the audit team's experience, however, the issue of social desirability is greatly exaggerated; participants are often very forthcoming in surveys about how little a role the incentive played in their ultimate equipment decision.

conducted by a different firm and published in an evaluation report for Entergy Arkansas (2017). The table from the Entergy report is produced below along with the participant spillover values. Note that the average from these studies is 8 percent, not 7 percent that ADM uses in their report.

Table 16: Studies Cited by ADM for Participant Spillover

Study	Participant Spillover
Progress Energy Carolinas 2012	7%
Xcel Energy Minnesota 2012	10%
Public Service Company of New Mexico 2013	11%
Xcel Energy Colorado 2015	8%
ComEd Illinois 2015	7%
Ameren Illinois 2015	7%
Average	8%

Source: Entergy Arkansas Evaluation Report PY2017 (Table 4-30)

There are significant problems with using these values for the Evergy Energy Products program. First, the reports are all outdated, with half from the 2012-2013 era when CFLs were still a significant part of residential lighting programs. Additionally, New Mexico has since eliminated spillover as being eligible for claimed savings for all its programs. A second issue is that the reports listed do not contain full reference information, just the title and year as shown in the table above, so it is difficult to determine if these programs are comparable to Evergy's in terms of design, rebate levels, and market outreach.

The Xcel Colorado study appears to include a lighting market study by Cadmus and therefore likely includes the same market analysis model that the audit team heavily criticized as part of the Ameren MO evaluations back when Cadmus was the lead evaluator. As ADM acknowledges in the stakeholder workshop on the draft report, at least one of these studies includes market effects in the spillover calculation, which are not allowed in Missouri. If the lighting market analysis in the Cadmus report is similar to what they did for Ameren MO in prior years, then market effects would be included in their estimate of spillover for Xcel Colorado.

Due to all these problems, we do not recommend that this list of reports be used to calculate participant spillover for the PY2021 Energy Products program. And since this same source was apparently used by ADM for PY2020, there is not an adequate recent value that we can apply to this program for PY2021. We recommend that participant spillover be set at zero for PY2021 and for future years until an acceptable value can be researched specific to this program.

Non-participant Spillover

For the Heating, Cooling, and Home Comfort (HCHC) program the non-participant spillover rate is 14 percent, which is much higher than the 2 percent estimated for this same program for PY2020. ADM explains that the higher spillover rate is due to a larger sample for the non-participant population survey (1,026 in 2021 vs. 553 in 2020). However, the sample in PY2020 is large enough to produce representative results and so an increase in sample size should not lead to such a large increase in the spillover rate. With a representative sample in both years, we would not expect the spillover *rate* to change significantly, and certainly not have a 7X increase in a single year.

ADM provided the audit team with the NPSO measure breakdown along with the savings value, which are provided in the table below. Of the 247,202 kWh of non-participant spillover claimed in PY2021, 59 percent come from large equipment purchases (central AC, heat pumps, ductless heat pumps) and an additional 24 percent come from LED purchases. As discussed below, we have significant concerns with counting these measures as spillover.

Table 17: Measure Included in Residential NPSO Spillover

Measure	PY2020 Quantity	PY2021 Quantity	PY2021 kWh savings	% of PY2021 NPSO
Central AC	4	27	35,222	14%
Heat Pump		11	52,869	21%
Ground Source Heat Pump	0	6	52,805	21%
Ductless Heat Pump	0	4	6,899	3%
Air Sealing	2	17	18,056	7%
Attic Insulation	1	8	4,231	2%
LED lightbulbs	11	187	59,106	24%
Faucet Aerators	0	5	181	0%
Low Flow Showerheads	0	11	13,123	5%
Pipe Insulation	0	16	1,108	0%
Smart Power Strips	0	9	3,502	1%
Total	18	301	247,202	100%

The fundamental problem with the spillover estimate is that no evidence is provided that Evergy is having any influence at all on these non-participant purchases. To justify such a high spillover, the evaluators need to clearly show how knowledge of the Evergy program (or some other efficiency promotional work by Evergy) caused them to purchase an energy efficient measure outside the program.

In the non-participant survey, ADM screens possible spillover purchases by asking about awareness of the Evergy program. For the question of why the customer did not get a rebate (Q # NPSO3), the possible responses are:

1. Was not aware there was a rebate available
2. Did not have the time to complete rebate application
3. Found out about rebate too late
4. Contractor I worked with did not offer Evergy rebates/discounts
5. Submitted a rebate application that was rejected

If a respondent answers “Was not aware there was a rebate available” then they are ruled ineligible, and all other responses are automatically counted as non-participant spillover. But the response “Found out about the rebate too late” is essentially the same as being unaware. And the other responses “Contractor did not offer Evergy rebates” and “Submitted a rebate application that was rejected” both indicate that the measure might actually have been standard efficiency or otherwise ineligible for the program, and therefore should not be considered for spillover. None of these responses provide any evidence that Evergy had any influence on the equipment purchase.

Even with better response options, using a single question on awareness falls far short of what is required for developing a credible spillover estimate. Simple awareness of an Evergy program is not sufficient to show influence; more questions need to be asked to understand this relationship. At a minimum, respondents need to be asked about the influence that Evergy had on their purchase, and whether or not this influence was a major or minor factor in their final equipment choice.

For comparison, in the Ameren Missouri evaluation⁷ ODC uses multiple questions to determine if a purchase should be counted as spillover. To qualify as non-participant spillover, the respondent and measure had to meet the following criteria:

- Aware that Ameren Missouri provides rebates or discounts on energy efficiency equipment or aware of at least one specific program.
- At least one element of Ameren Missouri’s program marketing and outreach motivated the respondent to adopt the measure.

⁷ Ameren Missouri Program Year Volume 2: Residential Portfolio Appendices (June 10, 2022), p. 67.

- The respondent had a valid reason for considering the measure to be energy efficient.
- Though aware of Ameren Missouri rebates or programs, the respondent had a valid reason for not applying for an Ameren Missouri rebate/participating.
- The respondent had a valid energy saving reason for installing the measure.
- The measure generates electric savings (thermostats or water measures that could also generate gas savings)
- For recycled appliances, the appliance was removed from the electric grid.

We recommend that a similar multi-question screening process be applied for the Evergy residential programs.

An additional problem with the spillover questions is that there is no question that attempts to verify that the larger measures such as central air conditioners and heat pumps were actually an energy efficient model and not standard efficiency. When customers are asked about what they purchased outside the program, the responses include the label “energy efficient” but there is no other guidance provided as to what qualifies as “energy efficient”, and no other follow-up questions to confirm that they are in fact energy efficient. More questions need to be added to confirm that these purchases are truly energy efficient.

