Evergy
2019 DSM Potential Study

Final Report

Volume 4: Program Descriptions

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Eureka Facts supported ICF in conducting the appliance saturation survey.

Introduction

Evergy engaged ICF to conduct this demand side management (DSM) potential study. It assessed technical, economic and achievable potential in the residential, commercial, and industrial sectors within Evergy's service areas in Missouri, Evergy Missouri Metro and Evergy Missouri West. The study covers energy efficiency, demand response, demand-side rates, and combined heat and power.

ICF assessed five achievable potential scenarios including Realistic Achievable Potential (RAP), RAP-, RAP+, Missouri Energy Efficiency Investment Act (MEEIA), and Maximum Achievable Potential (MAP) for energy efficiency, demand response and demand side rates. ICF modeled additional stand-alone scenarios for demand response and demand side rates.

As part of the study, ICF conducted an appliance saturation analysis to collect a variety of appliance and end-use data from customers across multiple service territories in Missouri and Kansas and including residential, commercial, and industrial accounts. It included a web and mail survey of residential customers and a computer-assisted telephone interviewing (CATI) survey of business customers. The results of this analysis were used in the market characterization and baseline electricity load analysis in the study.

This study will be used to satisfy the demand-side analysis requirements of the Missouri resource planning regulations at 4 CSR 240-22, particularly Chapter 22.050. In addition, the study also takes into consideration the requirements of demand-side programs under the MEEIA regulations at 4 CSR 240-20.092, 20.093, and 20.094.

Report Organization

This report includes five volumes:

- Volume 1: Executive Summary
- Volume 2: Appliance Saturation Analysis
- Volume 3: Potential Study
- Volume 4: Program Descriptions
- Volume 5: Appendices

This document is Volume 4: Program Descriptions. It includes detailed descriptions of the energy efficiency programs modeled for the potential study. Savings, costs, and cost-effectiveness are shown for the RAP scenario and for MEEIA scenario where applicable.

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I. Energy Efficiency Programs

1. Residential Programs

1.1 Whole House Efficiency

1.1.1 Program Description

The Whole House Efficiency program promotes all cost-effective home efficiency improvements through home retrofits. It starts with home assessments and low-cost measures through building shell improvements and HVAC replacement. The goal is to improve existing building stock as well as to educate customers and trade allies.

Key changes in the MEEIA scenario include:

- Delivery of unitary HVAC measures and heat pump water heaters was assumed to be at the distributor level, as opposed to downstream as it is in the RAP scenario.
- An appliance recycling element was added. Appliance recycling programs provide turn-key services for picking up and disposing of, in a manner that comports to state and federal environmental standards, old but functioning refrigerators, freezers, dehumidifiers, and room air conditioners. The full cost of disposal is covered by the program and participants are compensated with a bounty fee.

Development Methodology

The Whole House Efficiency program in this study was developed based on the existing Whole House Efficiency program run in each of the Evergy Missouri territories. For the key changes modeled in the MEEIA scenario, ICF used benchmarking data and ICF expert input.

1.1.2 Forecast summary

The following tables provide the energy and demand savings forecasted in the RAP and MEEIA scenarios for the Whole House Efficiency program for selected years of the potential study.

Table I-1 Net RAP MWh Savings

Territory	Net RAP MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	4,154	4,115	4,078	3,692	3,677
Evergy MO West	6,457	6,365	6,275	5,639	5,650
TOTAL	10,612	10,481	10,354	9,331	9,327

Table I-2 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	2.3	2.3	2.2	1.9	1.9
Evergy MO West	3.7	3.6	3.5	3.0	3.0
TOTAL	6.0	5.8	5.7	5.0	4.8

Table I-3 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	5,131	7,261	9,053	8,866	8,991
Evergy MO West	9,414	11,397	13,308	12,961	13,341
TOTAL	14,545	18,657	22,361	21,827	22,331

Table I-4 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	1.3	1.7	2.1	2.1	2.1
Evergy MO West	2.6	3.0	3.4	3.4	3.5
TOTAL	3.9	4.8	5.5	5.4	5.6

1.1.3 Program Characteristics

The Whole House Efficiency program is the most comprehensive of the residential programs and consists of three tiers of participation. The first tier is an in-home energy assessment paired with an energy savings kit that includes basic, low-cost energy savings measures. The second tier consists of building shell measures including air sealing and ceiling insulation. The third and final tier consists of HVAC measures including heat pumps—air-source, ground-source, and ductless mini-split—and central air conditioners.

In the MEEIA scenario, an appliance recycling component represents an additional tier. The other tiers include additional measures, as described further later in this section.

Customers targeted

The Whole House Efficiency program primarily targets owner-occupied single-family homes and multifamily units that are not considered low-income. Units that are not owner occupied can participate with written consent of the owner.

Market size

The market size is as follows for each territory:

Table I-5 Market Size

Territory	Single Family	Multifamily
Evergy MO Metro	129,422	79,720
Evergy MO West	191,401	50,403

Below are the expected penetration levels across selected years of the potential study:

Table I-6 RAP Participation

Territory	RAP Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Tier 1: Energy Savings Kit	8,978	8,981	8,984	9,013	9,081
Tier 2: Building Shell Measures	459	459	459	460	462
Tier 3: HVAC Measures	3,697	3,662	3,628	3,212	3,108
Evergy MO West					
Tier 1: Energy Savings Kit	7,141	7,183	7,226	7,540	8,032
Tier 2: Building Shell Measures	318	320	321	333	352
Tier 3: HVAC Measures	6,185	6,096	6,010	5,284	5,103

Table I-7 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Tier 1: Energy Savings Kit	299	299	299	299	299
Tier 2: Building Shell Measures	399	400	400	400	400
Tier 2: Building Shell Measures - New	55	110	164	162	160
Tier 3: HVAC Measures[1]	38	38	38	34	33
Tier 3: HVAC Measures – New	224	448	671	603	573
Tier 3: HVAC Measures – Midstream	2,556	3,369	3,953	3,905	4,101
Tier 3: HVAC Measures – New Midstream	659	985	1,265	1,532	1,665
Tier 4: Appliance Recycling	1,160	2,294	3,343	2,434	1,611
Evergy MO West					
Tier 1: Energy Savings Kit	239	241	242	252	268
Tier 2: Building Shell Measures	275	276	278	289	304
Tier 2: Building Shell Measures - New	37	74	112	113	119
Tier 3: HVAC Measures[1]	109	106	103	83	67
Tier 3: HVAC Measures – New	648	1,291	1,904	1,511	1,215
Tier 3: HVAC Measures – Midstream	5,212	5,127	5,103	4,543	4,359
Tier 3: HVAC Measures – New Midstream	1,159	1,445	1,723	2,199	2,489
Tier 4: Appliance Recycling	1,600	3,172	4,631	3,416	2,357

[1] Only Ground Source Heat Pumps are left as downstream measures in the MEEIA scenario. All other existing HVAC measures are shifted to midstream.

Measures

The measures for each tier of the program in the RAP scenario are listed below:

Table I-8 RAP Measures

RAP Measures		
Tier 1: Energy Savings Kit	**Tier 2: Weatherization**	**Tier 3: HVAC**
Furnace Filter Alarm	Air Sealing	Ductless Mini-Split Heat Pump (SEER 23)
Smart Strip	Ceiling Insulation	Air-Source Heat Pump (SEER 15 to 17)
Screw-in LED		Geothermal Heat Pump (SEER 23)
Low Flow Faucet Aerator		Central AC (SEER 15 to 17)
Low Flow Showerhead		
Pipe Insulation		

Below are the new measures for existing tiers in the MEEIA scenario, followed by the measures in the new tier of the Whole House Efficiency program:

Table I-9 New MEEIA Measures for Existing Tiers

New MEEIA Measures for Existing Tiers		
Tier 1: Energy Savings Kit	**Tier 2: Weatherization**	**Tier 3: HVAC**
Low Flow Faucet Aerator (lower flow than RAP)	Air Sealing (additional reduction)	*Ductless Minisplit (SEER 30)*
		ASHP (SEER 18/21)
		Central AC (SEER 18/21)
		Heat Pump Water Heater
		Variable Speed Recirculation Pump
		High Efficiency Air Purifier
		High Efficiency Dehumidifier
		Duct Repair and Sealing

Table I-10 New MEEIA Measures

New MEEIA Measures
Tier 4: Appliance Recycling
Freezer Recycling
Refrigerator Recycling
Dehumidifier Recycling
Room Air Conditioner Recycling

Incentives

The incentives selected were based on incentives provided by the existing programs. This includes covering the full cost of the energy savings kits and home energy assessment, as well as the following incentives for the tier 2 and tier 3 measures:

Table I-11 Incentives for RAP Weatherization Measures

Incentives for RAP Weatherization Measures	
Measure	**Incentive**
Air Sealing	4¢ per sq. ft. of home
Ceiling Insulation	15¢ per sq. ft. of insulation

Table I-12 Incentives for RAP HVAC Measures

Incentives for RAP HVAC Measures	
Measure	**Incentive**
Ductless Minisplit (SEER 23)	$150 per unit
ASHP (SEER 15/16/17)	$250/$500/$700 per unit
Geothermal HP	$1,000 per unit
New Geothermal HP	$1,500 per unit
Central AC (SEER 15/16/17)	$200/$400/$500 per unit

Because most existing HVAC measures are being converted to midstream delivery, the incentives for the measures listed below were decreased by two thirds from the above incentives:

Table I-13 Incentives Changed for MEEIA HVAC Measures

Incentives Changed for MEEIA HVAC Measures	
Measure	**Incentive**
Ductless Minisplit	$50 per unit
ASHP (SEER 15/16/17)	$80/$160/$225 per unit
Central AC (SEER 15/16/17)	$65/$130/$160 per unit

Of the new measures in the MEEIA scenario, both the appliance recycling and the new energy savings kit measures are fully paid for by the program. Participants are also rewarded with a modest ‘bounty’ fee for appliance recycling. The incentives for other new measure are listed below:

Table I-14 Incentives for New MEEIA Weatherization Measures

Incentives for New MEEIA Weatherization Measures	
Measure	**Incentive**
Improved Air Sealing	6¢ per sq. ft. of home

Table I-15 Incentives for New MEEIA HVAC Measures

Incentives for New MEEIA HVAC Measures	
Measure	**Incentive**
Ductless Minisplit (SEER 30)	$385 per unit
ASHP (SEER 18/21)	$250/$575 per unit
Central AC (SEER 18/21)	$200/$450 per unit
Heat Pump Water Heater	$350 per unit
Variable Speed Recirculation Pump	$3 per watt
High Efficiency Air Purifier	$35 per unit
High Efficiency Dehumidifier (Energy Star/Max Efficiency)	$5/$35 per unit
Duct Repair and Sealing	50% of cost ($200 Max)

Budget

The budget for the RAP program for selected years of the potential study is as follows:

Table I-16 RAP Program Budget

Territory	RAP Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Admin Costs	$ 60	$ 61	$ 62	$ 67	$ 86
Incentive Costs	$ 1,333	$ 1,357	$ 1,380	$ 1,484	$ 1,850
Equipment Costs	$ 294	$ 298	$ 303	$ 326	$ 416
Install Costs	$ 99	$ 101	$ 102	$ 110	$ 140
Misc. Costs	$ 42	$ 43	$ 44	$ 47	$ 60
Earnings Opportunities	$ 204	$ 204	$ 204	$ 267	$ 246
Evergy MO West					
Admin Costs	$ 97	$ 98	$ 99	$ 106	$ 136
Incentive Costs	$ 2,129	$ 2,157	$ 2,184	$ 2,325	$ 2,901
Equipment Costs	$ 472	$ 477	$ 482	$ 515	$ 660
Install Costs	$ 159	$ 161	$ 163	$ 174	$ 223
Misc. Costs	$ 68	$ 69	$ 70	$ 74	$ 95
Earnings Opportunities	$ 315	$ 315	$ 315	$ 430	$ 390
TOTAL					
Admin Costs	$ 158	$ 160	$ 162	$ 173	$ 221
Incentive Costs	$ 3,462	$ 3,514	$ 3,565	$ 3,809	$ 4,751
Equipment Costs	$ 766	$ 775	$ 785	$ 841	$ 1,076
Install Costs	$ 259	$ 262	$ 265	$ 284	$ 363
Misc. Costs	$ 111	$ 112	$ 114	$ 122	$ 156
Earnings Opportunities	$ 519	$ 519	$ 519	$ 697	$ 637

The budget for the MEEIA scenario program for the same date ranges is below:

Table I-17 MEEIA Program Budget

Territory	MEEIA Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Admin Costs	$ 40	$ 59	$ 77	$ 83	$ 99
Incentive Costs	$ 939	$ 1,440	$ 1,902	$ 2,170	$ 2,731
Delivery Costs	$ 194	$ 288	$ 375	$ 402	$ 483
Marketing Costs	$ 66	$ 97	$ 127	$ 136	$ 163
Misc. Costs	$ 28	$ 42	$ 54	$ 58	$ 70
Earnings Opportunities	$ 136	$ 136	$ 136	$ 273	$ 285
Evergy MO West					
Admin Costs	$ 67	$ 92	$ 115	$ 122	$ 146
Incentive Costs	$ 1,738	$ 2,335	$ 2,943	$ 3,341	$ 4,269
Delivery Costs	$ 327	$ 444	$ 561	$ 592	$ 711
Marketing Costs	$ 111	$ 150	$ 189	$ 200	$ 240
Misc. Costs	$ 47	$ 64	$ 81	$ 86	$ 103
Earnings Opportunities	$ 257	$ 257	$ 257	$ 451	$ 483
TOTAL					
Admin Costs	$ 107	$ 151	$ 193	$ 205	$ 246
Incentive Costs	$ 2,677	$ 3,775	$ 4,844	$ 5,511	$ 7,000
Delivery Costs	$ 522	$ 732	$ 936	$ 994	$ 1,193
Marketing Costs	$ 176	$ 247	$ 316	$ 336	$ 403
Misc. Costs	$ 75	$ 106	$ 135	$ 144	$ 173
Earnings Opportunities	$ 393	$ 393	$ 393	$ 724	$ 768

1.1.4 Implementation Strategy

Net-to-gross ratio

The NTG ratio used the value that was provided in the most recent evaluation report as of the start of the potential study. The NTG ratio value is 0.82 for both Evergy MO territories.

Strategies to minimize free-ridership

The trade allies who install the larger and more costly measures are key to minimizing free ridership. They are positioned to act as gate keepers to help ensure the incentivized projects would not be undertaken by customers regardless of the incentives.

Strategies to maximize spillover

The strongest way to promote spillover from the Whole House Efficiency program is through the education component. This includes both customer education and training for trade allies. Customer

education helps promote more efficient energy use and home improvements beyond the specifically incentivized projects, not only by the original participants but also for individuals with whom they interact. Additionally, training for trade allies can help beyond the program by providing strategies to explain the benefits of more efficient home improvements to customers of the trade allies.

Strategies for increasing participation

There are many ways to increase participation in the Whole House Efficiency program. These include using the tier 1 energy savings kits and assessments to draw in participants for further tiers of the program, training additional trade allies for the program to capture a larger share of the home improvements undertaken within the Evergy service territories, and an increase in advertising. Each of these tactics can be used, depending on market conditions and the reasons necessitating an increase in participation.

The primary hard-to-reach segment for this program is low-income customers, but this group is addressed through the income-eligible programs.

1.2 Home Lighting Rebate

1.2.1 Program Description

The Home Lighting Rebate program is aimed at promoting residential LED lighting for both general and specialty lighting purposes.

Key Changes in the MEEIA Scenario

With the high level of existing penetration and uncertainty surrounding new lighting standards, the Home Lighting Rebate is unchanged in the MEEIA scenario. As such, only the RAP scenario will be shown in the following sections.

Development Methodology

The Home Lighting Rebate program in this study was developed based on the existing Home Lighting Rebate program run in each of the Evergy MO territories.

1.2.2 Forecast summary

The following tables provide the energy and demand savings forecasted in the RAP scenario for the Home Lighting Rebate program for selected years of the potential study.

Table I-18 Net RAP MWh Savings

Territory	Net RAP MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	8,523	8,579	8,635	9,040	9,639
Evergy MO West	9,306	9,392	9,478	10,207	11,186
TOTAL	17,829	17,971	18,114	19,247	20,825

Table I-19 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	1.3	1.3	1.3	1.4	1.5
Evergy MO West	1.4	1.4	1.4	1.5	1.7
TOTAL	2.7	2.7	2.7	2.9	3.1

1.2.3 Program Characteristics

The Home Lighting Rebate program is focused purely on residential lighting. The measures include interior and exterior lighting, both screw-in and specialty.

Customers targeted

The Home Lighting Rebate program targets standard income households replacing burnt out lighting. This is done by providing point-of-purchase rebates for high efficiency LED bulbs at participating retailers. The incentive is determined based on the incremental cost of the efficient measure.

Low-income households are targeted through other programs; while they are not explicitly targeted by the Home Lighting Rebate program, they are also not excluded from participating.

Market size

The market size is as follows for each territory:

Table I-20 Market Size

Territory	Standard Income Customers
Evergy MO Metro	209,142
Evergy MO West	241,804

Below are the expected penetration levels across selected years of the potential study:

Table I-21 RAP Participation

Territory	RAP Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	6,410	6,448	6,486	6,759	7,168
Evergy MO West	9,251	9,336	9,422	10,046	11,009

Table I-22 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	6,410	6,448	6,486	6,759	7,168
Evergy MO West	9,251	9,336	9,422	10,046	11,009

Measures

The program measures in the RAP scenario are listed below:

Table I-23 RAP Measures

Measures
Standard screw-in LEDs
Specialty screw-in interior LEDs
Specialty screw-in exterior LEDs

Incentives

The incentives were based on the measure incremental cost, with all measures receiving an incentive equal to 50% of the incremental cost.