Another problematic issue is the inclusion of LED purchases as part of the spillover calculation, as LEDs through many channels are already rebated through Evergy’s upstream lighting program, and consumers often do not realize that they are receiving a discount from the program. As a result, much of the LED savings that are being counted as non-participant spillover are likely already being counted as savings through the upstream lighting portion of the Energy Products program. A follow up question could be asked as to which store they purchased the LED at, and then remove those LEDs that were purchased at stores that participate in the upstream lighting program.

A final problem is the inclusion of ‘non-like’ spillover measures in the NPSO calculation. It appears from the report text that non-like measures are included in both the participant and non-participant spillover estimates. The audit team has long maintained that spillover should only be calculated for measures that are eligible for the program, and measures that are considered ‘non-like’ would fall outside this definition. We recommend excluding non-like measures from all spillover calculations as it is much more difficult to attribute these purchases to the program or utility, and as noted above no evidence of Evergy influence on these purchases has been presented.

Due concerns about the scoring of the spillover questions, the lack of a credible link between Evergy program activities and the non-participant purchases, the possible double counting of LED savings, and the inclusion of non-like measures, we do not recommend that NPSO numbers be accepted for PY2021. For PY2021, we recommend that the NPSO revert back to 2 percent used in the PY2020 for the HCHC program.

Table 18 summarizes the recommended changes for PY2021 for the participant spillover and non-participant spillover values. We recommend that these values be used for future years until new spillover research can be conducted specific to the Evergy programs that addresses the problems identified above. Future values should also remove non-like measures for both the participant and non-participant spillover calculations.

Table 18: Recommended Changes to PY2021 Spillover

Program	PY2021 Evergy Report Value	PY2021 Audit Recommended Value
HCHC		
Participant SO	2%	2%
Non-participant SO	14%	2%
Energy Products		
Participant SO	7%	0%
Non-participant SO	0%	0%

Summary of Changes Recommended to PY2021 Savings

In summary, the audit team is recommending the following changes to the PY2021 Evergy savings numbers:

1. For the Heating, Cooling, and Home Comfort Program, change the NPSO rate from 14 percent to 2 percent. This reduces net savings for this program by 1,159,725 kWh (12%).
2. For the Energy Products Program, change the participant spillover rate from 7 percent to 0 percent. This reduces net savings for this program by 3,699,887 kWh (7%).
3. For the air sealing and insulation measures, change the baseline heating assumptions as discussed above to reflect a more accurate allocation of existing heating types between gas and electric. The effect on PY2021 savings is indeterminant as we could not calculate the impact from the information provided in the evaluation report. These comprise about 7 percent (517,683 kWh) of total HCHC net kWh savings, and this adjustment will substantially reduce the savings for these two measures.

Appendix A: Evergy Metro Full Process Evaluation Responses to Minimum Question Requirements



This appendix provides a summary of the detailed responses to minimum process evaluation requirement questions.

Table 19: Minimum Process Evaluation Questions

Issue Number	Question
Issue 1	What are the primary market imperfections common to the target market segment?
Issue 2	Is the target market segment appropriately defined, or should it be further subdivided or merged with other market segments?
Issue 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?
Issue 4	Are the communication channels and delivery mechanisms appropriate for the target market segment?
Issue 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?



Table 20: Issue 1 - What are the primary market imperfections common to the target market segment?

Program	2020 Summary Response	2021 Summary Response
Business Standard Program	<p>The business sector faces a high barrier to participation due to the high upfront installation cost and a lack of understanding of lifetime value for energy efficient products. Evergy has developed targeted marketing materials, hosted webinars, and increased incentives in July 2020 to increase participation of smaller business customers in implementing energy efficiency measures.</p>	<p>The business sector faces a high barrier to participation because of the high upfront installation cost and a lack of understanding of lifetime value for energy efficient products. Evergy addresses these barriers by providing incentives and education, which reduce the incremental cost and improve the understanding of the long-term benefits.</p> <p>Smaller business customers such as restaurants may have limited resources for researching energy conservation, leading to imperfect or incomplete information about the market. For PY2, Evergy focused on communication and marketing to increase program participation from small business customers.</p>
Business Custom Program	<p>Project types included in the Business Custom program can be complex and take many years to complete. Customers may not understand fully the available energy savings from these types of projects which requires utility education initiatives and incentives.</p>	<p>Project types included in the Business Custom program can be complex and take many years to complete. Customers may not fully understand the available energy savings from these types of projects, which requires utility education initiatives and incentives.</p>



Program	2020 Summary Response	2021 Summary Response
<p>Process Efficiency Program</p>		<p>PY1 was the first year for the Process Efficiency program offering. The program was slow to ramp up in PY1 due to challenges posed by the COVID-19 pandemic and that trend continued in PY2. Because it is a new program and Retro commissioning (RCx) can be perceived as complex, it takes time for customers and trade allies to better understand the program.</p>
<p>Heating, Cooling and Home Comfort</p>	<p>The COVID-19 pandemic is part of the reason that HCHC did not achieve goals, as customer unwillingness to allow contractors in their home to perform air sealing and insulation reduced participation in that program component by half. Our evaluation did not find evidence of other substantial barriers, such as poor program awareness, resistance to energy reduction in general, or ineffectiveness of program incentives.</p>	<p>The COVID-19 pandemic is part of the reason that HCHC did not achieve goals, especially in the first part of 2021, as customer unwillingness to allow contractors in their home to perform air sealing and insulation reduced participation in that program component. Our evaluation did not find evidence of other substantial barriers, such as poor program awareness, resistance to energy reduction in general, or ineffectiveness of program incentives.</p>



Program	2020 Summary Response	2021 Summary Response
Income-Eligible Multifamily	<p>IEMF program staff identified challenges for the program that may have contributed to its failure to meet goals. First, they noted that limited capital for upgrades continues to be an issue for this market segment. Second, they indicated that high turnover rates in the management of most multi-family housing complexes means that constant communication and familiarizing with the program is needed. Third, they suggested that there is not much support in Missouri for carrying out energy efficiency projects in this type of property: HERS ratings are not common, the lead finance agency does not push energy efficiency.</p>	<p>IEMF staff identified four challenges faced by the program. First, limited financing for affordable housing projects continues to be an issue. Second, there are a limited number of affordable housing properties in the Missouri West jurisdiction reducing the number of properties that are eligible for the program. Third, labor shortages that resulted from the COVID pandemic plagued both trade allies that were contracted to work on program projects and housing property staffs; both shortages obstructed project progress. And finally, supply chain issues stalled progress on projects when partially finished projects to languished while contractors waited for building materials or appliances.</p>
Energy Saving Products	<p>Even though the ESP program met savings goals, program staff reported that customer education and market saturation are challenges for the program. Our evaluation found that about half of surveyed customers who reported buying LEDs at participating stores through ESP were aware of the Evergy discount, which compares well to awareness rates we have identified in similar programs in other jurisdictions. Given that the program met goals, this may be adequate, but given program staff's concerns, increasing customer awareness of the discounts and that Evergy provided them may help improve the proper assignment of attribution of the savings resulting from the purchases.</p>	<p>Although the ESP program met savings goals, program staff reported that customer education and market saturation are challenges for the program. ADM's evaluation found that about half of surveyed customers who reported buying LEDs at participating stores through ESP were aware of the Evergy discount, which compares well to awareness rates we have identified in similar programs in other states. Given that the program met goals, this may be adequate, but given program staff's concerns, increasing customer awareness of the discounts and that Evergy provided them may help improve the proper assignment of attribution of the savings resulting from the purchases.</p>

Program	2020 Summary Response	2021 Summary Response
Home Energy Report & Income-Eligible Home Energy Report	<p>The primary potential barriers to program effectiveness would appear to be lack of customer motivation to save energy, lack of understanding of how to save energy, and differences in among customer sub-segments in either of those two items. In this light, the primary barriers that our evaluation identified are that: 1) the rate with which report recipients review the reports in detail could be higher; 2) a notable minority of recipients may misunderstand the basis on which the report compares their home to that of other homes, which may lead to frustration and failure to accept the report's suggestions; 3) report recipients were no more familiar with other Evergy program offerings than were the matched controls. Our evaluation provided little evidence that the HERs' effectiveness differs for older versus younger or more- versus less-educated recipients.</p>	<p>The primary potential barriers to program effectiveness would appear to be lack of customer motivation to save energy, lack of understanding of how to save energy, and differences among customer sub-segments in either of those two items. In this light, the primary barriers that our evaluation identified are that: 1) the rate with which report recipients review the reports in detail could be higher; 2) a small minority (~5%) of recipients may misunderstand the basis on which the report compares their home to that of other homes, which may lead to frustration and failure to accept the report's suggestions; 3) report recipients were no more familiar with some other Evergy program offerings – specifically, with rebates for smart thermostats, heating and cooling, and insulation and air sealing – than were the matched controls.</p>



Program	2020 Summary Response	2021 Summary Response
Home Online Energy Audit	<p>There is a potential concern about awareness of the OHEA tools. Program staff contacts noted that the biggest challenge for the program was customer awareness and education, and fewer than 10% of customers have accessed the tools. Other possible barriers to the program’s effectiveness, identified by our evaluation, are: 1) inconsistent use of the tools (user most commonly have engaged “a few times”); 2) possible misunderstanding of the basis on which the “Compare” tool compares their home to that of other homes; and 3) some possibly overly complex language and lack of clarity in the FAQ section.</p>	<p>There is a potential concern about awareness of the OHEA tools. In last year’s evaluation, program staff contacts noted that the biggest challenge for the program was customer awareness and education, and fewer than 10% of customers have accessed the tools. (We did not conduct staff interviews this year as no substantive changes had been made to the program.) This year’s findings did not identify other barriers. However, across the board, respondents were more likely to say they like Evergy outreach efforts and tools and found the information useful than to say those efforts motivated them to save energy. This pointed to a recommendation to consider doing additional research to assess what increases motivation or intent to engage in recommended behaviors and to use that information to increase the effectiveness of the various outreach efforts and tools.</p>



Program	2020 Summary Response	2021 Summary Response
Business Smart Thermostat	<p>Feedback from program staff identified two factors that contributed to BST’s failure to meet goals. First, delays in the contracting and developing of the online portal for the customer co-payment contributed to a later program launch than expected. Second, midway through 2020, Google acquired Nest and instituted changes that made Evergy unable to enroll customers with Nest thermostats – the top-selling thermostat – into the program.</p>	<p>Feedback from program staff identified two factors that contributed to BST not meeting goals. First, marketing did not have the desired results despite Evergy using "every marketing tactic available". Second, market saturation may be a contributing factor in declining enrollments. As the program manager explained, this program has been offering free thermostats since 2016, and the program offering is now quite mature and well-known. Therefore, enrolling new participants has been more challenging during this program cycle.</p> <p>In addition, the program continued to be affected negatively by the pandemic. Although some technicians could install the thermostats in residences or small businesses, they had to follow the CDC guidelines and had more days sick due to the virus. In addition, many customers did not want a technician in their home performing installations due to the virus which impacted direct installs.</p>
Business Demand Response	<p>Staff feedback indicated that the primary reason for the Business Demand Response program’s failure to meet demand goals was a program design change in Cycle 3 to a pay-for-performance program. As a result of the change, some customers had challenges understanding how the baseline was constructed and how that affected the incentive structure. These changes made recruitment more difficult compared to previous years.</p>	<p>The Business Demand Response (BDR) program did not claim energy savings.</p>



Program	2020 Summary Response	2021 Summary Response
Residential Demand Response	<p>RDR underwent a program design change and had to begin recruiting all new customers, while in previous years, the program had been able to roll participants over from one year to the next. Evergy also froze all marketing activities for the program in March 2020 because of the COVID-19 pandemic, which may have reduced recruitment. In addition to the above, it is possible that the COVID-19 pandemic created changes in households (e.g., more people at home) that resulted in more overrides and advance opt-outs than normal.</p>	<p>Feedback from program staff identified two factors that contributed to RDR not meeting goals. First, marketing did not have the desired results despite Evergy using "every marketing tactic available". Second, market saturation may be a contributing factor in declining enrollments. As the program manager explained, this program has been offering free thermostats since 2016, and the program offering is now quite mature and well-known. Therefore, enrolling new participants has been more challenging during this program cycle.</p> <p>In addition, the program continued to be affected negatively by the pandemic. Although some technicians could install the thermostats in residences or small businesses, they had to follow the CDC guidelines and had more days sick due to the virus. In addition, many customers did not want a technician in their home performing installations due to the virus which impacted direct installs.</p>



Table 21: Issue 2 - Is the target market segment appropriately defined, or should it be further subdivided or merged with other market segments?