Table I-24 Incentives for RAP

Incentives for RAP	
Measure	**Incentive**
Standard LEDs	$1.35 per bulb
Specialty LEDs	$2.60 per bulb

Budget

The budget for the RAP program across selected years of the potential study is as follows:

Table I-25 RAP Program Budget

Territory	RAP Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Admin Costs	$ 166	$ 171	$ 176	$ 220	$ 300
Incentive Costs	$ 266	$ 271	$ 275	$ 341	$ 463
Delivery Costs	$ 613	$ 632	$ 653	$ 812	$ 1,108
Marketing Costs	$ 197	$ 203	$ 209	$ 260	$ 355
Misc. Costs	$ 160	$ 165	$ 170	$ 212	$ 289
Earnings Opportunities	$ 125	$ 125	$ 125	$ 192	$ 205
Evergy MO West					
Admin Costs	$ 171	$ 177	$ 183	$ 235	$ 329
Incentive Costs	$ 302	$ 308	$ 314	$ 397	$ 557
Delivery Costs	$ 634	$ 656	$ 678	$ 868	$ 1,218
Marketing Costs	$ 203	$ 210	$ 218	$ 278	$ 391
Misc. Costs	$ 165	$ 171	$ 177	$ 226	$ 318
Earnings Opportunities	$ 135	$ 135	$ 135	$ 221	$ 244
TOTAL					
Admin Costs	$ 337	$ 348	$ 360	$ 454	$ 629
Incentive Costs	$ 568	$ 579	$ 589	$ 738	$ 1,020
Delivery Costs	$ 1,247	$ 1,288	$ 1,331	$ 1,680	$ 2,326
Marketing Costs	$ 400	$ 413	$ 427	$ 539	$ 746
Misc. Costs	$ 325	$ 336	$ 347	$ 438	$ 607
Earnings Opportunities	$ 260	$ 260	$ 260	$ 413	$ 449

1.2.4 Implementation Strategy

Net-to-gross ratio

The NTG ratio used the value that was provided in the most recent evaluation report as of the start of the potential study. The NTG ratio value is 0.70 for both Evergy MO territories.

Strategies to minimize free-ridership

The downside of the more upstream approach of point-of-sale rebates is an increase in free-ridership. However, the increase in participation resulting from this program design more than makes up for the increase in free-ridership. In addition, the incentives provided through this program design are smaller than they would be through a traditional design, and thus the cost of free-ridership is reduced.

Strategies to maximize spillover

The beneficial effects of spillover from this program consist primarily of market transformation. By altering purchasing patterns and availability of products, this program can influence the choices made by individuals who do not participate.

Strategies for increasing participation

A major way to increase participation would be to offer additional products, both lighting and otherwise, through this program design. This would ensure the continued strength of the program despite the uncertainty around changes in lighting standards.

1.3 Home Energy Report

1.3.1 Program definition

The Home Energy Report is aimed at modifying customer behavior in order to reduce inefficient usage of electricity. This is done by providing individualized reports that detail the customers' energy use and suggest small changes that can result in energy and demand savings without significantly impacting the customers' lifestyle. The program also includes information comparing the customers' usage with that of others, which has shown to spur reductions in energy use in both high- and low-usage households.

Key changes in the MEEIA scenario

There were no major changes to the structure of the program in the MEEIA scenario. The increase in the savings for the program in the MEEIA scenario represents additional customers being selected to receive the home energy report.

Development methodology

The Home Energy Report program in this study was developed based on the existing Home Energy Report program run in each of the Evergy MO territories.

For the increase in participation in the MEEIA scenario, ICF used benchmarking data and expert input from within ICF and Evergy MO.

1.3.2 Forecast summary

The following tables provide the energy and demand savings forecasted in the RAP and MEEIA scenarios for the Home Energy Report program for selected years of the potential study.

Table I-26 Net RAP MWh Savings

Territory	Net RAP MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	18,218	18,442	18,657	20,083	22,134
Evergy MO West	20,846	21,177	21,480	23,461	26,487
TOTAL	39,063	39,619	40,138	43,543	48,621

Table I-27 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	4.1	4.1	4.1	4.2	4.5
Evergy MO West	3.6	3.6	3.6	3.8	4.2
TOTAL	7.6	7.6	7.6	8.0	8.7

Table I-28 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	26,632	26,960	27,275	29,359	32,357
Evergy MO West	33,844	34,378	34,867	38,076	42,976
TOTAL	60,476	61,338	62,142	67,434	75,333

Table I-29 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	5.9	5.9	5.9	6.1	6.6
Evergy MO West	5.8	5.8	5.8	6.2	6.9
TOTAL	11.7	11.7	11.7	12.3	13.4

1.3.3 Program characteristics

The Home Energy Report is a single measure program that focuses on changing customer behavior through individually tailored suggestions and social pressure.

Customers targeted

The Home Energy Report program targets a sample of all Evergy customers.

In the Evergy Metro territory this program does not include income-eligible customers, who are targeted through a separate program. However, the Home Energy Report program in the Evergy West territory does include income-eligible customers.

Market size

The market size is as follows for each territory:

Table I-30 Market Size

Territory	Standard Income Customers	Income-Eligible Customers
Evergy MO Metro	209,142	n/a
Evergy MO West	241,804	46,908

Below are the expected penetration levels across selected years of the potential study:

Table I-31 RAP Participation

Territory	RAP Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	83,014	83,504	83,996	87,527	92,831
Evergy MO West	118,331	119,419	120,518	128,497	140,820

Table I-32 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	121,366	122,082	122,803	127,965	135,719
Evergy MO West	192,169	193,937	195,721	208,679	228,692

Measures

The measures for the Home Energy Report program consist of only the home energy report. There are no different levels of report or variations in the amount of detail provided to the different customers who are selected.

Incentives

There are no direct incentives provided to customers based on the home energy report. The only costs for the program are non-incentives costs.

Budget

The budget for the RAP program across selected years of the potential study is as follows:

Table I-33 RAP Program Budget

Territory	RAP Program Budget				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Admin Costs	$ 48	$ 50	$ 52	$ 66	$ 93
Incentive Costs	$ -	$ -	$ -	$ -	$ -
Delivery Costs	$ 652	$ 676	$ 701	$ 897	$ 1,266
Marketing Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Misc. Costs	$ 38	$ 40	$ 41	$ 53	$ 75
Earnings Opportunities	$ 26	$ 26	$ 26	$ 38	$ 38
Evergy MO West					
Admin Costs	$ 70	$ 73	$ 76	$ 98	$ 142
Incentive Costs	$ -	$ -	$ -	$ -	$ -
Delivery Costs	$ 949	$ 988	$ 1,028	$ 1,334	$ 1,928
Marketing Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Misc. Costs	$ 56	$ 58	$ 61	$ 79	$ 114
Earnings Opportunities	$ 25	$ 25	$ 25	$ 38	$ 38
TOTAL					
Admin Costs	$ 118	$ 123	$ 127	$ 164	$ 235
Incentive Costs	$ -	$ -	$ -	$ -	$ -
Delivery Costs	$ 1,601	$ 1,665	$ 1,729	$ 2,232	$ 3,194
Marketing Costs	$ 0	$ 0	$ 0	$ 0	$ 1
Misc. Costs	$ 95	$ 98	$ 102	$ 132	$ 189
Earnings Opportunities	$ 51	$ 51	$ 51	$ 77	$ 77

Below is the budget for the MEEIA scenario program for the same date ranges:

Table I-34 MEEIA Program Budget

Territory	MEEIA Program Budget				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Admin Costs	$ 95	$ 99	$ 102	$ 131	$ 184
Incentive Costs	$ -	$ -	$ -	$ -	$ -
Delivery Costs	$ 1,289	$ 1,337	$ 1,387	$ 1,775	$ 2,503
Marketing Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Misc. Costs	$ 76	$ 79	$ 82	$ 105	$ 148
Earnings Opportunities	$ 31	$ 31	$ 31	$ 38	$ 38
Evergy MO West					
Admin Costs	$ 87	$ 90	$ 94	$ 122	$ 176
Incentive Costs	$ -	$ -	$ -	$ -	$ -
Delivery Costs	$ 1,178	$ 1,226	$ 1,275	$ 1,655	$ 2,392
Marketing Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Misc. Costs	$ 70	$ 72	$ 75	$ 98	$ 141
Earnings Opportunities	$ 27	$ 27	$ 27	$ 38	$ 38
TOTAL					
Admin Costs	$ 182	$ 189	$ 196	$ 253	$ 361
Incentive Costs	$ -	$ -	$ -	$ -	$ -
Delivery Costs	$ 2,467	$ 2,564	$ 2,662	$ 3,430	$ 4,895
Marketing Costs	$ 0	$ 0	$ 0	$ 1	$ 1
Misc. Costs	$ 146	$ 151	$ 157	$ 203	$ 289
Earnings Opportunities	$ 58	$ 58	$ 58	$ 77	$ 77

1.3.4 Implementation strategies

Net-to-gross ratio

The NTG ratio used the value that was provided in the most recent evaluation report as of the start of the potential study. The NTG ratio value is 1.00 for both Evergy MO territories.

Strategies to minimize free-ridership

There is no case of free-ridership in the Home Energy Report program.

Strategies to maximize spillover

With the personalized nature of the data and energy savings tips in the home energy reports, a significant level of spillover would not be expected.

Strategies for increasing participation

To increase participation in the program, Evergy MO can simply select additional customers to receive the reports. The only limiting factor is to ensure there are enough customers not participating to constitute a control group for the evaluation, measurement, and verification analysis.

1.4 Income-Eligible Multifamily

1.4.1 Program definition

The Income-Eligible Multifamily program promotes efficiency improvements to housing units and common area components for all low-income multifamily customers.

Key changes in the MEEIA scenario

There are no major changes to the Income-Eligible Multifamily program in the MEEIA scenario beyond an increase in participation.

Development methodology

The Income-Eligible Multifamily program in this study was developed based on the existing Income-Eligible Multifamily program run in each of the Evergy MO territories.

For the key changes modeled in the MEEIA scenario, ICF used benchmarking data and ICF expert input.

1.4.2 Forecast summary

The following tables provide the energy and demand savings forecasted in the RAP and MEEIA scenarios for the Income-Eligible Multifamily program for selected years of the potential study.

Table I-35 Net RAP MWh Savings

Territory	Net RAP MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	4,106	3,728	3,406	2,419	2,861
Evergy MO West	3,756	3,400	3,106	2,285	2,794
TOTAL	7,862	7,128	6,512	4,704	5,655

Table I-36 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.6	0.5	0.5	0.3	0.4
Evergy MO West	0.5	0.5	0.4	0.3	0.4
TOTAL	1.1	1.0	0.9	0.7	0.8

Table I-37 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	5,488	4,720	4,112	2,621	3,139
Evergy MO West	4,502	3,909	3,442	2,301	2,860
TOTAL	9,990	8,629	7,553	4,922	5,999

Table I-38 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.7	0.6	0.6	0.4	0.4
Evergy MO West	0.6	0.5	0.5	0.3	0.4
TOTAL	1.4	1.2	1.0	0.7	0.8

1.4.3 Program characteristics

There are three aspects to the Income-Eligible Multifamily program: in-unit measures, common area measures, and lighting giveaways. The in-unit measures consist of measures that are similar to the energy savings kits distributed through the Whole House Efficiency program.

Customers targeted

All parts of the Income Eligible Multifamily program primarily target low-income customers living in multifamily units. The food bank lighting giveaways target all low-income customers, so they include low-income customers living in single family housing; the in-unit and common area multifamily measures also allow standard income participants, though they are not the primary targets. The food bank lighting giveaway is not currently being offered, but was included in this study because the program has been run in the past.

In the MEEIA scenario, the standard income multifamily portion of this program is shifted into its own program.

Market size

The market size is as follows for each territory:

Table I-39 Market Size

Territory	Multifamily	Lighting Giveaways
Evergy MO Metro	106,763	48,783
Evergy MO West	74,952	46,908

Below are the expected penetration levels across selected years of the potential study:

Table I-40 RAP Participation

Territory	RAP Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro					
DI Participants	4,294	4,119	3,976	3,534	4,039
Lighting Giveaway	70,885	63,933	58,029	36,050	46,579
Evergy MO West					
DI Participants	6,043	5,507	5,171	4,789	5,777
Lighting Giveaway	69,679	62,967	57,301	36,827	48,856

Table I-41 MEEIA Participation

Territory	MEEIA Participation				
	2023	**2024**	**2025**	**2032**	**2042**
Evergy MO Metro					
DI Participants	3,742	3,308	2,931	2,214	2,295
Lighting Giveaway	107,759	91,363	78,695	44,080	57,639
Evergy MO West					
DI Participants	2,345	2,095	1,875	1,504	1,617
Lighting Giveaway	95,808	82,788	72,529	43,043	58,005

Measures

The program measures for the RAP scenario are listed below:

Table I-42 RAP Measures

RAP Measures		
In-unit	**Common Area**	**Lighting Giveaway**
Smart Power Strip	LED Flood Lighting	Screw-in Interior LEDs
Low-Flow Faucet Aerator	LED Tube Lighting	Screw-in Exterior LEDs
Low-Flow Showerhead	Screw-in LEDs	Screw-in Specialty LEDs
Hot Water Pipe Insulation	Custom	

The measures in the MEEIA scenario are the same as those for RAP.

Incentives

The Income-Eligible Multifamily program does not provide incentives, but instead covers the full cost of equipment and installation for all in-unit and common area measures and covers the full cost of the bulbs for the lighting giveaway.

Budget

The budget for the RAP program across selected years of the potential study is as follows:

Table I-43 RAP Program Budget

Territory	**RAP Program Budget**									
Evergy MO Metro										
Admin Costs	$	12	$	11	$	11	$	9	$	14
Incentive Costs	$	669	$	602	$	543	$	399	$	620
Delivery Costs	$	122	$	113	$	106	$	90	$	136
Marketing Costs	$	12	$	11	$	11	$	9	$	14
Misc. Costs	$	10	$	10	$	9	$	8	$	11

Territory	RAP Program Budget					
Earnings Opportunities	$ 64	$ 64	$ 64	$ 96	$ 96	
Evergy MO West						
Admin Costs	$ 11	$ 10	$ 9	$ 8	$ 13	
Incentive Costs	$ 613	$ 526	$ 459	$ 320	$ 564	
Delivery Costs	$ 106	$ 98	$ 92	$ 80	$ 126	
Marketing Costs	$ 11	$ 10	$ 9	$ 8	$ 13	
Misc. Costs	$ 9	$ 8	$ 8	$ 7	$ 11	
Earnings Opportunities	$ 61	$ 61	$ 61	$ 96	$ 96	
TOTAL						
Admin Costs	$ 23	$ 21	$ 20	$ 17	$ 26	
Incentive Costs	$ 1,282	$ 1,128	$ 1,002	$ 720	$ 1,184	
Delivery Costs	$ 228	$ 212	$ 198	$ 170	$ 262	
Marketing Costs	$ 23	$ 21	$ 20	$ 17	$ 27	
Misc. Costs	$ 19	$ 18	$ 17	$ 14	$ 22	
Earnings Opportunities	$ 125	$ 125	$ 125	$ 192	$ 192	

Below is the budget for the MEEIA scenario program for the same date ranges:

Table I-44 MEEIA Program Budget

Territory	MEEIA Program Budget					
Evergy MO Metro						
Admin Costs	$ 56	$ 49	$ 44	$ 33	$ 51	
Incentive Costs	$ 879	$ 757	$ 656	$ 448	$ 690	
Delivery Costs	$ 559	$ 493	$ 440	$ 333	$ 511	
Marketing Costs	$ 57	$ 50	$ 45	$ 34	$ 52	
Misc. Costs	$ 47	$ 42	$ 37	$ 28	$ 43	
Earnings Opportunities	$ 76	$ 76	$ 76	$ 96	$ 96	
Evergy MO West						
Admin Costs	$ 49	$ 44	$ 39	$ 31	$ 50	
Incentive Costs	$ 706	$ 597	$ 514	$ 357	$ 589	
Delivery Costs	$ 493	$ 439	$ 396	$ 315	$ 501	
Marketing Costs	$ 50	$ 44	$ 40	$ 32	$ 51	
Misc. Costs	$ 42	$ 37	$ 33	$ 27	$ 42	
Earnings Opportunities	$ 67	$ 67	$ 67	$ 96	$ 96	
TOTAL						
Admin Costs	$ 105	$ 93	$ 83	$ 65	$ 101	

Territory	MEEIA Program Budget				
Incentive Costs	$ 1,585	$ 1,353	$ 1,170	$ 805	$ 1,279
Delivery Costs	$ 1,052	$ 931	$ 836	$ 648	$ 1,012
Marketing Costs	$ 107	$ 94	$ 85	$ 66	$ 103
Misc. Costs	$ 89	$ 79	$ 71	$ 55	$ 85
Earnings Opportunities	$ 143	$ 143	$ 143	$ 192	$ 192

1.4.4 Implementation strategies

Net-to-gross ratio

The NTG ratio used the value that was provided in the most recent evaluation report as of the start of the potential study. The NTG ratio value is 1.00 for both Evergy MO territories.

Strategies to minimize free-ridership

Free-ridership in the Income-Eligible Multifamily program is almost non-existent, since the target customers generally lack the disposable income to undertake the measures on their own. Additionally, most of the multifamily units are rental properties, which see minimal efficiency improvements due to the principal-agent problem.

Strategies to maximize spillover

Spillover in the Income-Eligible Multifamily program is almost non-existent, since customers lack the disposable income to undertake the measures on their own.

Strategies for increasing participation

Because much of the participation in this program is driven by outreach from the program implementers, opportunities to increase participation are limited to the implementation team's efforts to find and convince additional landlords to participate, as well as to find additional events that target low-income households as opportunities for lighting giveaways.

1.5 Income-Eligible Home Energy Report

1.5.1 Program definition

The Income-Eligible Home Energy Report is only run as a separate program in the Evergy MO Metro territory and is aimed at modifying the behavior of customers in order to reduce inefficient electricity usage for low-income customers. This is done by providing individualized reports that detail the customers' energy use and suggest small changes that can result in energy and demand savings without significantly impacting their lifestyles. The home energy reports also include information comparing the customers' usage with that of others, which has shown to spur reductions in energy usage in both high- and low-usage households.

Key changes in the MEEIA scenario

There were no major changes to the structure of the program in the MEEIA scenario. The increase in program savings in the MEEIA scenario represents additional customers being selected to receive the home energy report.

Development methodology

The Income-Eligible Home Energy Report program in this study was developed based on the existing Income-Eligible Home Energy Report program run in the Evergy MO Metro territories.

For the increase in participation in the MEEIA scenario, ICF used benchmarking data and expert input from within ICF and Evergy MO.

1.5.2 Forecast summary

The following tables provide the energy and demand savings forecasted in the RAP and MEEIA scenarios for the Income-Eligible Home Energy Report program for selected years of the potential study.