Program	2020 Summary Response	2021 Summary Response
Business Standard Program	<p>Evergy has a well-defined target market of large and small commercial businesses for the Business Standard program. Evergy and their IC track activity by trade ally and have bi- yearly Trade Ally Advisory Board meetings. The TA Advisory Board meetings had to happen virtually in PY1. Evergy actively solicits feedback on the program by sending surveys to all customers that completed a project. Evergy reviews this feedback and incorporates it in the program design as warranted.</p>	<p>Evergy has a well-defined target market of large and small commercial businesses for the Business Standard program.</p> <p>Evergy and the IC track activity by trade ally and have bi-yearly Trade Ally Advisory Board meetings. At these meetings, Evergy provides a program status update and requests feedback from the trade ally representatives on the advisory board about all business programs.</p> <p>Evergy actively solicits feedback on the program by sending surveys to all customers that completed a project in the final email communication. Evergy reviews this feedback and incorporates it into the program design as warranted.</p>
Business Custom Program	<p>Guidehouse found that the target market is appropriately defined. All business customers are eligible to participate in the Business Custom program. The program could target small and medium sized customers. The small and medium business customers are highly targeted by the Business Standard program since the application process and incentives are easier to complete and receive.</p>	<p>Guidehouse found that the target market is appropriately defined. All business customers are eligible to participate in the Business Custom program. Tier 1 customers provide the most energy savings to the program. The program could target small and medium sized customers. The small and medium business customers are highly targeted by the Business Standard program because the application process and incentives are easier to complete and receive.</p>



Program	2020 Summary Response	2021 Summary Response
Process Efficiency Program		The program primarily targets industrial customers for implementing RCx projects. For the RCx sector, the target market is appropriately defined.
Heating, Cooling and Home Comfort	The Heating, Cooling, and Home Comfort program participant survey respondents were highly skewed toward homeowners, small households (one or two occupants), and very highly educated customers. However, we cannot be certain that either of these reflects a bias in participation or in survey response.	The Heating, Cooling, and Home Comfort program participant survey respondents were highly skewed toward homeowners, small households (one to two occupants), and were highly educated (Bachelor’s degree or higher). However, we cannot be certain that either of these reflects a bias in participation or in survey response.
Income-Eligible Multifamily	The Income-Eligible Multifamily program serves lower- and middle-income customers. The evaluation did not identify clear evidence that any specific program fails to serve any specific part of its target audience.	The Income-Eligible Multifamily program serves lower- and middle-income customers. The evaluation did not identify clear evidence that any specific program fails to serve any specific part of its target audience.
Energy Saving Products	The Energy Saving Products program serves homeowners and renters. The evaluation did not identify clear evidence that any specific program fails to serve any specific part of its target audience.	The Energy Saving Products program serves homeowners and renters. The evaluation did not identify clear evidence that any specific program fails to serve any specific part of its target audience.
Home Energy Report & Income-Eligible Home Energy Report	The Home Energy Report programs serves homeowners and renters. The Home Energy Report survey respondents skewed older, more educated, and more likely to be homeowners than the Evergy general population. However, we cannot be certain that either of these reflects a bias in participation or in survey response.	The Home Energy Report programs serves homeowners and renters. The Home Energy Report survey respondents skewed older, more educated, and more likely to be homeowners than the Evergy general population. However, we cannot be certain that either of these reflects a bias in participation or in survey response.

Program	2020 Summary Response	2021 Summary Response
Home Online Energy Audit	The Home Online Energy Audit survey respondents skewed older, more educated, and more likely to be homeowners than the Evergy general population. However, we cannot be certain that either of these reflects a bias in participation or in survey response.	The Home Online Energy Audit survey respondents skewed older, more educated, and more likely to be homeowners than the Evergy general population. However, we cannot be certain that either of these reflects a bias in participation or in survey response.
Business Smart Thermostats	The evaluation did not identify clear evidence that any specific program fails to serve any specific part of its target audience.	No feedback for this issue was offered by the evaluator for this program.
Business Demand Response	The evaluation did not identify clear evidence that any specific program fails to serve any specific part of its target audience.	No feedback for this issue was offered by the evaluator for this program.
Residential Demand Response	The evaluation did not identify clear evidence that any specific program fails to serve any specific part of its target audience.	No feedback for this issue was offered by the evaluator for this program.



Table 22: Issue 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?

Program	2020 Summary Response	2021 Summary Response
Business Standard Program	<p>The Business Standard program complements the Business Custom program by providing rebates for common energy efficiency upgrades which are primarily lighting measures. Evergy is working toward further aligning the Business Standard and Business Custom programs, so that multiple end-use energy saving projects can be easily served across the entire portfolio. Evergy and the IC are constantly evaluating the measure list to determine if it is meeting the needs of customers. The other Evergy Business programs primarily address the end-uses besides lighting, but also tend to be dominated by lighting projects.</p>	<p>The Business Standard program complements the Business Custom program by providing rebates for common energy efficiency upgrades, which continued to be primarily lighting measures in PY2. Evergy is working toward further aligning the Business Standard and Business Custom programs so that multiple end-use energy-saving projects can be easily served across the entire portfolio.</p> <p>While the Business Standard program includes measures that address a variety of energy end uses for a participant, including the HVAC, refrigeration, and cooking energy end uses, 90% of the projects in PY2 were for lighting or lighting control measures. Non-lighting measure participation has increased in PY2 to 10% compared to 6% in PY1. Evergy and the IC are constantly evaluating the measure list to determine if it is meeting the needs of customers. The other Evergy Business programs primarily address the end uses besides lighting, but they also tend to be dominated by lighting projects.</p>
Business Custom Program	<p>Guidehouse thinks that the program participation does appropriately reflect the end-use needs within the target market segment. Due to the inclusion of some large new construction lighting projects in the Business Custom program, lighting projects made up more than half of the energy savings. New construction projects made up slightly less than half of the energy savings.</p>	<p>Evergy has been successful in keeping the share of non-lighting measures above 20% for the Business Custom program. In PY2, the program consisted of approximately 30% non-lighting measures. The inclusion of some large grow facility projects added to the diversity of the program as they included agriculture lighting and agriculture HVAC measures. Because the overall savings in the Business Custom program</p>