Table I-45 Net RAP MWh Savings

Territory	Net RAP MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	1,608.14	1,629.67	1,650.25	1,783.77	1,969.73
Evergy MO West	n/a	n/a	n/a	n/a	n/a
TOTAL	1,608.14	1,629.67	1,650.25	1,783.77	1,969.73

Table I-46 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.43	0.43	0.43	0.44	0.48
Evergy MO West	n/a	n/a	n/a	n/a	n/a
TOTAL	0.43	0.43	0.43	0.44	0.48

Table I-47 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	1,804.17	1,828.32	1,851.42	2,001.22	2,209.79
Evergy MO West	n/a	n/a	n/a	n/a	n/a
TOTAL	1,804.17	1,828.32	1,851.42	2,001.22	2,209.79

Table I-48 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.48	0.48	0.48	0.50	0.54
Evergy MO West	n/a	n/a	n/a	n/a	n/a
TOTAL	0.48	0.48	0.48	0.50	0.54

1.5.3 Program characteristics

The Income-Eligible Home Energy Report is a single measure program run in the Evergy MO Metro territory that focuses on changing low-income customer behavior through individually tailored suggestions and social pressure.

Customers targeted

The Income-Eligible Home Energy Report program targets only low-income customer in the Evergy MO Metro territory.

Market size

The market size for each territory is as follows:

Table I-49 Market Size

Territory	Income-Eligible Customers
Evergy MO Metro	48,783
Evergy MO West	n/a

Below are the expected penetration levels across selected years of the potential study:

Table I-50 RAP Participation

Territory	RAP Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	14,219	14,303	14,388	14,993	15,901
Evergy MO West	n/a	n/a	n/a	n/a	n/a

Table I-51 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	15,954	16,048	16,143	16,822	17,841
Evergy MO West	n/a	n/a	n/a	n/a	n/a

Measures

The measures for the Income-Eligible Home Energy Report consist of only the home energy report. There are no different levels of report or variations in the amount of detail provided to the different customers who are selected.

Incentives

There are no direct incentives provided to customers based on the home energy report. The only costs for the program are non-incentives costs.

Budget

The budget for the RAP program across selected years of the potential study is as follows:

Table I-52 RAP Program Budget

Territory	RAP Program Budget				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Admin Costs	$ 24	$ 25	$ 25	$ 33	$ 46
Incentive Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Delivery Costs	$ 87	$ 91	$ 94	$ 121	$ 171
Marketing Costs	$ 28	$ 29	$ 30	$ 39	$ 55
Misc. Costs	$ 23	$ 24	$ 25	$ 32	$ 45
Earnings Opportunities	$ -	$ -	$ -	$ -	$ -
Evergy MO West					
Admin Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Incentive Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Delivery Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Marketing Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Misc. Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Earnings Opportunities	$ -	$ -	$ -	$ -	$ -
TOTAL					
Admin Costs	$ 24	$ 25	$ 25	$ 33	$ 46
Incentive Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Delivery Costs	$ 87	$ 91	$ 94	$ 121	$ 171
Marketing Costs	$ 28	$ 29	$ 30	$ 39	$ 55
Misc. Costs	$ 23	$ 24	$ 25	$ 32	$ 45
Earnings Opportunities	$ -	$ -	$ -	$ -	$ -

Below is the budget for the MEEIA scenario program for the same date ranges:

Table I-53 MEEIA Program Budget

Territory	MEEIA Program Budget				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Admin Costs	$ 28	$ 29	$ 31	$ 39	$ 56
Incentive Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Delivery Costs	$ 105	$ 109	$ 113	$ 145	$ 205
Marketing Costs	$ 34	$ 35	$ 36	$ 47	$ 66
Misc. Costs	$ 27	$ 28	$ 29	$ 38	$ 54
Earnings Opportunities	$ -	$ -	$ -	$ -	$ -
Evergy MO West					
Admin Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Incentive Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Delivery Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Marketing Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Misc. Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Earnings Opportunities	$ -	$ -	$ -	$ -	$ -
TOTAL					
Admin Costs	$ 28	$ 29	$ 31	$ 39	$ 56
Incentive Costs	$ 0	$ 0	$ 0	$ 0	$ 0
Delivery Costs	$ 105	$ 109	$ 113	$ 145	$ 205
Marketing Costs	$ 34	$ 35	$ 36	$ 47	$ 66
Misc. Costs	$ 27	$ 28	$ 29	$ 38	$ 54
Earnings Opportunities	$ -	$ -	$ -	$ -	$ -

1.5.4 Implementation strategies

Net-to-gross ratio

The NTG ratio used the value that was provided in the most recent evaluation report as of the start of the potential study. The NTG ratio value is 1.00 for both Evergy MO territories.

Strategies to minimize free-ridership

There is no case of free-ridership in the Income-Eligible Home Energy Report program.

Strategies to maximize spillover

With the personalized nature of the data and energy savings tips in the home energy reports, a significant level of spillover would not be expected.

Strategies for increasing participation

To increase the participation in the program, Evergy MO can simply select additional customers to receive the reports. The only limiting factor is to ensure there are enough customers not participating to constitute a control group for the evaluation, measurement, and verification analysis.

1.6 Multifamily Direct Install

1.6.1 Program definition

The Multifamily Direct Install program is aimed at promoting efficiency improvements to housing units and common area components for standard income multifamily customers.

Key changes in the MEEIA scenario

This program is new and is only a part of the MEEIA scenario.

Development methodology

The Multifamily Direct Install program in this study was developed based on the existing standard income portion of the Income-Eligible Multifamily program in each of the Evergy MO territories, as well as benchmarking data and ICF expert input.

1.6.2 Forecast summary

The following tables provide the energy and demand savings forecasted in the MEEIA scenarios for the Multifamily Direct Install program for selected years of the potential study.

Table I-54 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	2,348	1,768	1,399	632	467
Evergy MO West	3,246	4,189	3,499	572	330
TOTAL	5,594	5,957	4,898	1,205	797

Table I-55 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.7	0.5	0.3	0.1	0.1
Evergy MO West	0.5	0.6	0.5	0.1	0.1
TOTAL	1.1	1.1	0.9	0.2	0.2

1.6.3 Program characteristics

The Multifamily Direct Install program includes in-unit measures and common area measures. The in-unit measures are similar to the energy savings kits distributed through the Whole House Efficiency program. The common area measures are primarily lighting but include optional custom measures.

Customers targeted

The Multifamily Direct Install program targets only customers who are not low-income and who live in multifamily units.

Market size

The market size is as follows for each territory:

Table I-56 Market Size

Territory	Multifamily
Evergy MO Metro	79,720
Evergy MO West	50,403

Below are the expected penetration levels across selected years of the potential study:

Table I-57 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	9,501	7,230	5,572	1,607	949
Evergy MO West	8,800	10,865	8,963	5,734	2,198

Measures

The program measures for both scenarios are listed below:

Table I-58 MEEIA Measures

In-unit	Common Area
Smart Power Strip	LED Flood Lighting
Low-Flow Faucet Aerator	LED Tube Lighting
Low-Flow Showerhead	Screw-in LEDs
Hot Water Pipe Insulation	Custom
Screw-in LEDs	

Incentives

As a direct install program, the Multifamily Direct Install program does not provide incentives but instead covers the full cost of equipment and installation for all in-unit and common area measures.

Budget

The budget for the MEEIA program across selected years of the potential study is as follows:

Table I-59 MEEIA Program Budget

Territory	MEEIA Program Budget				
Evergy MO Metro					
Admin Costs	$ 34	$ 26	$ 21	$ 11	$ 11
Incentive Costs	$ 392	$ 302	$ 245	$ 134	$ 121
Delivery Costs	$ 340	$ 262	$ 213	$ 114	$ 108
Marketing Costs	$ 34	$ 27	$ 22	$ 12	$ 11
Misc. Costs	$ 29	$ 22	$ 18	$ 10	$ 9
Earnings Opportunities	$ -	$ -	$ -	$ -	$ -
Evergy MO West					
Admin Costs	$ 64	$ 84	$ 72	$ 14	$ 10
Incentive Costs	$ 508	$ 525	$ 411	$ 61	$ 57
Delivery Costs	$ 640	$ 846	$ 725	$ 141	$ 104

Territory	MEEIA Program Budget					
Marketing Costs	$ 65	$ 86	$ 73	$ 14	$ 11	
Misc. Costs	$ 54	$ 71	$ 61	$ 12	$ 9	
Earnings Opportunities	$ -	$ -	$ -	$ -	$ -	
TOTAL						
Admin Costs	$ 98	$ 110	$ 93	$ 25	$ 21	
Incentive Costs	$ 901	$ 828	$ 657	$ 195	$ 178	
Delivery Costs	$ 980	$ 1,109	$ 937	$ 255	$ 212	
Marketing Costs	$ 99	$ 112	$ 95	$ 26	$ 22	
Misc. Costs	$ 83	$ 94	$ 79	$ 22	$ 18	
Earnings Opportunities	$ -	$ -	$ -	$ -	$ -	

1.6.4 Implementation strategies

Net-to-gross ratio

The NTG ratio used the value that was provided in the most recent evaluation report as of the start of the potential study. The NTG ratio value is 1.00 for both Evergy MO territories.

Strategies to minimize free-ridership

Within the target market of this program, renter-occupied multifamily units, there are minimal efficiency improvements due to the principal-agent problem. The small chance of natural efficiency upgrades means that free-ridership is not a major concern for this program.

Strategies to maximize spillover

The flip side of minimal free-ridership in the program is that there is very little chance of spillover, since both landlords and renters are unlikely to undertake efficiency improvements on their own.

Strategies for increasing participation

The only option for additional participation is for the program administrator to recruit participants through additional outreach to landlords and rental management companies.

2. Commercial and Industrial Programs

2.1 Business Energy Efficiency Rebate – Standard

2.1.1 Program definition

The Business Energy Efficiency Rebate (EER) – Standard program is aimed at promoting a set of commonly applicable but pre-defined efficiency improvements through business retrofits in lighting, HVAC, refrigeration, and hot water.

Key changes in the MEEIA scenario

- Additional measures in all categories except light bulbs
- Additional categories: agricultural, consumer electronics, and food service
- Decrease in NTG ratio to account for increased free-ridership due to increased incentives

Development methodology

The Business EER – Standard program in this study was developed based on the existing Business EER – Standard program run in each of the Evergy MO territories.

For the key changes modeled in the MEEIA scenario, ICF used benchmarking data and ICF expert input.

2.1.2 Forecast summary

The following tables provide the energy and demand savings forecasted in the RAP and MEEIA scenarios for the Business EER – Standard program for selected years of the potential study.

Table I-60 Net RAP MWh Savings

Territory	Net RAP MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	43,255	31,503	23,195	7,723	10,138
Evergy MO West	32,580	23,550	17,245	6,703	8,230
TOTAL	75,835	55,053	40,440	14,426	18,368

Table I-61 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	10.5	7.9	6.0	2.2	2.7
Evergy MO West	8.1	6.0	4.5	1.9	2.2
TOTAL	18.6	13.9	10.5	4.1	4.9

Table I-62 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	75,513	46,256	29,984	20,490	45,760
Evergy MO West	66,100	36,593	22,090	14,143	14,703
TOTAL	141,612	82,850	52,074	34,632	60,462

Table I-63 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	17.7	11.2	7.5	5.0	7.9
Evergy MO West	16.8	9.8	6.3	4.1	4.0
TOTAL	34.5	21.0	13.8	9.1	11.9

2.1.3 Program characteristics

The Business EER – Standard program covers the broadly applicable technologies for business efficiency improvements. In the RAP scenario the program covers the hot water, HVAC, lighting, lighting controls, pumps/fans, and refrigeration categories.

In the MEEIA scenario, the agricultural, consumer electronics, and food service categories were added as well as new measures for most of the categories in the RAP scenario. The key exception is lighting, which has been exhaustively covered.

Customers targeted

The Business EER – Standard program primarily targets medium and large commercial businesses. While small businesses are not excluded from participating in the program, in this study their lighting needs are targeted through another program and they are generally not able to participate based on capital limitations. The Small Business Lighting program has been merged into the Business EER – Standard program in the current portfolio being run by Evergy in Missouri.

Market size

The market size is as follows for each territory:

Table I-64 Market Size

Territory	Commercial
Evergy MO Metro	20,203
Evergy MO West	23,214

Below are the expected penetration levels across selected years of the potential study:

Table I-65 RAP Participation

Territory	RAP Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Hot Water	-	-	-	-	-
HVAC	47	47	47	48	49
Lighting	210	139	92	75	96
Lighting Control	39	39	38	35	36
Pumps/Fans	34	34	33	30	31
Refrigeration	16	16	16	16	16
Evergy MO West					
Hot Water	30	30	30	31	34
HVAC	109	109	109	111	121
Lighting	340	200	120	96	151
Lighting Control	55	54	54	51	56
Pumps/Fans	16	16	16	16	17
Refrigeration	1	1	1	1	1

Table I-66 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Hot Water	207	205	204	318	582
HVAC	161	161	162	166	271
Lighting	210	139	92	75	96
Lighting Control	64	63	61	91	113
Pumps/Fans	80	74	70	62	102
Refrigeration	33	33	33	69	79
Agricultural	1	1	1	1	1
Consumer Electronics	1817	1802	1788	11211	14411
Food Service	6	7	7	57	568
Evergy MO West					
Hot Water	109	110	110	114	125
HVAC	547	545	543	530	561
Lighting	340	200	120	96	151
Lighting Control	97	95	93	87	100
Pumps/Fans	31	30	30	30	33
Refrigeration	2	2	2	2	2
Agricultural	5	5	5	5	5
Consumer Electronics	2081	2076	2070	2111	2306
Food Service	4	4	4	4	5

Measures

The program measures in the RAP scenario are listed below:

Table I-67 RAP Measures

RAP Measures, Part 1		
Hot Water	**HVAC**	**Refrigeration**
Low-flow faucet aerator	Advanced rooftop unit controls	ECM motors for walk-ins
		Cooler strip curtains
		Energy Star glass door display freezer

RAP Measures, Part 2		
Lighting	**Lighting Controls**	**Pumps/Fans**
Exterior LEDs	Daylight controls	High volume, low speed fans
Interior LED fixtures, lamps, and bulbs	Occupancy sensors	High efficiency pool pump
Interior LED retrofit kits		Pool pump VSD
LED fridge/freezer case lights		Compressed air optimization or upgrade
Parking garage lighting		Engineered compressed air nozzle
De-lamping		No loss condensate drain/valve
LED exit signs		

Below are the new measures in the MEEIA scenario:

Table I-68 New MEEIA Measures

New MEEIA Measures in Existing Categories, Part 1		
Hot Water	**Lighting Controls**	**Pumps/Fans**
Low flow showerhead	Garage bilevel controls	Heat pump pool heater
Water heater jacket	Interior fixture embedded controls	Pool pump timer
Variable speed recirculation pumps		High-frequency battery charger

New MEEIA Measures in Existing Categories, Part 2	
HVAC	**Refrigeration**
Energy recovery ventilation	Beverage machine w/ & w/o software
Demand controlled ventilation	ECM motors for reach-ins
Air- & water-cooled chiller	Automatic door closer for walk-ins
Central ACs	Freezer strip curtains
Room AC	Commercial solid door refrigerators
Condenser air evaporative pre-cooling	Door gasket replacement
Air- & water-source heat pumps	Door heater controls
Packaged terminal heat pump	Energy Star advanced icemaker

New MEEIA Measures in Existing Categories, Part 2	
Window film, awnings, and duct improvements	Case lights occupancy sensor
Notched V-belts for HVAC systems	Large grocery refrigeration improvements
Variable speed drives for HVAC	Zero energy doors for refrigerated cases
HVAC tune-ups	Night covers for open display cases
Occupancy-based controls	Open display cases
Packaged RTU sealing	Floating suction pressure controls

New MEEIA Measures in New Categories		
Agricultural	**Consumer Electronics**	**Food Service**
Heating pads	Energy Star server	Pre-rinse spray valve
Interior poultry & swine lighting	Energy Star laptop	Energy Star ovens
Exterior lighting	Advanced power strip	Energy Star steam cookers
	Computer power management software	Energy Star hot food cabinet
		Energy Star griddle
		Efficient electric fryer
		Energy Star dishwasher

Incentives

The incentives selected for each measure were based on the average incentive cost of the program as a $/kWh value. For the RAP scenario this value was $0.12/kWh for both Evergy MO territories and for the MEEIA scenario this value was $0.10/kWh for both territories.

Budget

The budget for the RAP program across selected years of the potential study is as follows:

Table I-69 RAP Program Budget

Territory	RAP Program Budget				
Evergy MO Metro					
Admin Costs	$ 238	$ 179	$ 136	$ 53	$ 86
Incentive Costs	$ 4,821	$ 3,626	$ 2,758	$ 1,070	$ 1,743
Delivery Costs	$ 1,118	$ 841	$ 640	$ 248	$ 404
Marketing Costs	$ 65	$ 49	$ 37	$ 14	$ 24
Misc. Costs	$ 202	$ 152	$ 115	$ 45	$ 73
Earnings Opportunities	$ 373	$ 373	$ 373	$ 237	$ 299
Evergy MO West					
Admin Costs	$ 198	$ 147	$ 110	$ 51	$ 77
Incentive Costs	$ 3,748	$ 2,776	$ 2,085	$ 961	$ 1,467
Delivery Costs	$ 929	$ 688	$ 517	$ 238	$ 364
Marketing Costs	$ 54	$ 40	$ 30	$ 14	$ 21

Territory	RAP Program Budget				
Misc. Costs	$ 167	$ 124	$ 93	$ 43	$ 66
Earnings Opportunities	$ 336	$ 336	$ 336	$ 173	$ 234
TOTAL					
Admin Costs	$ 436	$ 326	$ 246	$ 104	$ 164
Incentive Costs	$ 8,569	$ 6,402	$ 4,843	$ 2,031	$ 3,209
Delivery Costs	$ 2,047	$ 1,529	$ 1,156	$ 487	$ 768
Marketing Costs	$ 119	$ 89	$ 67	$ 28	$ 45
Misc. Costs	$ 369	$ 276	$ 208	$ 88	$ 138
Earnings Opportunities	$ 710	$ 710	$ 710	$ 410	$ 534

Below is the budget for the MEEIA scenario program for the same date ranges:

Table I-70 MEEIA Program Budget

Territory	MEEIA Program Budget				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Admin Costs	$ 369	$ 240	$ 168	$ 189	$ 573
Incentive Costs	$ 6,050	$ 3,967	$ 2,785	$ 2,638	$ 8,011
Equipment Costs	$ 1,730	$ 1,127	$ 789	$ 887	$ 2,688
Install Costs	$ 101	$ 66	$ 46	$ 52	$ 157
Misc. Costs	$ 312	$ 203	$ 142	$ 160	$ 485
Earnings Opportunities	$ 746	$ 746	$ 746	$ 135	$ 596
Evergy MO West					
Admin Costs	$ 336	$ 210	$ 144	$ 132	$ 173
Incentive Costs	$ 5,401	$ 3,208	$ 2,118	$ 1,766	$ 2,269
Equipment Costs	$ 1,575	$ 987	$ 677	$ 619	$ 812
Install Costs	$ 92	$ 58	$ 40	$ 36	$ 47
Misc. Costs	$ 284	$ 178	$ 122	$ 112	$ 146
Earnings Opportunities	$ 673	$ 673	$ 673	$ 149	$ 154
TOTAL					
Admin Costs	$ 704	$ 450	$ 312	$ 321	$ 746
Incentive Costs	$ 11,451	$ 7,176	$ 4,902	$ 4,404	$ 10,280
Equipment Costs	$ 3,305	$ 2,114	$ 1,466	$ 1,507	$ 3,500
Install Costs	$ 193	$ 123	$ 86	$ 88	$ 204
Misc. Costs	$ 596	$ 381	$ 264	$ 272	$ 631
Earnings Opportunities	$ 1,420	$ 1,420	$ 1,420	$ 284	$ 751

2.1.4 Implementation strategies

Net-to-gross ratio

The NTG ratio used the value that was provided in the most recent evaluation report as of the start of the potential study. The NTG ratio value for both Evergy MO Metro and West is 0.96 for the RAP scenario and 0.90 for the MEEIA scenario.

Strategies to minimize free-ridership

The key to minimizing free ridership with commercial programs is to connect with the customer early and often. This ensures that the customer knows about the program before making a decision regarding an area covered by that program. In all cases, this requires marketing and disseminating information so that customers are well-aware of the programs and incentives available to them. In cases where a contractor is involved, such as large-scale lighting and HVAC, this also requires outreach to trade allies so they too can serve as a sales force for the program. Marketing is important even when a contractor is involved: good marketing ensures customers are roughly familiar with the concepts and reduces their skepticism when presented with information about programs from a contractor.

Strategies to maximize spillover

The best opportunity for spillover is through an education component leading to market transformation. By educating participants, either directly from the program or through trade allies, the energy and non-energy benefits of efficiency improvements can be spread beyond just the direct participants. This transforms the market demand to more efficient options. To maximize this spillover, commercial programs should endeavor to inform participants about the measures as well as providing the incentive.

Strategies for increasing participation

There are two parts to capturing participation— first, having adequate coverage so that customers can participate in a program no matter what project they are undertaking and second, ensuring customers know about the available programs. With the breadth of the business programs offered, particularly the Custom and Block Bidding programs, there are programs to cover all projects. Therefore the key to increasing participation is effective marketing to spread knowledge of the programs. Thus, marketing and trade ally outreach are the best ways to increase participation, which match with the tactics to minimize free ridership.

2.2 Business Energy Efficiency Rebate – Custom

2.2.1 Program definition

The Business Energy Efficiency Rebate (EER) – Custom program is aimed at capturing the variety of additional business efficiency improvements that are more situational or large-scale, to be determined prescriptively. The program covers the same basic categories at the standard program but also includes building optimization, energy management system improvements, and new construction.

Key changes in the MEEIA scenario

The key change for the MEEIA scenario is the addition of generalized custom measures for agricultural customers, data centers, and web-enabled power monitoring.

In addition, the New Construction program is moved into its own program.

Development methodology

The Business EER – Custom program in this study was developed based on the existing Business EER – Custom program run in each of the Evergy MO territories.

For the key changes modeled in the MEEIA scenario, ICF used benchmarking data and ICF expert input.

2.2.2 Forecast summary

The following tables provide the energy and demand savings forecasted in the RAP and MEEIA scenarios for the Business EER – Custom program for selected years of the potential study.

Table I-71 Net RAP MWh Savings

Territory	Net RAP MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	7,811	7,228	6,929	6,255	6,295
Evergy MO West	5,758	5,284	5,042	4,577	4,785
TOTAL	13,569	12,511	11,970	10,831	11,080

Table I-72 Net RAP Summer MW Saving

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	1.6	1.5	1.5	1.3	1.3
Evergy MO West	1.2	1.1	1.1	1.0	1.0
TOTAL	2.8	2.7	2.6	2.3	2.4

Table I-73 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	23,147	20,574	19,300	14,864	15,977
Evergy MO West	18,346	15,878	14,639	10,922	13,000
TOTAL	41,492	36,452	33,939	25,786	28,977

Table I-74 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	4.9	4.4	4.1	3.0	3.1
Evergy MO West	3.9	3.5	3.2	2.3	2.8
TOTAL	8.8	7.9	7.3	5.4	5.9

2.2.3 Program characteristics

The Business EER – Custom program covers the more specialized technologies for business efficiency improvements. The program in the RAP scenario covers the categories of building optimization, energy management system improvements, HVAC, lighting, miscellaneous custom, motors/drives/compressors, new construction, and refrigeration.

In the MEEIA scenario, generalized custom measures for agricultural customers and data centers were added.

Customers targeted

The Business EER – Custom program targets all commercial customers, though an emphasis is placed on medium to large customers.

Market size

The market size is as follows for each territory:

Table I-75 Market Size

Territory	Commercial
Evergy MO Metro	20,203
Evergy MO West	23,214

Below are the expected penetration levels across selected years of the potential study:

Table I-76 RAP Participation

Territory	RAP Participation				
Evergy MO Metro					
Building Optimization	135	134	132	125	116
Energy Management System	3	3	3	3	3
HVAC	16	16	16	16	17
Lighting	34	33	32	25	27
Misc. Custom	5	5	5	5	5
Motors, Drives & Compressors	6	6	6	6	7
Refrigeration Upgrade	7	7	7	7	7
New Construction	35	35	35	37	40
Evergy MO West					
Building Optimization	126	126	126	131	143
Energy Management System	2	2	2	2	2

Territory	RAP Participation				
HVAC	8	8	9	9	10
Lighting	28	27	26	22	24
Misc. Custom	2	2	2	3	3
Motors, Drives & Compressors	4	4	4	4	5
Refrigeration Upgrade	0	0	0	0	0
New Construction	48	48	48	51	55

Table I-77 MEEIA Participation

Territory	MEEIA Participation				
Evergy MO Metro					
Building Optimization	454	438	422	329	234
Energy Management System	9	9	9	9	9
HVAC	53	53	53	53	54
Lighting	115	101	89	36	57
Misc. Custom	16	16	16	16	17
Motors, Drives & Compressors	21	21	21	21	22
Agricultural	2	2	2	2	2
Data Centers	-	-	-	-	-
New Misc. Custom	-	-	-	-	-
Refrigeration Upgrade	-	-	-	-	-
Evergy MO West					
Building Optimization	479	467	455	458	500
Energy Management System	7	7	7	8	8
HVAC	32	32	33	34	37
Lighting	107	92	80	32	55
Misc. Custom	9	9	9	10	11
Motors, Drives & Compressors	15	15	15	16	18
Agricultural	5	5	5	5	5
Data Centers	400	403	405	427	463
New Misc. Custom	136	137	138	147	160
Refrigeration Upgrade	1	1	1	1	1

Measures

Based on the nature of a custom program, the Business EER – Custom program does not have a set list of measures. In order to model the program, a set of average custom programs were populated for each category and applicable commercial building types.

Incentives

The incentives selected were based on the incentives provided by the existing programs and varies depending on the category of custom project.

Table I-78 Incentives for RAP

Incentives for RAP	
Measure	**Incentive**
Building optimization	7¢ per kWh savings
Energy management system	10¢ per kWh savings
HVAC	15¢ per kWh savings
Lighting	7¢ per kWh savings
Miscellaneous custom	7¢ per kWh savings
Motors, drives, & compressors	9¢ per kWh savings
New construction	3¢ per kWh savings
Refrigeration	6¢ per kWh savings

In the MEEIA scenarios the incentives were changed to those listed below:

Table I-79 Incentives for MEEIA

Incentives Changed for MEEIA	
Measure	**Incentive**
Building optimization	5¢ per kWh savings
Energy management system	7¢ per kWh savings
HVAC	11¢ per kWh savings
Lighting	5¢ per kWh savings
Miscellaneous custom	6¢ per kWh savings
Motors, drives, & compressors	7¢ per kWh savings
New construction	2¢ per kWh savings
Refrigeration	4¢ per kWh savings

New Incentives for MEEIA	
Measure	**Incentive**
Agricultural	13¢ per kWh savings
Data Centers	7¢ per kWh savings

Budget

The budget for the RAP program across selected years of the potential study is as follows:

Table I-80 RAP Program Budget

Territory	RAP Program Budget				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Admin Costs	$ 237	$ 231	$ 230	$ 247	$ 317
Incentive Costs	$ 752	$ 734	$ 732	$ 813	$ 1,065
Delivery Costs	$ 792	$ 773	$ 768	$ 827	$ 1,061
Marketing Costs	$ 124	$ 121	$ 120	$ 130	$ 166
Misc. Costs	$ 191	$ 187	$ 185	$ 200	$ 256
Earnings Opportunities	$ 373	$ 373	$ 373	$ 179	$ 168
Evergy MO West					
Admin Costs	$ 186	$ 180	$ 179	$ 194	$ 258
Incentive Costs	$ 498	$ 495	$ 497	$ 559	$ 761
Delivery Costs	$ 620	$ 603	$ 598	$ 649	$ 863
Marketing Costs	$ 97	$ 95	$ 94	$ 102	$ 135
Misc. Costs	$ 150	$ 146	$ 144	$ 157	$ 208
Earnings Opportunities	$ 336	$ 336	$ 336	$ 133	$ 126
TOTAL					
Admin Costs	$ 422	$ 412	$ 408	$ 441	$ 575
Incentive Costs	$ 1,250	$ 1,229	$ 1,228	$ 1,372	$ 1,826
Delivery Costs	$ 1,413	$ 1,376	$ 1,365	$ 1,476	$ 1,924
Marketing Costs	$ 222	$ 216	$ 214	$ 231	$ 302
Misc. Costs	$ 341	$ 332	$ 330	$ 356	$ 464
Earnings Opportunities	$ 710	$ 710	$ 710	$ 312	$ 294

Below is the budget for the MEEIA scenario program for the same date ranges:

Table I-81 MEEIA Program Budget

Territory	MEEIA Program Budget				
Evergy MO Metro					
Admin Costs	$ 288	$ 251	$ 239	$ 201	$ 269
Incentive Costs	$ 1,787	$ 1,689	$ 1,647	$ 1,630	$ 2,259
Delivery Costs	$ 962	$ 840	$ 799	$ 672	$ 900
Marketing Costs	$ 151	$ 132	$ 125	$ 105	$ 141
Misc. Costs	$ 232	$ 203	$ 193	$ 162	$ 217
Earnings Opportunities	$ 373	$ 373	$ 373	$ 438	$ 428
Evergy MO West					

Territory	MEEIA Program Budget				
Admin Costs	$ 250	$ 209	$ 196	$ 160	$ 237
Incentive Costs	$ 1,339	$ 1,262	$ 1,210	$ 1,167	$ 1,788
Delivery Costs	$ 836	$ 699	$ 655	$ 535	$ 792
Marketing Costs	$ 131	$ 110	$ 103	$ 84	$ 124
Misc. Costs	$ 202	$ 169	$ 158	$ 129	$ 191
Earnings Opportunities	$ 336	$ 336	$ 336	$ 328	$ 339
TOTAL					
Admin Costs	$ 538	$ 460	$ 435	$ 361	$ 506
Incentive Costs	$ 3,126	$ 2,951	$ 2,857	$ 2,797	$ 4,048
Delivery Costs	$ 1,798	$ 1,539	$ 1,454	$ 1,207	$ 1,693
Marketing Costs	$ 282	$ 241	$ 228	$ 189	$ 266
Misc. Costs	$ 434	$ 371	$ 351	$ 291	$ 409
Earnings Opportunities	$ 710	$ 710	$ 710	$ 766	$ 767

2.2.4 Implementation strategies

Net-to-gross ratio

The NTG ratio used the value that was provided in the most recent evaluation report as of the start of the potential study. The NTG ratio value is 0.74 for both Evergy MO territories.

Strategies to minimize free-ridership

The key to minimizing free ridership with commercial programs is to connect with the customer early and often. This ensures that the customer knows about the program before making a decision regarding an area covered by that program. In all cases, this requires marketing and disseminating information so that customers are well-aware of the programs and incentives available to them. In cases where a contractor is involved, such as large-scale lighting and HVAC, this also requires outreach to trade allies so they too can serve as a sales force for the program. Marketing is important even when a contractor is involved: good marketing ensures customers are roughly familiar with the concepts and reduces their skepticism when presented with information about programs from a contractor.

With custom programs, the other part of minimizing free ridership is ensuring projects are only accepted during the initial planning stages. If a customer submits a project that is already fully drawn up, he or she is likely to undertake the related measure(s) regardless of any incentive. If the program is involved earlier, even efficient projects could potentially be further improved. This also means that the baseline assumed for projects should be based around standard practices as well as building codes. Areas such as the Evergy MO West territory utilize older building energy codes, which are likely to have been surpassed by current standard practices. This is especially true in the area of commercial lighting, where LED is now the most prevalent technology for new and upgraded lighting systems.

Strategies to maximize spillover

The best opportunity for spillover is through an education component leading to market transformation. By educating participants, either directly from the program or through trade allies, the energy and non-

energy benefits of efficiency improvements can be spread beyond just the direct participants. This transforms the market demand to more efficient options. To maximize this spillover, commercial programs should endeavor to inform participants about the measures as well as providing the incentive.
Strategies for increasing participation

There are two parts to capturing participation— first, having adequate coverage so that customers can participate in a program no matter what project they are undertaking and second, ensuring customers know about the available programs. With the breadth of the business programs offered, particularly the Custom and Block Bidding programs, there are programs to cover all projects. Therefore the key to increasing participation is effective marketing to spread knowledge of the programs. Thus, marketing and trade ally outreach are the best ways to increase participation, which match with the tactics to minimize free ridership.

2.3 Small Business Lighting

2.3.1 Program definition

The Small Business Lighting program promotes efficient lighting for small business customers through LEDs, controls, and lighting optimization.

Key changes in the MEEIA scenario

In the MEEIA scenario measures were not added, but the participation was changed.

Development methodology

The Small Business Lighting program in this study was developed based on the existing programs run in each of the Evergy territories when the study was conducted. Evergy is no longer running the Small Business Lighting program as a separate program in Missouri.

For the change in participation modeled in the MEEIA scenario, ICF used benchmarking data and ICF expert input.

2.3.2 Forecast summary

The following tables provide the energy and demand savings forecasted in the RAP and MEEIA scenarios for the Small Business Lighting program for selected years of the potential study.

Table I-82 Net RAP MWh Savings

Territory	Net RAP MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	1,117	1,048	987	724	575
Evergy MO West	1,248	1,144	1,055	672	374
TOTAL	2,365	2,192	2,043	1,396	949

Table I-83 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.2	0.2	0.2	0.2	0.1
Evergy MO West	0.3	0.3	0.3	0.2	0.1
TOTAL	0.5	0.5	0.5	0.3	0.2

Table I-84 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	5,011	4,172	3,525	1,512	1,555
Evergy MO West	4,208	3,297	2,628	797	292
TOTAL	9,219	7,469	6,154	2,309	1,847

Table I-85 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	1.1	0.9	0.8	0.4	0.4
Evergy MO West	1.0	0.8	0.7	0.2	0.1
TOTAL	2.1	1.7	1.5	0.6	0.4

2.3.3 Program characteristics

The Small Business Lighting program is focused purely on commercial lighting in small businesses. The measures include exterior lighting, a variety of interior fixtures and bulbs, lighting controls, and lighting optimization.

Customers targeted

The Small Business Lighting program targets only small commercial customers.

Market size

The market size is as follows for each territory:

Table I-86 Market Size

Territory	Small Commercial
Evergy MO Metro	18,825
Evergy MO West	21,427

Below are the expected penetration levels across selected years of the potential study:

Table I-87 RAP Participation

Territory	RAP Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	7	7	7	6	7
Evergy MO West	21	21	20	17	14

Table I-88 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	32	30	28	18	20
Evergy MO West	72	64	57	27	12

Measures

The program measures for the Small Business Lighting program are listed below:

Table I-89 Measures

Lighting
Exterior LEDs
Interior LED fixtures, lamps, and bulbs

Lighting
Interior LED retrofit kits
LED fridge/freezer case lights
Parking garage lighting
De-lamping
LED exit signs

Incentives

As a direct install program, the Small Business Lighting program does not provide incentives but instead covers the full cost of equipment and installation for all measures.