Program	2020 Summary Response	2021 Summary Response
	<p>The air conditioning and heating measures made up slightly over a quarter of savings with the rest of the savings achieved by savings in the appliances and other miscellaneous end- use categories such as refrigeration.</p>	<p>can be driven by one or two large projects, Guidehouse thinks program participation appropriately reflects the end use needs within the target market segment.</p>
<p>Process Efficiency Program</p>		<p>The program is currently focused on providing services for RCx projects for industrial customers. Over time, express tune-up measures will be included, but the timeline to do that is not set.</p>
<p>Heating, Cooling and Home Comfort</p>	<p>Heating, Cooling and Home Comfort offers energy saving measures through three program components: 1) an Energy Savings Kit with an assortment low-cost measures (LED lightbulbs, faucet aerators, low- flow showerheads, pipe insulation, and advanced power strips); 2) insulation and air sealing measures; and 3) HVAC measures. Program participants and trade allies were generally satisfied with the program, and two-thirds of trade allies were satisfied with the equipment that the program offers. However, for trade allies, that satisfaction level was lower than the levels for program paperwork and the rebates offered. The primary substantive suggestion that trade allies made regarding the program offerings was to push higher-SEER (>17) air conditioning.</p>	<p>Heating, Cooling and Home Comfort offers energy saving measures through three program components: 1) an Energy Savings Kit with an assortment of low-cost measures (LED lightbulbs, faucet aerators, low-flow showerheads, pipe insulation, and advanced power strips); 2) insulation and air sealing measures; and 3) HVAC measures. HCHC participants and trade allies were generally satisfied with the program, and over two-thirds of trade allies were satisfied with the equipment that the program offers, the rebate/discount payment process, the program paperwork, and Evergy’s website. The primary substantive suggestion that trade allies made regarding the program offerings was to push higher SEER (>17) HVAC equipment, as well as an increase in the incentives offered for higher-efficiency HVAC models.</p>
<p>Income-Eligible Multifamily</p>	<p>The Income-eligible Multifamily program provides a wide range of measure types, various direct-install measures (low-flow showerheads, kitchen faucet aerators, and advanced power strips); prescriptive rebates for LED lighting, appliances (dishwashers, washing machines, dryers), HVAC (air conditioners,</p>	<p>The Income-eligible Multifamily program provides a wide range of measure types, various direct-install measures (low-flow showerheads, kitchen faucet aerators, and smart power strips); prescriptive rebates for LED lighting, appliances (dishwashers, washing machines, dryers), HVAC (air conditioners, heat pumps), bathroom fans, and refrigerator</p>

Program	2020 Summary Response	2021 Summary Response
	<p>heat pumps), bathroom fans, refrigerator replacement, and air sealing; and custom rebates for larger projects. However, LED lighting and direct-install measures make up a very large proportion of program savings. Increasing uptake of the other measures offered could increase overall program savings.</p>	<p>replacement; and custom rebates are comprised of common area lighting, come truly custom measures as well as measures that are also included in direct install and prescriptive projects. LED lighting and direct-install measures make up a substantial proportion of program savings. Program staff believes that direct install measures will decrease in importance as deeper energy savings are found in higher impact prescriptive and custom measures.</p>
Energy Saving Products	Energy Saving Products provides upstream discounts for energy efficient products, which currently are limited to a selection of LED lighting measures.	Energy Saving Products provides upstream discounts for energy efficient products, which currently are limited to a selection of LED lighting measures.
Home Energy Report and Income-Eligible Home Energy Report	No feedback for this issue was offered by the evaluator for this program.	No feedback for this issue was offered by the evaluator for this program.
Home Online Energy Audit	No feedback for this issue was offered by the evaluator for this program.	No feedback for this issue was offered by the evaluator for this program.
Business Smart Thermostat	No feedback for this issue was offered by the evaluator for this program.	No feedback for this issue was offered by the evaluator for this program.
Business Demand Response	No feedback for this issue was offered by the evaluator for this program.	No feedback for this issue was offered by the evaluator for this program.
Residential Demand Response	No feedback for this issue was offered by the evaluator for this program.	No feedback for this issue was offered by the evaluator for this program.

Table 23: Issue 4 - Are the communication channels and delivery mechanisms appropriate for the target market segment?

Program	2020 Summary Response	2021 Summary Response
Business Standard Program	<p>Guidehouse finds that Evergy’s marketing activities meet the program’s needs. The IC for the Business Standard program works one on one with the larger customers and those larger customer’s CSMs. The trade-ally network addresses medium and smaller customers. In PY1, the implementer hosted targeted webinars for the certain sectors such as schools and the public sector and end-use categories such as HVAC. These targeted webinars were in addition to general webinars for all business customers interested in energy efficiency upgrades available across all the business programs. The effectiveness of Evergy’s marketing activities is further evidenced by a sharp increase in projects once an increase in incentives for a few measures for small businesses was enacted in July 2020 through the end of PY1.</p>	<p>The IC works one-on-one with larger customers and those larger customers’ customer solution managers (CSMs). The trade ally network addresses medium and smaller customers. There is also targeted marketing for sectors with historically lower participation. In PY2, the IC continued hosting targeted webinars for the public sector, schools, and customers interested in HVAC upgrades. These targeted webinars were in addition to general webinars for all business customers interested in energy efficiency upgrades available across all the Business programs.</p> <p>Some participants indicated that they would prefer to receive information on the program in the form of bill inserts or direct emails.</p>
Business Custom Program	<p>Due to the COVID-19 pandemic, the marketing and promotion of the Business Custom program was primarily through emails and online webinars available to customers and trade allies. One in-person kickoff event for all the Cycle 3 business programs was held at the beginning of 2020 and had over 80 customer attendees. The online communications throughout the year provide information about Evergy’s business programs and supplement the information available on Evergy’s website. Customers indicated that the in-person</p>	<p>Due to the COVID-19 pandemic, marketing and promotion of the Business Custom program was primarily through emails and online webinars available to customers and trade allies. The online communications throughout the year provided information about Evergy’s business programs and supplemented the information available on Evergy’s website. Customers indicated the in-person kickoff event in PY1 and the online communications that continued in PY2 led them to complete Business Custom projects, indicating these communications are appropriate for the target market.</p>



Program	2020 Summary Response	2021 Summary Response
	<p>kickoff event and the online communications led them to complete Business Custom projects.</p> <p>Also, the Business Custom program communicated closely with the CSMs who represent the larger Tier 1 customers. These customers continued to be a large part of the Business Custom program in PY1.</p>	<p>The Business Custom program communicates closely with the CSMs who represent the larger Tier 1 customers. The Business Custom program experienced about a 30% reduction in Tier 1 participation in PY2 in terms of kWh savings, which is attributed partially to the effects of the pandemic and market uncertainty.</p>
<p>Process Efficiency Program</p>		<p>The program is in its second year, and Evergy had challenges promoting it due to the COVID-19 pandemic. However, all the communication channels are appropriate for the target market sector. The marketing and promotion activities involved a Business Energy Solutions forum, email campaign, direct mail, webinars, and an RCx-focused campaign for trade allies. The IC team marketing activities evolved over time to build on past efforts.</p>
<p>Heating, Cooling, and Home Comfort</p>	<p>The Heating, Cooling and Home Comfort program has consistent structures in place with rebate distribution, a well-developed internal marketing team, and continued trade ally support. Program participants and trade allies were satisfied with program processes and interactions. However, some TAs reported that the application process has many required components that can be easily overlooked and suggested ways to improve the process.</p>	<p>The Heating, Cooling and Home Comfort program has consistent structures in place with rebate distribution, a well-developed internal marketing team, and continued trade ally support. HCHC participants and trade allies were satisfied with program processes and interactions. However, some trade allies reported that the application process/paperwork can be complicated, and additional program training would be helpful.</p>
<p>Income-Eligible Multifamily</p>	<p>Income-eligible Multifamily program participants were satisfied with the program processes. Most participants (property managers) learned about the program via outreach from program staff, indicating they were not aware of the program before being</p>	<p>Income-eligible Multifamily program participants were satisfied with the program processes. Most participants (property managers) learned about the program via outreach from program staff.</p>