Budget

The budget for the RAP program across selected years of the potential study is as follows:

Table I-90 RAP Program Budget

Territory	RAP Program Budget				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Admin Costs	$ 24	$ 23	$ 22	$ 19	$ 19
Incentive Costs	$ 349	$ 343	$ 337	$ 339	$ 436
Delivery Costs	$ 59	$ 57	$ 55	$ 48	$ 48
Marketing Costs	$ 2	$ 2	$ 2	$ 1	$ 1
Misc. Costs	$ 20	$ 19	$ 18	$ 16	$ 16
Earnings Opportunities	$ 57	$ 57	$ 57	$ -	$ -
Evergy MO West					
Admin Costs	$ 24	$ 22	$ 21	$ 16	$ 11
Incentive Costs	$ 468	$ 452	$ 436	$ 389	$ 365
Delivery Costs	$ 59	$ 56	$ 53	$ 40	$ 28
Marketing Costs	$ 2	$ 2	$ 2	$ 1	$ 1
Misc. Costs	$ 20	$ 19	$ 18	$ 13	$ 9
Earnings Opportunities	$ 51	$ 51	$ 51	$ -	$ -
TOTAL					
Admin Costs	$ 47	$ 45	$ 43	$ 35	$ 31
Incentive Costs	$ 817	$ 795	$ 773	$ 728	$ 801
Delivery Costs	$ 118	$ 112	$ 107	$ 88	$ 77
Marketing Costs	$ 4	$ 3	$ 3	$ 3	$ 2
Misc. Costs	$ 39	$ 37	$ 36	$ 29	$ 26
Earnings Opportunities	$ 108	$ 108	$ 108	$ -	$ -

Below is the budget for the MEEIA scenario program for the same date ranges:

Table I-91 MEEIA Program Budget

Territory	MEEIA Program Budget				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Admin Costs	$ 94	$ 83	$ 74	$ 47	$ 74
Incentive Costs	$ 1,566	$ 1,361	$ 1,194	$ 727	$ 1,177
Delivery Costs	$ 236	$ 208	$ 185	$ 118	$ 185
Marketing Costs	$ 7	$ 6	$ 6	$ 4	$ 6
Misc. Costs	$ 79	$ 69	$ 62	$ 39	$ 62
Earnings Opportunities	$ 57	$ 57	$ 57	$ -	$ -
Evergy MO West					
Admin Costs	$ 67	$ 57	$ 49	$ 24	$ 15
Incentive Costs	$ 1,577	$ 1,316	$ 1,110	$ 501	$ 300
Delivery Costs	$ 167	$ 142	$ 122	$ 60	$ 37
Marketing Costs	$ 5	$ 4	$ 4	$ 2	$ 1
Misc. Costs	$ 56	$ 47	$ 41	$ 20	$ 12
Earnings Opportunities	$ 51	$ 51	$ 51	$ -	$ -
TOTAL					
Admin Costs	$ 161	$ 140	$ 123	$ 71	$ 89
Incentive Costs	$ 3,143	$ 2,676	$ 2,304	$ 1,228	$ 1,477
Delivery Costs	$ 403	$ 351	$ 307	$ 178	$ 222
Marketing Costs	$ 12	$ 10	$ 9	$ 5	$ 7
Misc. Costs	$ 134	$ 117	$ 102	$ 59	$ 74
Earnings Opportunities	$ 108	$ 108	$ 108	$ -	$ -

2.3.4 Implementation strategies

Net-to-gross ratio

The NTG ratio used the value that was provided in the most recent evaluation report as of the start of the potential study. The NTG ratio value is 0.87 for both Evergy MO territories.

Strategies to minimize free-ridership

The key to minimizing free ridership with commercial programs is to connect with the customer early and often. This ensures that the customer knows about the program before making a decision regarding an area covered by that program. In all cases, this requires marketing and disseminating information so that customers are well-aware of the programs and incentives available to them. In cases where a contractor is involved, such as large-scale lighting and HVAC, this also requires outreach to trade allies so they too can serve as a sales force for the program. Marketing is important even when a contractor is involved: good marketing ensures customers are roughly familiar with the concepts and reduces their skepticism when presented with information about programs from a contractor.

Strategies to maximize spillover

The best opportunity for spillover is through an education component leading to market transformation. By educating participants, either directly from the program or through trade allies, the energy and non-energy benefits of efficiency improvements can be spread beyond just the direct participants. This transforms the market demand to more efficient options. To maximize this spillover, commercial programs should endeavor to inform participants about the measures as well as providing the incentive.

Strategies for increasing participation

There are two parts to capturing participation— first, having adequate coverage so that customers can participate in a program no matter what project they are undertaking and second, ensuring customers know about the available programs. With the breadth of the business programs offered, particularly the Custom and Block Bidding programs, there are programs to cover all projects. Therefore the key to increasing participation is effective marketing to spread knowledge of the programs. Thus, marketing and trade ally outreach are the best ways to increase participation, which match with the tactics to minimize free ridership.

2.4 Strategic Energy Management

2.4.1 Program definition

The Strategic Energy Management program is aimed at modifying companies' behavior in order to increase the efficiency of their energy use. This is done by providing education and technical assistance to companies and working with them to implement cultural changes in both individual sessions and group workshops.

Key changes in the MEEIA scenario

Measures were not added in the MEEIA scenario, but participation was increased by providing an incentive.

Development methodology

The Strategic Energy Management program in this study was developed based on the existing program being run in each of the Evergy MO territories when the study was initiated. The Strategic Energy Management program has not been launched in the latest cycle of programs.

For the change in participation modeled in the MEEIA scenario, ICF used benchmarking data and ICF expert input.

2.4.2 Forecast summary

The following tables provide the energy and demand savings forecasted in the RAP and MEEIA scenarios for the Strategic Energy Management program for selected years of the potential study.

Table I-92 Net RAP MWh Savings

Territory	Net RAP MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	6,919	6,235	5,660	5,396	5,372
Evergy MO West	1,754	1,709	1,668	1,657	1,676
TOTAL	8,673	7,944	7,328	7,053	7,048

Table I-93 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.7	0.6	0.5	0.5	0.5
Evergy MO West	0.2	0.2	0.2	0.1	0.2
TOTAL	0.8	0.7	0.7	0.6	0.6

Table I-94 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	7,629	6,803	6,120	5,853	5,847
Evergy MO West	1,935	1,881	1,831	1,815	1,836
TOTAL	9,565	8,683	7,951	7,668	7,683

Table I-95 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.7	0.6	0.5	0.5	0.5
Evergy MO West	0.2	0.2	0.2	0.2	0.2
TOTAL	0.9	0.8	0.7	0.7	0.7

2.4.3 Program characteristics

The Strategic Energy Management program is focused on changing behavior within companies. This is done by working with an individual in a participating company and providing education and technical assistance to facilitate energy use management. Outreach is done through both individual sessions and group workshops.

Customers targeted

The Strategic Energy Management program targets larger commercial customers that have the resources to devote an individual's or small teams to managing energy use in the company.

Market size

The market size is as follows for each territory:

Table I-96 Market Size

Territory	Commercial
Evergy MO Metro	1,378
Evergy MO West	1,787

Below are the expected penetration levels across selected years of the potential study:

Table I-97 RAP Participation

Territory	RAP Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	11	11	11	11	12
Evergy MO West	3	3	3	3	3

Table I-98 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	12	12	12	13	13
Evergy MO West	3	3	3	3	4

Measures

The measures for the Strategic Energy Management program consist of individualized education and technical assistance. Due to the customized nature of the program, there is no list if measures.

Incentives

In the commercial sector, direct incentives are not provided to customers. Within the industrial sector, the projects are more complex so the modeled programs include on-site assistance, the cost of which is listed below as incentive cost.

Budget

The budget for the RAP program across selected years of the potential study is as follows:

Table I-99 RAP Program Budget

Territory	RAP Program Budget				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Admin Costs	$ 39	$ 36	$ 33	$ 38	$ 48
Incentive Costs	$ 66	$ 57	$ 49	$ 55	$ 74
Delivery Costs	$ 184	$ 170	$ 158	$ 179	$ 228
Marketing Costs	$ 24	$ 22	$ 20	$ 23	$ 29
Misc. Costs	$ 7	$ 6	$ 5	$ 6	$ 8
Earnings Opportunities	$ 373	$ 373	$ 373	$ 43	$ 38
Evergy MO West					
Admin Costs	$ 46	$ 46	$ 46	$ 54	$ 70
Incentive Costs	$ 20	$ 20	$ 19	$ 22	$ 29
Delivery Costs	$ 217	$ 217	$ 217	$ 256	$ 332
Marketing Costs	$ 28	$ 28	$ 28	$ 33	$ 43
Misc. Costs	$ 36	$ 36	$ 36	$ 43	$ 56
Earnings Opportunities	$ 336	$ 336	$ 336	$ 13	$ 13
TOTAL					
Admin Costs	$ 85	$ 82	$ 79	$ 92	$ 118
Incentive Costs	$ 85	$ 76	$ 68	$ 77	$ 104
Delivery Costs	$ 402	$ 387	$ 375	$ 435	$ 560
Marketing Costs	$ 52	$ 50	$ 48	$ 56	$ 72
Misc. Costs	$ 44	$ 43	$ 42	$ 49	$ 64
Earnings Opportunities	$ 710	$ 710	$ 710	$ 56	$ 51

Below is the budget for the MEEIA scenario program for the same date ranges:

Table I-100 MEEIA Program Budget

Territory	MEEIA Program Budget				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Admin Costs	$ 37	$ 34	$ 32	$ 35	$ 44
Incentive Costs	$ 120	$ 109	$ 101	$ 114	$ 147

Territory	MEEIA Program Budget				
	2023	2024	2025	2032	2042
Delivery Costs	$ 175	$ 161	$ 150	$ 168	$ 211
Marketing Costs	$ 22	$ 21	$ 19	$ 22	$ 27
Misc. Costs	$ 13	$ 12	$ 11	$ 13	$ 16
Earnings Opportunities	$ 373	$ 373	$ 373	$ 46	$ 42
Evergy MO West					
Admin Costs	$ 44	$ 44	$ 43	$ 51	$ 64
Incentive Costs	$ 36	$ 36	$ 36	$ 42	$ 55
Delivery Costs	$ 207	$ 207	$ 206	$ 240	$ 305
Marketing Costs	$ 27	$ 27	$ 26	$ 31	$ 39
Misc. Costs	$ 35	$ 35	$ 35	$ 40	$ 51
Earnings Opportunities	$ 337	$ 337	$ 337	$ 15	$ 14
TOTAL					
Admin Costs	$ 81	$ 78	$ 75	$ 86	$ 109
Incentive Costs	$ 156	$ 145	$ 137	$ 157	$ 201
Delivery Costs	$ 382	$ 368	$ 356	$ 408	$ 516
Marketing Costs	$ 49	$ 47	$ 46	$ 52	$ 66
Misc. Costs	$ 48	$ 47	$ 46	$ 53	$ 68
Earnings Opportunities	$ 710	$ 710	$ 710	$ 62	$ 56

2.4.4 Implementation strategies

Net-to-gross ratio

The NTG ratio used the value that was provided in the most recent evaluation report as of the start of the potential study. The NTG ratio value is 1.00 for both Evergy MO territories.

Strategies to minimize free-ridership

With the Strategic Energy Management program being a behavioral program, there is no free-ridership. This is based on the observation of existing behavior and the methodology used to determine the customers baseline usage being compared to.

Strategies to maximize spillover

The best opportunity for spillover is through an education component leading to market transformation. By educating participants, either directly from the program or through trade allies, the energy and non-energy benefits of efficiency improvements can be spread beyond just the direct participants. This transforms the market demand to more efficient options. To maximize this spillover, commercial programs should endeavor to inform participants about the measures as well as providing the incentive.

Of all the commercial programs, the Strategic Energy Management program has the greatest chance to promote the market transformation, since its core is providing education in order to change behavior. Spillover from this program may result in participation in the other business programs. To maximize spillover of all kinds from this program, its implementation should involve education beyond just the specific behavioral measures being undertaken by participants to help identify the benefits of broader energy efficient improvements.

Strategies for increasing participation

There are two parts to capturing participation— first, having adequate coverage so that customers can participate in a program no matter what project they are undertaking and second, ensuring customers know about the available programs. With the breadth of the business programs offered, particularly the Custom and Block Bidding programs, there are programs to cover all projects. Therefore the key to increasing participation is effective marketing to spread knowledge of the programs. Thus, marketing and trade ally outreach are the best ways to increase participation, which match with the tactics to minimize free ridership.

2.5 Block Bidding

2.5.1 Program definition

The Block Bidding program is aimed at promoting very large efficiency improvements. This is done through a Request for Proposal (RFP) format to purchase blocks of energy savings.

Key changes in the MEEIA scenario

The program's structure and measures are unchanged in the MEEIA scenario.

Development methodology

The Block Bidding program in this study was developed based on the existing program being run in each of the Evergy MO territories at the time this study was initiated. The Block Bidding program has not been launched in the latest cycle of programs.

For the change in participation modeled in the MEEIA scenario, ICF used benchmarking data and ICF expert input.

2.5.2 Forecast summary

The following tables provide the energy and demand savings forecasted in the RAP and MEEIA scenarios for the Block Bidding program for selected years of the potential study.

Table I-101 Net RAP MWh Savings

Territory	Net RAP MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	95	97	100	115	133
Evergy MO West	714	734	755	909	1,124
TOTAL	809	832	854	1,024	1,257

Table I-102 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.0	0.0	0.0	0.0	0.0
Evergy MO West	0.1	0.1	0.1	0.1	0.1
TOTAL	0.1	0.1	0.1	0.1	0.2

Table I-103 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	105	107	109	127	147
Evergy MO West	785	808	830	1,000	1,236
TOTAL	890	915	940	1,126	1,383

Table I-104 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.0	0.0	0.0	0.0	0.0
Evergy MO West	0.1	0.1	0.1	0.1	0.1
TOTAL	0.1	0.1	0.1	0.2	0.2

2.5.3 Program characteristics

The Block Bidding program is focused on promoting large-scale efficiency improvements that do not fall within the realm of the other programs. This is done by releasing a Request for Proposal (RFP) for blocks of energy savings, with respondents bidding in their $/kWh price and total kWh energy savings for their projects.

Customers targeted

The Block Bidding program targets two different types of bidders. The first are larger commercial customers who undertake individual projects that are large enough to surpass the limits on other programs. The second are third-party entities that undertake smaller projects that, in aggregate, are large enough for a block bid.

Market size

The market size for large-scale customers is as follows for each territory:

Table I-105 Market Size

Territory	Commercial
Evergy MO Metro	1,378
Evergy MO West	1,787

The size of the market for third-party aggregators is unknown.

Below are the expected penetration levels across selected years of the potential study:

Table I-106 RAP Participation

Territory	RAP Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	1	1	1	1	1
Evergy MO West	1	1	1	1	1

Table I-107 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	1	1	1	1	1
Evergy MO West	1	1	1	1	1

Measures

The measures for the Block Bidding program consist of the bids by entities. Because of this, there is no list of measures.

Incentives

The incentives for the program are set by the blocks that are bid in each proposal and finalized by the selection process. For the purpose of this study, the historic average of 16¢/kWh was used for the RAP scenario incentive.

Budget

The budget for the RAP program across selected years of the potential study is as follows:

Table I-108 RAP Program Budget

Territory	RAP Program Budget				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Admin Costs	$ 30	$ 31	$ 33	$ 45	$ 67
Incentive Costs	$ 21	$ 22	$ 23	$ 32	$ 47
Delivery Costs	$ 148	$ 155	$ 163	$ 224	$ 332
Marketing Costs	$ 11	$ 12	$ 12	$ 17	$ 25
Misc. Costs	$ 26	$ 27	$ 29	$ 40	$ 59
Earnings Opportunities	$ 120	$ 120	$ 120	$ 3	$ 5
Evergy MO West					
Admin Costs	$ 37	$ 39	$ 42	$ 59	$ 94
Incentive Costs	$ 197	$ 208	$ 219	$ 313	$ 496
Delivery Costs	$ 185	$ 195	$ 206	$ 294	$ 466
Marketing Costs	$ 14	$ 15	$ 16	$ 22	$ 35
Misc. Costs	$ 33	$ 34	$ 36	$ 52	$ 82
Earnings Opportunities	$ 103	$ 103	$ 105	$ 17	$ 22
TOTAL					
Admin Costs	$ 67	$ 71	$ 74	$ 105	$ 161
Incentive Costs	$ 218	$ 230	$ 242	$ 345	$ 543
Delivery Costs	$ 333	$ 351	$ 369	$ 518	$ 798
Marketing Costs	$ 25	$ 27	$ 28	$ 39	$ 60
Misc. Costs	$ 59	$ 62	$ 65	$ 92	$ 141
Earnings Opportunities	$ 223	$ 223	$ 223	$ 21	$ 27

Below is the budget for the MEEIA scenario program for the same date ranges:

Table I-109 MEEIA Program Budget

Territory	MEEIA Program Budget				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Admin Costs	$ 30	$ 31	$ 33	$ 45	$ 67
Incentive Costs	$ 17	$ 18	$ 19	$ 26	$ 38
Delivery Costs	$ 148	$ 155	$ 163	$ 224	$ 332
Marketing Costs	$ 11	$ 12	$ 12	$ 17	$ 25
Misc. Costs	$ 26	$ 27	$ 29	$ 40	$ 59
Earnings Opportunities	$ 120	$ 120	$ 120	$ 5	$ 5
Evergy MO West					
Admin Costs	$ 37	$ 39	$ 42	$ 59	$ 94
Incentive Costs	$ 160	$ 169	$ 178	$ 255	$ 404
Delivery Costs	$ 185	$ 195	$ 206	$ 294	$ 466
Marketing Costs	$ 14	$ 15	$ 16	$ 22	$ 35
Misc. Costs	$ 33	$ 34	$ 36	$ 52	$ 82
Earnings Opportunities	$ 103	$ 103	$ 103	$ 19	$ 24
TOTAL					
Admin Costs	$ 67	$ 71	$ 74	$ 105	$ 161
Incentive Costs	$ 177	$ 187	$ 197	$ 281	$ 442
Delivery Costs	$ 333	$ 350	$ 368	$ 518	$ 798
Marketing Costs	$ 25	$ 27	$ 28	$ 39	$ 60
Misc. Costs	$ 59	$ 62	$ 65	$ 92	$ 141
Earnings Opportunities	$ 223	$ 223	$ 223	$ 23	$ 29

2.5.4 Implementation strategies

Net-to-gross ratio

The NTG ratio used the value that was provided in the most recent evaluation report as of the start of the potential study. The NTG ratio value is 0.74 for both Evergy MO territories.

Strategies to minimize free-ridership

The key to minimizing free ridership with commercial programs is to connect with the customer early and often. This ensures that the customer knows about the program before making a decision regarding an area covered by that program. In all cases, this requires marketing and disseminating information so that customers are well-aware of the programs and incentives available to them. In cases where a contractor is involved, such as large-scale lighting and HVAC, this also requires outreach to trade allies so they too can serve as a sales force for the program. Marketing is important even when a contractor is involved: good marketing ensures customers are roughly familiar with the concepts and reduces their skepticism when presented with information about programs from a contractor.

With custom programs, the other part of minimizing free ridership is ensuring projects are only accepted during the initial planning stages. If a customer submits a project that is already fully drawn up, he or she

is likely to undertake the related measure(s) regardless of any incentive. If the program is involved earlier, even efficient projects could potentially be further improved. This also means that the baseline assumed for projects should be based around standard practices as well as building codes. Areas such as the Evergy MO West territory utilize older building energy codes, which are likely to have been surpassed by current standard practices. This is especially true in the area of commercial lighting, where LED is now the most prevalent technology for new and upgraded lighting systems.

Strategies to maximize spillover

The best opportunity for spillover is through an education component leading to market transformation. By educating participants, either directly from the program or through trade allies, the energy and non-energy benefits of efficiency improvements can be spread beyond just the direct participants. This transforms the market demand to more efficient options. To maximize this spillover, commercial programs should endeavor to inform participants about the measures as well as providing the incentive.

Strategies for increasing participation

The two parts to capturing participation is to have a program that customers can participate in no matter what project they are undertaking and ensuring they know about these programs. With the breath of the business programs offered, particularly the Custom and Block Bidding programs, there are programs to cover all projects. This means that the key to increasing participation is spreading knowledge of the program through marketing. Thus, marketing and trade ally outreach are the best ways to increase participation, which matches with the tactics to minimize free ridership.

2.6 New Construction

2.6.1 Program definition

The New Construction program is aimed at improving the efficiency of new building stock through improvements over building code.

Key changes in the MEEIA scenario

The New Construction program is only a separate program in the MEEIA scenario.

Development methodology

The New Construction program in this study was developed based on the existing new construction component of the Business EER – Custom program being run in each of the Evergy MO territories with increased participation based on benchmarking data and ICF expert input.

2.6.2 Forecast summary

The following tables provide the energy and demand savings forecasted in the MEEIA scenarios for the New Construction program for selected years of the potential study.

Table I-110 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	905	904	904	918	938
Evergy MO West	2,123	2,119	2,118	2,146	2,182
TOTAL	3,028	3,022	3,021	3,065	3,121

Table I-111 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.2	0.2	0.2	0.2	0.2
Evergy MO West	0.5	0.5	0.5	0.5	0.5
TOTAL	0.7	0.7	0.7	0.7	0.7

2.6.3 Program characteristics

The New Construction program is focused on promoting more efficiency for new commercial buildings. This is done by offering incentives and providing technical assistance on improvements over current building codes.

Customers targeted

The New Construction program targets all businesses.

Market size

The market size is as follows for each territory:

Table I-112 Market Size

Territory	Commercial
Evergy MO Metro	20,203
Evergy MO West	23,214

Below are the expected penetration levels across selected years of the potential study:

Table I-113 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	44	44	44	46	50
Evergy MO West	138	139	140	147	157

Measures

Because of its custom nature, the New Construction program does not have a set list of measures.

Incentives

The incentives for the program are a set 0.02¢/kWh.

Budget

The budget for the MEEIA program across selected years of the potential study is as follows:

Table I-114 MEEIA Program Budget

Territory	MEEIA Program Budget				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Admin Costs	$ 24	$ 24	$ 25	$ 30	$ 40
Incentive Costs	$ 27	$ 28	$ 28	$ 34	$ 45
Delivery Costs	$ 80	$ 82	$ 84	$ 101	$ 132
Marketing Costs	$ 13	$ 13	$ 13	$ 16	$ 21
Misc. Costs	$ 19	$ 20	$ 20	$ 24	$ 32
Earnings Opportunities	$ 176	$ 176	$ 176	$ -	$ -
Evergy MO West					
Admin Costs	$ 57	$ 59	$ 60	$ 72	$ 94
Incentive Costs	$ 65	$ 66	$ 68	$ 82	$ 106
Delivery Costs	$ 192	$ 196	$ 201	$ 242	$ 315
Marketing Costs	$ 30	$ 31	$ 32	$ 38	$ 49
Misc. Costs	$ 46	$ 47	$ 49	$ 58	$ 76
Earnings Opportunities	$ 154	$ 154	$ 154	$ -	$ -
TOTAL					
Admin Costs	$ 81	$ 83	$ 85	$ 103	$ 134

Territory	MEEIA Program Budget				
	2023	2024	2025	2032	2042
Incentive Costs	$ 92	$ 94	$ 96	$ 116	$ 151
Delivery Costs	$ 272	$ 278	$ 285	$ 343	$ 448
Marketing Costs	$ 43	$ 44	$ 45	$ 54	$ 70
Misc. Costs	$ 66	$ 67	$ 69	$ 83	$ 108
Earnings Opportunities	$ 331	$ 331	$ 331	$ -	$ -

2.6.4 Implementation strategies

Net-to-gross ratio

The NTG ratio used the value that was provided in the most recent evaluation report as of the start of the potential study. The NTG ratio value is 0.74 for both Evergy MO territories.

Strategies to minimize free-ridership

The key to minimizing free ridership with commercial programs is to connect with the customer early and often. This ensures that the customer knows about the program before making a decision regarding an area covered by that program. In all cases, this requires marketing and disseminating information so that customers are well-aware of the programs and incentives available to them. In cases where a contractor is involved, such as large-scale lighting and HVAC, this also requires outreach to trade allies so they too can serve as a sales force for the program. Marketing is important even when a contractor is involved: good marketing ensures customers are roughly familiar with the concepts and reduces their skepticism when presented with information about programs from a contractor.

With custom nature of the New Construction program, the other part of minimizing free ridership is ensuring projects are only accepted during the initial planning stages. If a customer submits new construction plans that is already fully drawn up, he or she is likely to undertake the related measure(s) regardless of any incentive. If the program is involved earlier, even efficient construction plans could potentially be further improved. This also means that the baseline assumed for projects should be based around standard practices as well as building codes. Areas such as the Evergy MO West territory utilize older building energy codes, which are likely to have been surpassed by current standard practices. This is especially true in the area of commercial lighting, where LED is now the most prevalent technology for new and upgraded lighting systems.

Strategies to maximize spillover

The best opportunity for spillover is through an education component leading to market transformation. By educating participants, either directly from the program or through trade allies, the energy and non-energy benefits of efficiency improvements can be spread beyond just the direct participants. This transforms the market demand to more efficient options. To maximize this spillover, commercial programs should endeavor to inform participants about the measures as well as providing the incentive.

Strategies for increasing participation

There are two parts to capturing participation— first, having adequate coverage so that customers can participate in a program no matter what project they are undertaking and second, ensuring customers know about the available programs. With the breadth of the business programs offered, particularly the Custom and Block Bidding programs, there are programs to cover all projects. Therefore the key to increasing participation is effective marketing to spread knowledge of the programs. Thus, marketing

and trade ally outreach are the best ways to increase participation, which match with the tactics to minimize free ridership.

II. Demand Response Programs and Demand Side Rates

In this chapter, we describe the programs modeled in the Demand Response (DR) and Demand Side Rates (DSR) section and provide details of the potential analysis outputs: programs savings, applicability, participation, and costs.

Distinguishing Characteristics of DR Programs and DSRs

The DR and DSR programs have a few basic distinctions from the EE programs:

- The Net-to-Gross ratio (NTG) is 1.
- Free-ridership and spillover concepts are not extended to the DR and DSR programs.
- Energy savings are non-zero for a subset of DR and DSR programs. The rest are assumed to have 100% snapback.
    - All DSRs have non-zero energy savings.
    - Other programs with non-zero energy savings are: smart thermostats for the residential and commercial sectors and thermal storage and business demand response for commercial sector.
- For the DR programs, the number of events called is capped at 15 per season during the peak period. The peak period is defined as 4pm to 8pm on weekdays, in accordance with the existing Time of Use Rate structure.

Strategies for Increasing Participation in DR and DSR Programs

Strategies for increasing participation include:

- Customer education and outreach that involves informing customers:
    - On the operational mechanics of the programs and rates, as well as the expected comfort levels during events, and
    - About the option to override an event for DR programs.
- Offering comparison of bills and incentives before and after enrolling in rates and programs.
    - These could highlight the benefits of switching over to the DSR rates.
    - Options could include gradual introduction of rates through offerings such as ‘bill guarantees’ and ‘bill payment assistance.’
- Engaging trade allies to market multiple DR and DSR offerings and alongside EE measures.
- Targeting the building management of multi-family homes for bulk sign-ups for programs.
- Identifying and targeting C&I customers based on their AMI usage patterns.

Reference Guide

- **Savings:** Savings reported in this chapter are all **at generator.**
    - Demand Savings: summer demand savings are reported for selected years.
    - Energy Savings: for programs with zero energy savings, the corresponding tables are skipped. For all others, the values presented are the cumulative energy savings.
- **Scenarios**: For programs that were not included in RAP, only the MEEIA results are presented.
- **Dollar denomination**: Program costs are reported in nominal dollars in the Appendix. Evergy’s assumption for inflation was 2.5% per year.
- **Incentives**: Incentives used for modeling are from 2018 EM&V reports i.e. MEEIA Cycle 2.

The programs and rates included in this chapter include all the MAP/MEEIA programs (which are a superset of the RAP programs) that have cleared the Total Resource Cost (TRC) test in at least one of the jurisdictions in at least one of the achievable scenarios.

1. Residential Programs and Rates

1.1 Smart Thermostat

1.1.1 Program Description

The smart thermostat program for residential HVAC systems operates through a remotely controllable programmable or smart thermostat. During a DR event, the utility sends a signal to the thermostats, which in turn increases the setpoints by a few degrees during summer. Thermostats return to the original setpoint after the event. Customers are given the option to override the event when they choose to. Event notifications can be set up via electronic/mobile communication (email or phone) or via display on the thermostat for supported devices. The program is delivered via one of three options: direct install, do it yourself kits, and bring your own thermostat.

This program is assumed to encompass the thermostat optimization program, which optimizes thermostat operation to result in energy savings through the summer period.

There was no difference in modeling the smart thermostat between the RAP and MEEIA scenarios. ICF used the same costs, incentives, and participation target for the RAP and MEEIA scenarios.

Development Methodology

The residential smart thermostat program in this study was developed based on the existing smart thermostat program run in the two Evergy service areas, Metro and West. The participation curve, modeled as a bass diffusion curve, was calibrated to the data prior to the study period— historic till 2020 and planned for the current MEEIA cycle. The incentives and non-incentive costs (such as administration and event calling) used for modeling the potential study are based on current costs incurred by Evergy.

The demand savings per participant were based on the deemed savings reported in the 2018 EM&V report, with a 25% derate factor applied to accommodate the potential staggering of events as well as the degradation of performance as the customer count increases. The energy savings were also proportional to the savings reported in the 2018 EM&V report, assuming the same fraction of DR participants also participate in the Seasonal Savings and optimization programs.

1.1.2 Forecast summary

The forecast of cumulative potential savings from smart thermostats for select years of the potential study for the RAP scenario are shown in the following tables.

Table II-1 Net RAP MWh Savings

Territory	Net RAP MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	1,689.5	4,401.1	6,574.6	12,738.6	13,117.0
Evergy MO West	1,430.5	4,011.8	6,215.0	12,837.7	13,371.9
TOTAL	3,120.0	8,412.9	12,789.6	25,576.3	26,488.9

Table II-2 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	52.3	61.8	69.4	93.0	94.4
Evergy MO West	58.4	68.2	76.6	107.1	109.8
TOTAL	110.7	130.1	146.0	200.0	204.2

The forecast of cumulative potential savings for the MEEIA scenario for select years is shown in the following tables.

Table II-3 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	1,689.6	4,401.4	6,575.0	12,737.8	13,120.1
Evergy MO West	1,430.0	4,010.5	6,213.0	12,830.4	13,370.4
TOTAL	3,119.6	8,411.9	12,788.1	25,568.3	26,490.5

Table II-4 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	52.3	61.9	69.4	93.0	94.4
Evergy MO West	58.3	68.2	76.5	107.0	109.8
TOTAL	110.7	130.1	146.0	199.9	204.2

1.1.3 Program Characteristics

Customers targeted

All residential customers with central HVAC systems are eligible for smart thermostat programs. The saturation of HVAC systems was obtained from the survey results, specified in Volume 2 of this report.

Market size

The market size is as follows for each territory:

Table II-5 Market Size

Territory	Single Family	Multifamily	Single Family Low Income	Multifamily Low Income
Evergy MO Metro	103,514	17,388	63,664	21,596
Evergy MO West	152,322	17,794	40,240	19,599

Participation for select years of the potential study are as shown:

Table II-6 RAP Participation

Territory	RAP Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	50,763	58,593	65,375	84,175	85,161
Evergy MO West	56,945	65,759	73,420	94,884	9,6053
TOTAL	107,707	124,352	138,796	179,059	181,214

Table II-7 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	50,763	58,593	65,375	84,175	85,161
Evergy MO West	56,945	65,759	73,420	94,884	96,053
TOTAL	107,707	124,352	138,796	179,059	181,214

Incentives

Evergy's existing program incentives for the smart thermostat program were used for modeling the program in the potential study. The one-time incentives for different options are shown in table II-10, while the annual incentive is set at $25 per enrolled thermostat.

Table II-8 RAP Incentives

Program Option Type	Incentive
Direct Install	$0
Do it Yourself	$50
Bring Your Own Thermostat	$100

Budget

The budget for the RAP program for select years is as follows:

Table II-9 RAP Program Budget

Territory	RAP Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$2,189.3	$1,831.6	$1,686.5	$3,268.5	$4,182.4
Incentive Costs	$1,805.0	$1,963.5	$2,156.9	$3,310.4	$4,297.7
Evergy MO West					
Non-Incentive Costs	$2,237.4	$2,066.5	$1,900.1	$3,751.9	$4,801.0
Incentive Costs	$1,914.6	$2,157.9	$2,382.5	$3,758.6	$4,916.7
TOTAL					
Admin Costs	$4,426.7	$3,898.0	$3,586.6	$7,020.4	$8,983.5
Incentive Costs	$3,719.7	$4,121.4	$4,539.4	$7,069.0	$9,214.5

Below is the budget for the MEEIA scenario program for the same years:

Table II-10 MEEIA Program Budget

Territory	MEEIA Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$2,189.3	$1,831.6	$1,686.5	$3,268.5	$4,182.4
Incentive Costs	$1,805.0	$1,963.5	$2,156.9	$3,310.4	$4,297.7
Evergy MO West					
Non-Incentive Costs	$2,237.4	$2,066.5	$1,900.1	$3,751.9	$4,801.0
Incentive Costs	$1,914.6	$2,157.9	$2,382.5	$3,758.6	$4,916.7
TOTAL					
Non-Incentive Costs	$4,426.7	$3,898.0	$3,586.6	$7,020.4	$8,983.5
Incentive Costs	$3,719.7	$4,121.4	$4,539.4	$7,069.0	$9,214.5

The non-incentive costs include program administration, marketing and other costs, such as installations. Since there are three modes of program delivery, the total was calculated using a weighted average of the options assuming the same breakdown between options as existed in 2018.

1.2 Direct Load Control - Water Heaters, Pool Pumps and Hot Tubs

1.2.1 Program Description

Residential Direct Load Control (DLC) is a program that allows the utility to control systems at the customer's home using remotely controlled DLC switches, typically installed outside of the home. These switches can either turn off or cycle the systems. The Residential DLC program has three measures – Water Heaters, Pool Pumps, and Hot Tubs. The direct load control switch for this program is assumed to be able to control all three pieces of equipment, as needed.

The Residential DLC program is modeled for the RAP and MEEIA scenarios, with the MEEIA scenario participation set to RAP+ levels.

Development Methodology

The DLC program is modeled as an opt-in direct install program, with the utility incurring the cost of installing the switch. In addition, the utility pays one-time enrollment and annual incentives to the homeowners, who would install the switch and allow for response during the events

1.2.2 Forecast summary

The forecast of potential savings from the Residential DLC program for selected years of the potential study is tabulated below.

Table II-11 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.3	1.0	1.9	11.9	14.0
Evergy MO West	0.3	1.1	2.1	12.6	14.6
TOTAL	0.6	2.1	4.0	24.4	28.6

Table II-12 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.4	1.2	2.4	14.7	17.5
Evergy MO West	0.4	1.4	2.7	16.3	19.0
TOTAL	0.8	2.6	5.0	31.1	36.5

1.2.3 Program Characteristics

Customers targeted

Residential customers capable of having controllable measures in the direct load control program, such as electric water heaters, pool pumps, and hot tubs, are targeted for this program. Pool pumps and hot tub customers are limited to single-family homes.

Market size

The market size for each measure of this program is tabulated below.

Table II-13 Market Size

Territory	Measure	Single Family	Multifamily	Single Family Low Income	Multi Family Low Income
Evergy MO Metro	Water Heaters	50,484	23,229	8,480	7,880
	Pool Pumps	3,038			
	Hot Tubs	4,402			
Evergy MO West	Water Heaters	75,896	14,989	8,866	7,300
	Pool Pumps	8,313			
	Hot Tubs	8,623			

For the RAP scenario, participation for the above measures for selected years of the potential study is tabulated below.