Program	2020 Summary Response	2021 Summary Response
	<p>contacted. Program staff reported that the program “is not a TA-driven program” and so it relies on contract by the implementer to generate projects. Nevertheless, prior program awareness may be helpful in securing participation and generating greater program-related savings.</p>	
Energy Saving Products	<p>Energy Saving Products program participants also were satisfied with the program. Our evaluation found that about half of surveyed customers who reported buying LEDs at participating stores through ESP were aware of the Evergy discount, which compares well to awareness rates we have identified in similar programs in other jurisdictions. Given that the program met goals, this may be adequate, but program staff indicated concerns about market saturation, and so increasing customer awareness of the discounts and that Evergy provided them may help improve the proper assignment of attribution of the savings resulting from the purchases.</p>	<p>Energy Saving Products program participants also were satisfied with the program. Our evaluation found that about half of surveyed customers who reported buying LEDs at participating stores through ESP were aware of the Evergy discount, which compares well to awareness rates we have identified in similar programs in other states. Given that the program met goals, this may be adequate, but program staff indicated concerns about market saturation, and so increasing customer awareness of the discounts and that Evergy provided them may help improve the proper assignment of attribution of the savings resulting from the purchases.</p>
Home Energy Report and Income-Eligible Home Energy Report	<p>No feedback for this issue was offered by the evaluator for this program.</p>	<p>No feedback for this issue was offered by the evaluator for this program.</p>
Home Online Energy Audit	<p>No feedback for this issue was offered by the evaluator for this program.</p>	<p>No feedback for this issue was offered by the evaluator for this program.</p>
Business Smart Thermostat	<p>Business Smart Thermostat participants indicated they would like more advance notice of events.</p>	<p>Business Smart Thermostat participants indicated they would like more advance notice of events.</p>



Program	2020 Summary Response	2021 Summary Response
Business Demand Response	No feedback for this issue was offered by the evaluator for this program.	No feedback for this issue was offered by the evaluator for this program.
Residential Demand Response	Residential Demand Response participants indicated they would like more advance notice of events.	Residential Demand Response participants indicated they would like more advance notice of events.



Table 24: Issue 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?

Program	2020 Summary Response	2021 Summary Response
Business Standard Program	<p>In PY2020, Evergy continued to have strong success with the efficient lighting measures in the Business Standard program. The effect from other end-uses was around 2%, but other programs such as the Business Custom program covers many of those non-lighting measures.</p>	<p>PY2 saw lower participation due to lingering effects from the COVID-19 pandemic. Some trade allies report that higher incentives may help them reach customers who are more reluctant to participate either due to budget or interest; they feel that the low hanging fruit has already been picked and the customers that remain need additional motivation.</p> <p>Trade allies appear highly satisfied with the application process, though some participants indicate that the process remains somewhat challenging for them. These participants indicated that they had to reach out directly to Evergy for assistance, suggesting that they were purchasing equipment without the assistance of a trade ally.</p>
Business Custom Program	<p>Customers and the TAs that work with them need support in the identification and implementation of large and non- standard energy efficient projects that fall within the Business Custom program. There continued to be some confusion among TAs about certain Business Custom measures. Also, some customers indicated some misunderstanding about the amount of incentive they would receive.</p>	<p>Customers and trade allies need support to identify and implement large and non- standard energy efficiency projects that fall in the Business Custom program. Trade allies reported an interest in learning about potential leads that program staff may have about customers that have shown interest in the program. Trade allies also reported a desire to shift more measures from the Business Custom program to the Business Standard program. They also reported a desire for higher incentives for exterior lighting projects due to the higher labor costs for exterior projects.</p>

Program	2020 Summary Response	2021 Summary Response
Process Efficiency Program		<p>The program is strategically streamlining the process by offering incentives for measures such as compressed air leak survey and repairs. The customers can then do other RCx measures under the same project without having to reapply. Evergy is pursuing innovative approaches to encourage customer engagement within the overall C&I suite of programs.</p>
Heating, Cooling and Home Comfort	<ul style="list-style-type: none"> • Add fields for additional customer household characteristics information to the data collection process. Collect the number of stories of customers' homes to supplement the savings calculations for the air sealing and attic insulation measures. This is needed to estimate Minimum Ventilation Rate (MVR) and would allow for program administrators to more readily examine if homes are being sealed within allowable guidelines that maximize energy savings while ensuring maintenance of indoor air quality. • Monitor installation rates on an ongoing basis for the Energy Savings Kit sub-program. The sub-program has moved from direct install to virtual install, and this comes with trade-offs of lower administration costs but greater risk of non-installation or measure removal. • Track installation rates and satisfaction rates along with customer demographics (age, income, etc.) to identify if there are customer sub-groups that prefer the virtual installation process to assess if this option should remain in the program long-term. 	<ul style="list-style-type: none"> • Monitor installation rates on an ongoing basis for the Energy Savings Kit sub-program. The sub-program currently performs both direct install (~70 percent) to virtual install (~30 percent), and this comes with trade-offs of lower administration costs but greater risk of non-installation or measure removal. If the Energy Savings Kit sub-program is going to continue to perform virtual installs, additional customer resources, such as educational materials or a direct customer service line, may be needed to keep installation rates high. • Periodically review the incentive structure for higher-efficiency HVAC systems in the program. When examining the benefit-cost ratios for higher-efficiency HVAC systems, Evergy can assess if incentives can be or need to be revised. Metrics for this may assessment include: <ul style="list-style-type: none"> ○ Balance between UCT and PCT ratios. If the UCT ratio exceeds the PCT ratio, Evergy can rebalance by increasing incentives. ○ Percent of incremental cost covered by incentives. If incremental cost coverage is below 50 percent, Evergy can consider