Table II-14 RAP Participation

Territory	Measure	RAP Participation				
		2023	2024	2025	2032	2042
Evergy MO Metro	Water Heaters	1,012	2,412	4,207	19,648	20,407
	Hot Tubs	43	102	178	829	861
	Pool Pumps	29	70	123	572	594
Evergy MO West	Water Heaters	1,203	2,873	5,020	23,711	24,651
	Hot Tubs	84	200	349	1,649	1,714
	Pool Pumps	81	193	337	1,589	1,652
TOTAL	Water Heaters	2,216	5,285	9,227	43,358	45,058
	Hot Tubs	126	302	527	2,478	2,575
	Pool Pumps	110	263	459	2,161	2,246

For the MEEIA scenario, participation for these measures for the same years is as follows:

Table II-15 MEEIA Participation

Territory		MEEIA Participation				
	Measure	2023	2024	2025	2032	2042
Evergy MO Metro	Water Heaters	1,224	2,916	5,085	23,761	24,681
	Hot Tubs	64	153	266	1,245	1,293
	Pool Pumps	44	105	184	859	892
Evergy MO West	Water Heaters	1,484	3,543	6,192	29,269	30,435
	Hot Tubs	126	300	524	2,477	2,576
	Pool Pumps	121	289	505	2,388	2,483
TOTAL	Water Heaters	2,708	6,459	11,277	53,030	55,116
	Hot Tubs	190	453	790	3,722	3,869
	Pool Pumps	165	394	689	3,247	3,375

Incentives

The incentives used for modeling for each of the listed measures are as follows:

Table II-16 Incentives

Territory	Measure	Installation Incentive	Annual Incentive
Evergy MO Metro	Water Heaters	$94	$40
	Pool Pumps	$50	$39
	Hot Tubs	$50	$39
Evergy MO West	Water Heaters	$94	$40
	Pool Pumps	$50	$39
	Hot Tubs	$50	$39

Budget

The budget for the RAP program across selected years of the potential study is as follows:

Table II-17 RAP Program Budget

Territory	RAP Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$761.0	$552.4	$639.8	$507.7	$649.1
Incentive Costs	$152.6	$264.0	$400.9	$1,215.8	$1,543.1
Evergy MO West					
Non-Incentive Costs	$803.3	$613.4	$721.3	$547.8	$700.3
Incentive Costs	$188.8	$328.7	$501.4	$1,553.7	$1,976.7
TOTAL					
Non-Incentive Costs	$1,564.3	$1,165.9	$1,361.2	$1,055.5	$1,349.5
Incentive Costs	$341.4	$592.8	$902.3	$2,769.5	$3,519.8

Below is the budget for the MEEIA scenario program for the same date ranges:

Table II-18 MEEIA Program Budget

Territory	MEEIA Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$800.7	$608.7	$713.8	$540.1	$690.4
Incentive Costs	$186.4	$322.9	$490.6	$1,492.9	$1,895.5
Evergy MO West					
Non-Incentive Costs	$859.8	$693.7	$827.3	$595.6	$761.2
Incentive Costs	$237.1	$413.3	$631.0	$1,965.8	$2,502.7
TOTAL					
Non-Incentive Costs	$1,660.5	$1,302.5	$1,541.1	$1,135.8	$1,451.6
Incentive Costs	$423.5	$736.2	$1,121.6	$3,458.7	$4,398.2

1.3 Direct Load Control - Battery Storage

1.3.1 Program Description

The Residential Battery Storage program is a direct load control (DLC) program that will allow the utility to control the battery at the customer's residence, in order to shift the customer's energy usage to the battery during demand response events and recharge the battery when there are no expected events. Additionally, a minimum level of charge will be maintained on the battery to ensure minimum supply during outages.

This program was modeled only for the MAP and MEEIA scenarios.

Development Methodology

The battery storage program is modeled as Bring Your Own Device (BYOD) program. With the high incentives offered for the Battery Storage program, the analysis assumes that Evergy customers with existing battery systems will enroll in the program in the first year. While there is an option for additional customers to purchase a battery and participate in the program, the cost-effectiveness (TRC benefit-cost ratio) of such an option was lower than 1, causing them to be excluded from the results. The screening was performed at a measure level, akin to the EE programs, with new and existing participants treated as two different measures.

1.3.2 Forecast summary

The forecast of potential savings from the Battery Storage program is tabulated below. Note that the participation curve is assumed to be uniform across months, and hence the 2023 values are lower since everyone who has a battery is not enrolled by July, which is when events are called for summer.

Table II-19 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	3.1	5.3	5.2	5.1	5.2
Evergy MO West	4.3	7.4	7.3	7.2	7.3
TOTAL	7.4	12.6	12.5	12.3	12.5

1.3.3 Program Characteristics

Customers targeted

Single family and multi-family customers with a potential for installation of battery systems are targeted for this program.

Market size

The market size for this program by building types, including customers with existing batteries and potential new customers, is as follows:

Table II-20 Market Size

Territory	Single Family	Multifamily
Evergy MO Metro	132,504	81,514
Evergy MO West	197,644	52,186

Participation for selected years of the potential study is as follows:

Table II-21 MEEIA Participation

Territory	MEEIA Participation				
	2023	**2024**	**2025**	**2032**	**2042**
Evergy MO Metro	2,597	2,597	2,597	2,597	2,597
Evergy MO West	3,032	3,032	3,032	3,032	3,032
TOTAL	5,628	5,628	5,628	5,628	5,628

Incentives

The one-time incentive for signing up for the program is $55. The annual incentive per battery storage measure is $225 per kW in summer.

Budget

The budget for the MEEIA program across selected years of the potential study is as follows:

Table II-22 MEEIA Program Budget

Territory	**MEEIA Program Budget (000s)**				
	2023	**2024**	**2025**	**2032**	**2042**
Evergy MO Metro					
Admin Costs	$290.8	$149.0	$152.7	$181.6	$232.4
Incentive Costs	$1,495.0	$1,374.8	$1,409.1	$1,675.0	$2,144.1
Evergy MO West					
Admin Costs	$290.8	$149.0	$152.7	$181.6	$232.4
Incentive Costs	$2,116.5	$1,985.4	$2,035.0	$2,419.0	$3,096.5
TOTAL					
Admin Costs	$581.5	$298.0	$305.5	$363.1	$464.8
Incentive Costs	$3,611.5	$3,360.1	$3,444.1	$4,094.0	$5,240.7

1.4 Direct Load Control – EV Smart Charger

1.4.1 Program Description

The Residential Electric Vehicle (EV) Smart Charger program is a direct load control (DLC) program that manages charging of EVs during demand response events. The utility sends a signal to the customer's charging equipment that reduces the power of charging, thus leading to slower vehicle charging during the event. Level 2 chargers are needed for this type of control, and the utility is assumed to provide these to the customer, while the rest of the infrastructure exists at the residence of the EV owner.

The EV Smart Charger program was modeled only for the MAP and MEEIA scenarios.

Development Methodology

The EV Smart Charger program is modeled as described in the program description, and Evergy reimburses the customer for the cost of the Wi-Fi-enabled EV smart charger. The adoption curve for participation is based on the bass diffusion curve used for all DR/DSR programs, with a maximum market share parameter that is specific to DLC EV Chargers. Non-incentive costs and incentives are based on research, which includes other potential studies.

1.4.2 Forecast summary

The forecast of cumulative potential savings from EV Smart Chargers for selected years of the potential study for the MEEIA scenario are tabulated below.

Table II-23 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.1	0.3	0.5	3.9	5.3
Evergy MO West	0.1	0.3	0.6	4.7	6.2
TOTAL	0.2	0.6	1.2	8.7	11.5

1.4.3 Program Characteristics

Customers targeted

Single family and multi-family customers who own electric vehicles are targeted for this program. ICF assumes a growth in accordance with the End Use Intensities calculated in the Market Characterization component of Volume 3.

Market size

The market size for this program is as follows:

Table II-24 Market Size

Territory	Single Family	Multifamily
Evergy MO Metro	2,568	1,580
Evergy MO West	4,312	1,139

Participation for selected years of the potential study is as follows:

Table II-25 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	114	273	476	2,232	2,320
Evergy MO West	150	359	628	2,984	3,107
TOTAL	265	632	1,104	5,216	5,427

Incentives

The one-time incentive for signing up for the program is $55. The annual incentive per EV smart charger measure is $31.

Budget

The budget for the MEEIA program across selected years of the potential study is as follows:

Table II-26 MEEIA Program Budget

Territory	MEEIA Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$377.0	$271.3	$313.5	$252.5	$322.5
Incentive Costs	$10.6	$18.9	$29.3	$98.6	$127.1
Evergy MO West					
Non-Incentive Costs	$404.1	$310.3	$365.5	$278.7	$355.9
Incentive Costs	$13.9	$25.0	$38.7	$132.0	$170.3
TOTAL					
Non-Incentive Costs	$781.2	$581.6	$679.0	$531.1	$678.4
Incentive Costs	$24.5	$43.9	$68.1	$230.7	$297.4

1.5 Time of Use

1.5.1 Program Description

Time of Use (ToU) rates constitute rate plans in which the energy charges vary with time of day. These rates have three periods comprising of peak, off-peak, and super off-peak periods. The peak has the highest price while the super off-peak has the lowest price. Peak periods are defined for weekdays and non-holiday days. ToU rates already exist for Evergy for the two territories, and the potential study was consistent with the existing rates and peak period definitions.

Customers must have AMI to determine their peak and off-peak usage and to bill them according to the tariff plan. The ToU program is modeled for all scenarios including RAP and MEEIA, for which results are presented in this section.

Development Methodology

The ToU program is modeled as an opt-in rate-based program where the customer can opt-in to the ToU tariff. An exception to this is the MAP scenario, where the program was assumed to be opt-out. The results of MAP scenario are presented in the Appendices (Volume 5). As this is a rate-based program, neither an initial or annual incentive is not paid to the customer for participating. As Evergy has completed 100% of its AMI installations, there are no per-customer installation charges to the utility. The non-incentive costs include marketing, customer education, products, and infrastructure to support the program.

The impact estimates for savings were based on ICF's ToURET model outputs. Shifts were assumed to happen between peak and off-peak only, owing to the fact that the super off-peak was during the very early hours of the day. Automation could alter this assumption by shifting some loads to super off-peak as well. Participation was modeled as a bass diffusion curve, as with other DR and DSR programs.

1.5.2 Forecast summary

The forecast of cumulative potential savings from the ToU program for selected years of the potential study for the RAP scenario are tabulated below.

Table II-27 Net RAP MWh Savings

Territory	Net RAP MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	187.1	588.9	1,115.9	6,251.1	6,696.6
Evergy MO West	313.4	994.3	1,888.3	10,827.2	11,641.7
TOTAL	500.5	1,583.2	3,004.2	17,078.3	18,338.4

Table II-28 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.9	2.8	5.3	29.2	31.0
Evergy MO West	1.3	3.9	7.4	41.4	44.3
TOTAL	2.2	6.7	12.7	70.6	75.3

The MEEIA scenario savings for the same years are as below.

Table II-29 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	245.6	772.3	1463.1	8204.9	8793.9
Evergy MO West	381.8	1209.9	2297.0	13182.3	14176.8
TOTAL	627.3	1982.2	3760.1	21387.2	22970.7

Table II-30 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	1.2	3.7	6.9	38.1	40.5
Evergy MO West	1.5	4.8	8.9	50.3	53.8
TOTAL	2.7	8.4	15.9	88.4	94.3

1.5.3 Program Characteristics

Customers targeted

The ToU program is applicable to 100% of residential customers as there is 100% AMI installation.

Market size

The market size by building type for this program is as follows:

Table II-31 Market Size

Territory	Single Family	Multifamily	Single Family Low Income	Single Family Low Income
Evergy MO Metro	132,504	81,514	22,258	27,652
Evergy MO West	197,645	52,186	23,088	25,417

Participation for selected years of the potential study is as follows:

Table II-32 RAP Participation

Territory	RAP Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	3,776	8,997	15,691	73,326	76,168
Evergy MO West	4,268	10,189	17,807	84,189	87,544
TOTAL	8,043	19,185	33,498	157,515	163,712

Table II-33 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	4,922	11,728	20,456	95,697	99,427
Evergy MO West	5,182	12,373	21,624	102,347	106,448
TOTAL	10,104	24,100	42,080	198,044	205,875

Budget

The budget for the RAP program across selected years of the potential study is as follows:

Table II-34 RAP Program Budget

Territory	RAP Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$1,133.0	$2,615.2	$2,965.7	$3,081.0	$3,812.9
Incentive Costs	$-	$-	$-	$-	$-
Evergy MO West					
Non-Incentive Costs	$1,364.5	$3,091.0	$3,449.9	$3,667.5	$4,476.6
Incentive Costs	$-	$-	$-	$-	$-
TOTAL					
Non-Incentive Costs	$2,497.5	$5,706.2	$6,415.6	$6,748.5	$8,289.5
Incentive Costs	$-	$-	$-	$-	$-

Below is the budget for the MEEIA scenario program for the same date ranges:

Table II-35 MEEIA Program Budget

Territory	MEEIA Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$1,133.0	$2,615.2	$2,965.7	$3,081.0	$3,812.9
Incentive Costs	$-	$-	$-	$-	$-
Evergy MO West					
Non-Incentive Costs	$1,364.5	$3,091.0	$3,449.9	$3,667.5	$4,476.6
Incentive Costs	$-	$-	$-	$-	$-
TOTAL					
Non-Incentive Costs	$2,497.5	$5,706.2	$6,415.6	$6,748.5	$8,289.5
Incentive Costs	$-	$-	$-	$-	$-

1.6 Demand Rates

1.6.1 Program Description

Residential Demand Rates constitute a three-part rate design: fixed monthly charge, energy charge and demand charge. The demand charges are levied on a customer's peak demand during the month, with the peak defined as the highest 15-min use during any hour. AMI is required to determine the peak usage and consequently the demand charge for the customer each month

The Demand Rates program is modeled only for the MAP and MEEIA scenarios, starting in 2026.

Development Methodology

Demand Rates is modeled as an opt-in rate-based program. Consequently, there is no initial or annual incentive paid to the customer to participate in this program. As Evergy has completed 100% of its AMI installations, there are no per-customer installation charges to the utility. The non-incentive costs include marketing, customer education, products, and infrastructure to support the program.

The rate was determined for Evergy based on research, benchmarking against similar programs available in other territories, and proposed rates from potential studies. The energy price was discounted once the demand charge per kW was determined, with a revenue neutrality assumption— that is, barring any change in behavior, the residential customer base as an aggregate will incur the same bill amount with the flat rate as with the Demand Rate. The 15-min peak for customers was assumed to be 1.3 times the value of the hourly peak, based on ICF internal simulations of generalized load profiles.

The impact estimates for the savings are based on ICF's ToURET model outputs. For modeling simplicity and to represent the averaged-out behavior of a customer, the shifts for demand rate are also assumed to happen between the peak and off-peak hours. Since the customer doesn't have easy ways to determine when his or her actual peak occurs, it was assumed that the customer tries to reduce his or her entire peak usage in accordance with the pricing.

1.6.2 Forecast summary

The forecast of potential savings from demand rates program for selected years of the potential study for the MEEIA scenario are tabulated below.

Table II-36 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.0	0.0	0.0	1,022.3	1,411.5
Evergy MO West	0.0	0.0	0.0	2,519.8	3,520.1
TOTAL	0.0	0.0	0.0	3,542.1	4,931.6

Table II-37 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.0	0.0	0.0	3.3	4.5
Evergy MO West	0.0	0.0	0.0	5.5	7.6
TOTAL	0.0	0.0	0.0	8.8	12.1

1.6.3 Program Characteristics

Customers targeted

The Demand Rates program is applicable to all residential customers since there is 100% AMI installation.

Market size

The market size applicable for the measure is as follows:

Table II-38 Market Size

Territory	Single Family	Multifamily	Single Family Low Income	Single Family Low Income
Evergy MO Metro	132,504	81,514	22,258	27,652
Evergy MO West	197,645	52,186	23,088	25,417

The MEEIA participation for selected years of the potential study is as follows:

Table II-39 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	0	0	0	8,660	11,035
Evergy MO West	0	0	0	10,005	12,790
TOTAL	0	0	0	18,665	23,825

Budget

The budget for the MEEIA program across selected years of the potential study is as follows:

Table II-40 MEEIA Program Budget

Territory	MEEIA Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$-	$-	$-	$770.3	$953.2
Incentive Costs	$-	$-	$-	$-	$-
Evergy MO West					
Non-Incentive Costs	$-	$-	$-	$916.9	$1,119.2
Incentive Costs	$-	$-	$-	$-	$-
TOTAL					
Non-Incentive Costs	$2,497.5	$5,706.2	$6,415.6	$6,748.5	$8,289.5
Incentive Costs	$-	$-	$-	$-	$-

1.7 Critical Peak Pricing

1.7.1 Program Description

The Residential Critical Peak Pricing (CPP) program is structured as a hybrid between a demand response (DR) program and a demand side rate. A tariff rider defines the pricing structure for the CPP program, wherein the price is set to a high value during peak events and a lower than 'flat-price' is offered during the rest of the year. A one-day notification period allows the customer to adjust his or her usage to the events. Even though the pricing follows the structure of ToU, unlike ToU where the customer response leans towards a permanent shift in usage, the CPP program allows for a one-time response, like a DR program. AMI is required to obtain hourly energy usage and bill the customer accordingly.

The critical peak pricing program is modeled only for the MAP and MEEIA scenarios and starts in 2026.

Development Methodology

The CPP program is modeled as an opt-in program. Since the customer benefits from a lower rate during the non-event hours, there are no incentives for this program. The non-incentive costs include marketing, customer education, products, and infrastructure to support the program.

The CPP rate was determined for Evergy based on research, benchmarking against similar programs available in other territories, and proposed rates from potential studies. Once the CPP price was determined, the discount on the rest of the hours was based on revenue neutrality assumptions, as discussed for demand rates. The savings impacts were modeled in ICF's ToURET.

1.7.2 Forecast summary

The forecast of potential savings from the CPP program for selected years is as follows:

Table II-41 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0	0	0	0	0
Evergy MO West	0	0	0	0	0
TOTAL	0	0	0	0	0

Table II-42 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.0	0.0	0.0	2.4	3.3
Evergy MO West	0.0	0.0	0.0	2.5	3.4
TOTAL	0.0	0.0	0.0	4.9	6.7

1.7.3 Program Characteristics

Customers targeted

The CPP program is applicable to 100% of residential customers as there is 100% AMI installation in the Evergy territories.

Market size

The market size for the program is shown below.

Table II-43 Market Size

Territory	Single Family	Multifamily	Single Family Low Income	Single Family Low Income
Evergy MO Metro	132,504	81,514	22,258	27,652
Evergy MO West	197,645	52,186	23,088	25,417

The MEEIA participation for selected years of the potential study is as in the table below.

Table II-44 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.0	0.0	0.0	3,546.7	4,518.6
Evergy MO West	0.0	0.0	0.0	3,662.8	4,681.8
TOTAL	0.0	0.0	0.0	7,209.6	9,200.4

Budget

The budget for the MEEIA program across selected years of the potential study is as follows:

Table II-45 MEEIA Program Budget

Territory	MEEIA Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$-	$-	$-	$305.1	$390.6
Incentive Costs	$-	$-	$-	$-	$-
Evergy MO West					
Non-Incentive Costs	$-	$-	$-	$305.1	$390.6
Incentive Costs	$-	$-	$-	$-	$-
TOTAL					
Admin Costs	$-	$-	$-	$610.2	$781.2
Incentive Costs	$-	$-	$-	$-	$-

2. Commercial and Industrial Programs

2.1 Smart Thermostats

2.1.1 Program Description

The Smart Thermostat program for small commercial customers operates exactly like its residential counterpart and is in fact rolled into the same program for implementation purposes. During an event, the utility sends a signal to the thermostat, which in turn increases the setpoint by a few degrees during summer. The thermostat returns to the original setpoint after the event. Customers are given the option to override the event when they choose to. Event notifications can be set up via electronic or mobile communication (email or phone) or via display on the thermostat for supported devices. The program is delivered via one of three options: direct install, do it yourself kits, and bring your own thermostat.