Program	2020 Summary Response	2021 Summary Response
	<ul style="list-style-type: none"> Periodically review the incentive structure for higher-efficiency HVAC systems in the program. When examining the benefit-cost ratios for higher-efficiency HVAC systems, Evergy can assess if incentives can be or need to be revised. <p>Develop a simplified and more automated application process. As it is, some trade allies reported that the application process has many required components that can be easily overlooked. Drop-down options with pre-programmed equipment and AHRI numbers could be utilized to reduce the time it takes for trade allies to look up the information themselves and would reduce input error.</p>	<p>increasing incentives while remaining within boundaries of industry norms for this measure group.</p> <ul style="list-style-type: none"> Develop a simplified and more automated application process to reduce the load on trade allies. As it is, some trade allies reported that the application process has many required components that can be easily overlooked. Drop-down options with pre-programmed equipment and AHRI numbers could be utilized to reduce the time it takes for trade allies to look up the information themselves and would reduce input error. Encourage the outreach team to set up in-person trainings for trade allies. Trying to engage trade allies virtually can be much more challenging than in-person meetings where the focus of the trade ally is undivided. All trade allies that had trainings in 2021 described then as being helpful. Creating multiple in-person trainings may increase further trade ally support. Add additional data collection requirements to the reporting fields for the program tracking data. The air sealing and attic insulation measures calculate energy savings based on the heating fuel type for each home. Savings are calculated differently based on whether a home is gas heated or electric heated. However, the heating fuel type is currently not being collected in the tracking data for all air sealing and attic insulation projects in the program,



Program	2020 Summary Response	2021 Summary Response
		<p>which causes the reported savings calculations to use a default assumption of an electric-heated home. Using the actual heating fuel type for each project would more accurately reflect the energy savings per home and would coincide with the verified savings calculations.</p> <ul style="list-style-type: none"> Consider adding additional measures to the Evergy TRM based on the current mix of measure in the program tracking data. Currently, there are measures in the 2021 program tracking data that are not specifically outlined in the Evergy TRM. This includes measures with multiple baselines as stipulated in the IL TRM. For example, a measure for an air sealing project in a gas heated home or a measure for a ground source heat pump project replacing an existing central AC are not currently included in the Evergy TRM. Adding additional measures to the Evergy TRM based on the program tracking data could help better align the reported and verified savings calculations.
<p>Income-Eligible Multifamily</p>	<ul style="list-style-type: none"> Create short interactive surveys for tenants and property managers. During the installation process, offer the tenant or manager the option to complete a survey using a tablet or a link sent to their phones to encourage immediate feedback. Have automatic reminders set-up a week after in case the survey has not been completed. <p>Create an infographic or report of IEMF program success and post on social media. Report year energy</p>	<ul style="list-style-type: none"> Consider including a data element to program tracking data that identifies a project property across all measure types (direct install, prescriptive and custom). This may reduce errors in aggregating project level analysis and evaluation. Using primary key measure identifier for custom measures wherever possible could increase consistency of savings calculations and reduce the calculation burden for direct install or prescriptive



Program	2020 Summary Response	2021 Summary Response
	<p>goal savings every year and highlight major projects on social media platforms. Use these numbers to increase project leads and increase program credibility within the service territory.</p>	<p>measures installed under a custom project application as a custom measure.</p> <ul style="list-style-type: none"> Consider expanding the Evergy TRM to include measures that more accurately reflect measure models that are installed through the program, such as auto-defrost refrigerators. Additional data entry controls to verify that unit savings are reported consistently could prevent reduced or inflated claimed savings and improve realization rates. For example, ensuring that LED bulb savings are reported by bulb rather than by fixture, could increase accuracy of reported savings.
<p>Energy Saving Products</p>	<ul style="list-style-type: none"> Oracle should consider ways to make the information on home comparisons (as well as how to provide for more accurate feedback on the home’s energy usage) more obvious to HER recipients and Energy Analyzer users. Incorrect beliefs about how the comparisons are made or of the option for providing for a more accurate comparison may create frustration, leading some customers to make minimal use of the reports. <p>Oracle may also consider discontinuing the practice of telling recipients (and Energy Analyzer users) they are being compared to their “neighbors.” A one-mile radius encompasses far more homes than many individuals may consider to be a neighbor. This practice may reinforce an inaccurate interpretation of how the comparison is made. One alternative phrasing could be</p>	<ul style="list-style-type: none"> Provide additional customer education and cross-promotion of programs. Customer awareness of the ESP Program remains somewhat low. Additional educational materials in stores (as permitted by the retailers), as well as promotion through social media, bill inserts, and emails could improve the program performance and customer engagement. Continue to develop an online marketplace. Program staff indicated that the online marketplace was successful in PY1 and are exploring additional avenues for marketing the availability of the online marketplace and opportunities to add measures for purchase. The online marketplace provides an avenue to reach hard- to-reach customers and expand to additional measures.



Program	2020 Summary Response	2021 Summary Response
<p>Home Energy Report and Income-Eligible Home Energy Report</p>	<p>to state that they are being compared to “homes in your neighborhood”.</p> <ul style="list-style-type: none"> • Oracle should consider ways to make the information on home comparisons (as well as how to provide for more accurate feedback on the home’s energy usage) more obvious to HER recipients and Energy Analyzer users. Incorrect beliefs about how the comparisons are made or of the option for providing for a more accurate comparison may create frustration, leading some customers to make minimal use of the reports. <p>Oracle may also consider discontinuing the practice of telling recipients (and Energy Analyzer users) they are being compared to their “neighbors.” A one-mile radius encompasses far more homes than many individuals may consider to be a neighbor. This practice may reinforce an inaccurate interpretation of how the comparison is made. One alternative phrasing could be to state that they are being compared to “homes in your neighborhood”.</p>	<ul style="list-style-type: none"> • Consider including a data element to program tracking data that identifies a project property across all measure types (direct install, prescriptive and custom). This may reduce errors in aggregating project level analysis and evaluation. • Using primary key measure identifier for custom measures wherever possible could increase consistency of savings calculations and reduce the calculation burden for direct install or prescriptive measures installed under a custom project application as a custom measure. • Consider expanding the Evergy TRM to include measures that more accurately reflect measure models that are installed through the program, such as auto-defrost refrigerators. • Additional data entry controls to verify that unit savings are reported consistently could prevent reduced or inflated claimed savings and improve realization rates. For example, ensuring that LED bulb savings are reported by bulb rather than by fixture, could increase accuracy of reported savings. • Work with ADM to include more information about when customers stop receiving reports. Many customers are filtered from the analysis for not having enough post-period data for the months in PY2. While it is likely that many of these customers are no longer a part of the program, it would be beneficial to include a data field that informs us of exactly when that



Program	2020 Summary Response	2021 Summary Response
		<p>occurs. This will help ADM perform a more robust data validation process and ensure that no customers are unintentionally removed from the analysis.</p> <ul style="list-style-type: none"> • Evergy and Oracle should continue efforts to make the information on home comparisons more salient. Given that the recent revisions to the report did not result in more thorough review by recipients, Evergy and Oracle should consider carrying out additional research to determine what drives the thoroughness of report review and how to get customers to read them more thoroughly. • Evergy should consider doing additional research to assess what increases motivation or intent to engage in the recommended behaviors and use that information to increase the effectiveness of its various outreach efforts and tools. • If it has not yet done so, Oracle may also consider discontinuing the practice of telling recipients (and Energy Analyzer users) they are being compared to their “neighbors.” A one-mile radius encompasses far more homes than many individuals may consider to be a neighbor. This practice may reinforce an inaccurate interpretation of how the comparison is made.
Home Online Energy Audit	<ul style="list-style-type: none"> • Evergy and Oracle should consider developing ways to tailor messaging to the different groups of customers that represent different levels of readiness to take steps to reduce energy use. Tailoring messaging to the “unknowledgeable intent,” “unknowledgeable concern,” and 	<p>Evergy should consider doing additional research to assess what increases motivation or intent to engage in the recommended behaviors and use that information to increase the effectiveness of its various outreach efforts and tools.</p>



Program	2020 Summary Response	2021 Summary Response
	<p>“concern, no intent” groups may provide the needed nudge or knowledge to turn them into effective energy savers.</p> <p>Oracle should also consider reviewing the Energy Analyzer to ensure its readability level reaches all customers. This could be checked against the Flesch-Kinkaid Reading Ease formula (or other acceptable metric of linguistic ease), with a goal of a Flesch-Kinkaid score of 65 out of 100 to balance professionalism with reading ease.</p>	
<p>Business Smart Thermostat</p>	<ul style="list-style-type: none"> • Evergy’s Business Smart Thermostat program received high satisfaction ratings from program participants. However, the survey respondents indicated they wanted better notification of upcoming DR events. Therefore, Evergy staff should consider additional ways to provide event notification, including sending reminder emails to program participants. Evergy can ensure that its program application process captures and updates participant email addresses. • Continue efforts to reduce evaluation risk using modeled annual counterfactual baseline (CBL) selection for each participant. <p>Currently, enrollment eligibility for the program is restricted to manufacturers that total less than 30% of market share for smart thermostats. Evergy should engage with other major smart thermostat manufacturers to obtain the required data access permissions to facilitate their enrollment as this is a structural barrier to program scale.</p>	<ul style="list-style-type: none"> • Evergy staff should continue to reinforce customer messaging regarding program enrollment as there seems to be some lack of customer understanding about the timing of these events. • Evergy should continue to offer free smart thermostats to entice new customers into the program. • The program implementation staff should continue to monitor activation rates through the multiple email strategy, which has led to noticeable increases in new enrollments.



Program	2020 Summary Response	2021 Summary Response
<p>Business Demand Response</p>	<p>No feedback for this issue was offered by the evaluator for this program.</p>	<ul style="list-style-type: none"> • Evergy staff should continue to work with both the DERMS database provider and the implementation contractor to improve the accuracy of capturing participant performance promptly. After each DR event, providing participant reports of savings will reinforce the program's value to these customers and perhaps encourage greater kW savings efforts. • The program implementer should continue to look for creative ways to market this program to smaller commercial and industrial customers by scaling the kW enrollment targets. This approach may be especially effective at reaching smaller customers in the rural Missouri West jurisdiction.
<p>Residential Demand Response</p>	<ul style="list-style-type: none"> • Evergy’s Residential Smart Thermostat program received high satisfaction ratings from program participants. However, the survey respondents indicated they wanted better notification of upcoming DR events. Therefore, Evergy staff should consider additional ways to provide event notification, including sending reminder emails to program participants. Evergy can ensure that its program application process captures and updates participant email addresses. • Continue efforts to reduce evaluation risk using modeled annual counterfactual baseline (CBL) selection for each participant. <p>Evergy can continue to look for ways to expand the eligibility of smart thermostats, as this strategy will make the program more affordable. Evergy should also</p>	<ul style="list-style-type: none"> • Evergy staff should continue to reinforce customer messaging regarding program enrollment as there seems to be some lack of customer understanding about the timing of these events. • Evergy should continue to offer free smart thermostats to entice new customers into the program. • The program implementation staff should continue to monitor activation rates through the multiple email strategy, which has led to noticeable increases in new enrollments.



Program	2020 Summary Response	2021 Summary Response
Pay As You Save	<p>continue its research into smart thermostat technology to identify additional devices in the next program year.</p>	<ul style="list-style-type: none"> • Evergy and its third-party implementer should continue using "workarounds" regarding data collection, including deploying the data collection app to accelerate program enrollment. • The program implementer should continue hiring and training qualified data collectors to augment the data collection process further. ADM can support improvements to the program tracking data by recompleting quarterly data reviews and providing feedback to program staff. • Every program staff should work with the program implementer to fine-tune marketing activities to focus on "high" energy users as that will likely lead to more qualified participants. • ADM should complete a follow-up evaluation to review the energy savings of PY2 projects as part of PY3 M&V activities. Such an evaluation would utilize monthly billing data and a regression model to confirm measure savings as originally proposed in the M&V Plan.
Energy-Savings Trees		<ul style="list-style-type: none"> • Send follow-up emails to monitor the tree delivery and follow-up care to ensure that all trees remain healthy and are planted promptly. • Consider having the Bridging the Gap volunteers assist homeowners in planting the trees, assuming that an appropriate liability release could be developed.



Program	2020 Summary Response	2021 Summary Response
Energy Efficiency Nonprofits		<ul style="list-style-type: none"> Continue to offer driveway drop-offs to ensure that the trees are delivered to the program participants. Explore strategies to increase program participation among low and moderate- income residents living in these urban areas. These approaches could include allowing tenants to plant trees or working with the landlords to plant trees in the areas managed by these multifamily buildings. Conduct additional surveying efforts to better understand where participants are planting their trees and the reasons some trees. <hr/> <ul style="list-style-type: none"> Evergy should consider revising its current smart thermostat installations requirements to include those living in short-term rental properties. The building owner can sign the installation agreement to ensure that the smart thermostats are installed in these premises and remain in place. This modification will provide additional value to both the organizations and Evergy. Evergy should follow up with program participants in six months after measure installation. This follow-up will help remind these participants of the available energy savings opportunities, particularly the recommendations identified through the energy audit. Checking in with these past program participants will also provide additional information needed to help them replace aging HVAC equipment before equipment failure.



Program	2020 Summary Response	2021 Summary Response
HVAC Quality Install		<ul style="list-style-type: none"> • Evergy should consider treating the QI pilot program like a traditional "Tune-Up" program rather than a Commissioning program. Trade allies expressed interest in wanting this change for future program years if the pilot persists. • Targeting HVAC technicians rather than the HVAC contractor may be beneficial in order to boost participation in performing QI HVAC projects in the future. HVAC technicians are more likely to have invested in the MeasureQuick technology and may be more willing to participate in the program.