This program, as is the case with the residential program, is assumed to encompass the thermostat optimization program, which optimizes the thermostat operation to result in energy savings through the summer period. There was no difference in modeling the Smart Thermostat program in the RAP and MEEIA scenarios. ICF used the same costs, incentives, and participation target for the RAP and MEEIA scenarios.

Development Methodology

The commercial smart thermostat program in this study was developed based on the existing smart thermostat program run in the two Evergy service areas, Metro and West. The participation curve, modeled as a bass diffusion curve, was calibrated to the data prior to the study period: historic till 2020 and planned for the current MEEIA cycle. The incentives and non-incentive costs, such as administration and event calling, used for modeling the potential study are based on Evergy's current costs.

The demand savings per participant were based on the deemed savings reported in the 2018 EM&V report, with a 25% derate factor applied to accommodate the potential staggering of events and the degradation of performance as the customer count increases. The energy savings were also proportional to the savings reported in the 2018 EM&V report, assuming the same fraction of DR participants also participate in the Seasonal Savings and optimization programs.

2.1.2 Forecast summary

The forecast of potential savings for the RAP program for selected years is as follows:

Table II-46 Net RAP MWh Savings

Territory	Net RAP MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	33.1	60.9	78.1	120.8	124.4
Evergy MO West	11.1	32.9	51.9	99.2	102.0
TOTAL	44.2	93.8	129.9	220.0	226.5

Table II-47 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	1.6	1.7	1.8	2.1	2.2
Evergy MO West	1.6	1.8	1.9	2.3	2.4
TOTAL	3.2	3.5	3.6	4.4	4.5

Below are the forecasted savings for the MEEIA scenario program for the same date ranges:

Table II-48 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	32.7	60.2	77.2	119.4	124.0
Evergy MO West	11.0	32.6	51.4	98.3	101.5
TOTAL	43.7	92.8	128.5	217.7	225.5

Table II-49 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	1.5	1.7	1.8	2.1	2.2
Evergy MO West	1.6	1.7	1.8	2.3	2.4
TOTAL	3.2	3.4	3.6	4.4	4.5

2.1.3 Program Characteristics

Customers targeted

For the commercial Smart Thermostat program, all small commercial customers with residential-type central HVAC systems, heat pumps, and other single AHU systems are eligible.

Market size

The market size is as follows for each territory:

Table II-50 Market Size

Territory	Market Size
Evergy MO Metro	15,069
Evergy MO West	16,355

RAP scenario participation for selected years of the potential study is as follows:

Table II-51 RAP Participation

Territory	RAP Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	1,499	1,587	1,652	1,795	1,795
Evergy MO West	1,628	1,726	1,798	1,958	1,958
TOTAL	3,127	3,313	3,451	3,753	3,753

MEEIA scenario participation for the same years is listed below.

Table II-52 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	1,499	1,587	1,652	1,795	1,795
Evergy MO West	1,628	1,726	1,798	1,958	1,958
TOTAL	3,127	3,313	3,451	3,753	3,753

Incentives

Evergy's existing program incentives for the Smart Thermostat program were used for modeling the program in the potential study. The incentives for different options are shown in the table below.

Table II-53 RAP Incentives

Program Option Type	Incentive
Direct Install	$0
Do it Yourself	$50
Bring Your Own Thermostat	$100

The annual incentive per smart thermostat is $25.

Budget

The budget for the RAP program across selected years of the potential study is as follows:

Table II-54 RAP Program Budget

Territory	RAP Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$50.4	$27.6	$23.2	$139.5	$178.6
Incentive Costs	$41.0	$44.1	$47.0	$77.1	$99.7
Evergy MO West					
Non-Incentive Costs	$29.4	$29.8	$24.9	$150.8	$193.0
Incentive Costs	$44.1	$47.9	$51.1	$85.4	$111.9
TOTAL					

Territory	RAP Program Budget (000s)				
	2023	2024	2025	2032	2042
Non-Incentive Costs	$79.8	$57.4	$48.1	$290.3	$371.5
Incentive Costs	$85.2	$92.0	$98.1	$162.6	$211.6

Below is the budget for the MEEIA scenario program for the same date ranges:

Table II-55 MEEIA Program Budget

Territory	MEEIA Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$50.4	$27.6	$23.2	$139.5	$178.6
Incentive Costs	$41.0	$44.1	$47.0	$77.1	$99.7
Evergy MO West					
Non-Incentive Costs	$29.4	$29.8	$24.9	$150.8	$193.0
Incentive Costs	$44.1	$47.9	$51.1	$85.4	$111.9
TOTAL					
Non-Incentive Costs	$79.8	$57.4	$48.1	$290.3	$371.5
Incentive Costs	$85.2	$92.0	$98.1	$162.6	$211.6

2.2 Thermal Storage

2.2.1 Program Description

The commercial Thermal Storage program, also known as the ice storage program in reference to the most common technology used, involves storing thermal energy during non-event hours and using it for air conditioning and refrigeration purposes during event hours. Apart from ice storage, phase-change-material is another material used in the thermal storage devices, which usually need a large area for installation.

This program was modeled in both the RAP and MEEIA scenarios.

Development Methodology

The Thermal Storage program was developed using savings on space cooling and refrigeration loads for commercial buildings. The customer pays to install the thermal storage equipment and then Evergy pays the customer an incentive upon performance in the first season. The maximum market share for this program is relatively low for all scenarios owing to high initial set up costs and the historically observed lack of participation, despite having a rider in one of the service areas within Evergy.

2.2.2 Forecast summary

The forecast of potential savings from thermal storage for selected years of the potential study for the RAP scenario is tabulated below.

Table II-56 Net RAP MWh Savings

Territory	Net RAP MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	-0.7	-2.5	-4.9	-29.2	-31.7
Evergy MO West	-0.6	-2.1	-4.1	-24.8	-27.0
TOTAL	-1.3	-4.6	-9.0	-54.1	-58.7

Table II-57 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.1	0.2	0.3	2.0	2.2
Evergy MO West	0.0	0.2	0.3	1.7	1.8
TOTAL	0.1	0.3	0.6	3.7	4.0

Below are the MEEIA scenario savings for the same years.

Table II-58 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	-1.0	-3.3	-6.5	-38.7	-42.1
Evergy MO West	-0.8	-2.8	-5.4	-32.9	-35.8
TOTAL	-1.8	-6.1	-11.9	-71.6	-78.0

Table II-59 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.1	0.2	0.5	2.6	2.9
Evergy MO West	0.1	0.2	0.4	2.2	2.4
TOTAL	0.1	0.4	0.8	4.9	5.3

2.2.3 Program Characteristics

Customers targeted

For this program, commercial buildings with central cooling and refrigeration systems are targeted.

Market size

The market size is as follows for each territory:

Table II-60 Market Size

Territory	Commercial Buildings
Evergy MO Metro	17871
Evergy MO West	20120

Participation for selected years of the potential study for the RAP scenario is as follows:

Table II-61 RAP Participation

Territory	RAP Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	10	24	43	197	204
Evergy MO West	11	27	47	219	228
TOTAL	21	51	89	416	432

The MEEIA scenario participation for the same years is tabulated below.

Table II-62 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	14	33	57	262	272
Evergy MO West	15	36	62	293	304
TOTAL	29	68	119	555	576

Incentives

The incentives for the Thermal Storage program are based on the installed capacity for demand reduction. The incentives for both Evergy territory were modeled at $550/kW.

Budget

The budget for the RAP program across selected years of the study is as follows:

Table II-63 RAP Program Budget

Territory	RAP Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$290.8	$149.0	$152.7	$181.6	$232.4
Incentive Costs	$59.6	$84.3	$110.4	$46.6	$0.1
Evergy MO West					
Non-Incentive Costs	$290.8	$149.0	$152.7	$181.6	$232.4
Incentive Costs	$50.6	$71.9	$94.8	$41.6	$0.1
TOTAL					
Non-Incentive Costs	$581.5	$298.0	$305.5	$363.1	$464.8
Incentive Costs	$110.2	$156.2	$205.3	$88.1	$0.2

Below is the budget for the MEEIA scenario program for the same date ranges:

Table II-64 MEEIA Program Budget

Territory	MEEIA Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$290.8	$149.0	$152.7	$181.6	$232.4
Incentive Costs	$79.5	$112.4	$147.3	$62.1	$0.1
Evergy MO West					
Non-Incentive Costs	$290.8	$149.0	$152.7	$181.6	$232.4
Incentive Costs	$67.5	$95.9	$126.4	$55.4	$0.1
TOTAL					
Non-Incentive Costs	$581.5	$298.0	$305.5	$363.1	$464.8
Incentive Costs	$147.0	$208.3	$273.7	$117.5	$0.2

2.3 Business Demand Response

2.3.1 Program Description

Business Demand Response is a program for commercial and industrial customers that involves the customer identifying loads that constitute flexible components and can be eliminated or curtailed during peak events. Notice of an event is sent to the customer during the week prior to the event. The customer is paid based on the flexible load contracted and the load shed during the event.

Business demand response program was modeled in the RAP and MEEIA scenarios.

Development Methodology

The Business Demand Response program in this study was developed based on Evergy's existing program. The adoption curve for participation was based on the historical adoption schedule for existing participants and projected this schedule into the future, noting that there is already significant participation within the existing program. The incentives used for modeling the potential study are based on current incentives given by Evergy. The event-designated window adheres to the event window of the current program; however, based on the modeling of other direct load control programs, events were determined for a 4-hour window within the interval of 12 pm to 8 pm on weekdays.

For modeling simplicity and to reflect some of the current customer behavior, the load from commercial sector is assumed to shift to stand-by generators and that for the industrial sector is assumed to be curtailed with a 100% snapback.

2.3.2 Forecast summary

The forecast of potential savings for RAP is tabulated below.

Table II-65 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	18.2	24.6	29.8	40.5	40.8
Evergy MO West	32.1	33.8	34.9	36.3	36.3
TOTAL	50.3	58.4	64.7	76.8	77.1

Below are the MEEIA scenario savings for the same years.

Table II-66 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	18.2	24.5	29.7	40.4	40.7
Evergy MO West	32.0	33.7	34.8	36.2	36.3
TOTAL	50.2	58.3	64.5	76.6	77.0

2.3.3 Program Characteristics

Customers targeted

For Business Demand Response programs, large commercial and industrial customers with flexible loads are targeted.

Market size

The market size is as follows for each territory:

Table II-67 Market Size

Territory	Large Commercial	Industrial
Evergy MO Metro	2,069	938
Evergy MO West	2,745	223

While the industrial market size is defined as number of customers, the industrial programs were modeled in DSRPM using a unit of “per kWh.” The savings, costs, participants, incentives were all defined per kWh, as opposed to per participant, in the industrial model.

The RAP scenario participation for selected years of the potential study is as follows:

Table II-68 RAP Participation

Territory	RAP Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	270	371	467	661	663
Evergy MO West	631	670	692	718	718
TOTAL	901	1,041	1,159	1,379	1,382

The MEEIA scenario participation for the same period is as follows.

Table II-69 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	270	371	467	661	663
Evergy MO West	631	670	692	718	718
TOTAL	901	1,041	1,159	1,379	1,382

Incentives

Evergy’s existing program incentives for the Business Demand Response program were used for modeling the program in the potential study.

Table II-70 RAP Incentives

Incentive at	Incentive
Enrollment	$4.3/kW
Annual	$33.4/kW

Budget

The budget for the RAP program across selected years of the potential study is as follows:

Table II-71 RAP Program Budget

Territory	RAP Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$695.5	$712.8	$730.7	$868.5	$1,111.8
Incentive Costs	$444.1	$607.9	$768.2	$1,240.7	$1,594.2
Evergy MO West					
Non-Incentive Costs	$1,660.4	$1,702.0	$1,744.5	$2,073.7	$2,654.5
Incentive Costs	$1,063.5	$1,145.9	$1,206.8	$1,478.2	$1,892.8
TOTAL					
Non-Incentive Costs	$2,355.9	$2,414.8	$2,475.2	$2,942.2	$3,766.3
Incentive Costs	$1,507.6	$1,753.8	$1,975.1	$2,719.0	$3,486.9

Below is the budget for the MEEIA scenario program for the same date ranges:

Table II-72 MEEIA Program Budget

Territory	MEEIA Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$695.5	$712.8	$730.7	$868.5	$1,111.8
Incentive Costs	$444.2	$608.1	$768.6	$1,241.5	$1,595.1
Evergy MO West					
Non-Incentive Costs	$1,660.4	$1,702.0	$1,744.5	$2,073.7	$2,654.5
Incentive Costs	$1,063.5	$1,145.9	$1,206.8	$1,478.2	$1,892.8
TOTAL					
Non-Incentive Costs	$2,355.9	$2,414.8	$2,475.2	$2,942.2	$3,766.3
Incentive Costs	$1,507.7	$1,754.1	$1,975.4	$2,719.7	$3,487.9

2.4 Time of Use

2.4.1 Program Description

Time of Use (ToU) rates constitute rate plans in which the energy charges vary with time of day. These rates have three periods comprising of peak, off-peak, and super off-peak periods. The peak has the highest price while the super off-peak has the lowest price. Peak periods are defined for weekdays and non-holiday days, and the hours and prices for the peak vary for summer.

Customers must have AMI to determine their peak and off-peak usage and to bill them according to the tariff plan. The ToU program is modeled for all scenarios including RAP and MEEIA, for which results are presented in this section.

Development Methodology

The ToU program is modeled as an opt-in rates-based program where the customer can opt-in on the ToU tariff. An exception to this is the MAP scenario where the program was assumed to be opt-out. The results of MAP scenario are presented in the Appendices (Volume 5). Neither an initial or annual incentive is paid to the customer to participate in this program. As Evergy has completed 100% of its AMI installations, there are no per-customer installation charges to the utility. The non-incentive costs include marketing, customer education, products, and infrastructure to support the program.

The rates were determined for Evergy for the two service areas separately using the process described in Volume 3. A peak to off-peak ratio was set based on research into prices at other utilities, and then determining the absolute values of prices by applying revenue neutrality condition. This is a high-level process used for the potential study, and the actual rate determination required further refinement and additional considerations.

The savings estimates were based on ICF's ToURET model outputs. Shifts were between peak and off-peak only, since the businesses are usually not operational during the super off-peak hours. Participation was modeled as a bass diffusion curve, as with other DR and DSR programs.

2.4.2 Forecast summary

The forecast of potential savings from Time-of-Use program for selected years of the potential study is tabulated below.

Table II-73 Net RAP MWh Savings

Territory	Net RAP MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	31.9	103.2	198.5	1,189.1	1,333.0
Evergy MO West	8.9	28.5	55.1	356.0	423.4
TOTAL	40.8	131.7	253.6	1,545.2	1,756.4

Table II-74 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.3	0.8	1.5	8.8	9.4
Evergy MO West	0.2	0.7	1.3	7.8	8.4
TOTAL	0.5	1.5	2.9	16.5	17.8

The forecast for the MEEIA scenario during the same period is as below.

Table II-75 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	59.6	193.2	371.5	2,229.4	2,508.9
Evergy MO West	16.8	53.7	104.0	673.1	801.1
TOTAL	76.5	246.9	475.4	2,902.5	3,310.0

Table II-76 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.5	1.5	2.9	16.4	17.7
Evergy MO West	0.4	1.3	2.5	14.6	15.8
TOTAL	0.9	2.8	5.4	31.0	33.5

2.4.3 Program Characteristics

Customers targeted

The Time-of-Use program is applicable to 100% of commercial and industrial customers as there is 100% installation of AMI meters in the Evergy territories.

Market size

Table II-77 Market Size

Territory	Commercial	Industrial
Evergy MO Metro	20,464	795
Evergy MO West	24,041	163

Participation for selected years of the potential study is shown in the following tables:

Table II-78 RAP Participation

Territory	RAP Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	137	326	568	2,626	2,725
Evergy MO West	160	382	667	3,142	3,266
TOTAL	297	708	1,235	5,768	5,991

Table II-79 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	258	615	1,070	4,952	5,140
Evergy MO West	301	719	1,257	5,934	6,169
TOTAL	560	1,334	2,327	10,886	11,309

Budget

The budget for the RAP program across selected years of the potential study is as follows:

Table II-80 RAP Program Budget

Territory	RAP Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$516.3	$828.1	$962.1	$953.2	$1,181.5
Incentive Costs	$-	$-	$-	$-	$-
Evergy MO West					
Non-Incentive Costs	$537.9	$852.1	$989.4	$996.4	$1,223.1
Incentive Costs	$-	$-	$-	$-	$-
TOTAL					
Non-Incentive Costs	$1,054.2	$1,680.2	$1,951.6	$1,949.6	$2,404.5
Incentive Costs	$-	$-	$-	$-	$-

Below is the budget for the MEEIA scenario program for the same date ranges:

Table II-81 MEEIA Program Budget

Territory	MEEIA Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$516.3	$1,207.5	$1,351.0	$1,415.5	$1,773.3
Incentive Costs	$-	$-	$-	$-	$-
Evergy MO West					
Non-Incentive Costs	$537.9	$1,263.8	$1,411.4	$1,498.0	$1,865.1
Incentive Costs	$-	$-	$-	$-	$-
TOTAL					
Non-Incentive Costs	$1,054.2	$2,471.3	$2,762.4	$2,913.5	$3,638.4
Incentive Costs	$-	$-	$-	$-	$-

2.5 Real Time Pricing

2.5.1 Program Description

Real Time Pricing constitutes a rate design in which the price of energy changes every hour. Most real time pricing programs are implemented as day-ahead pricing programs, which means that the pricing is decided 24 hours in advance according to how wholesale prices are cleared in the day-ahead wholesale market. AMI is required to determine the hourly usage and bill the customer.

Real time pricing program is modeled only for the MAP and MEEIA scenarios, starting in 2026.

Development Methodology

Real Time Pricing is modeled as an opt-in rate-based program. Consequently, there is no initial or annual incentive paid to the customer to participate in this program. As Evergy has completed 100% of its AMI installations, there are no per-customer installation charges to the utility. The non-incentive costs include marketing, customer education, products, and infrastructure to support the program.

To model Real Time Pricing, ICF did not explicitly determine the rates for Evergy and instead used a research-based approach to determine the peak reduction potential. For modeling simplicity, the “net” shifts for Real Time Pricing were assumed to happen between the peak and off-peak hours and the customer was assumed to reduce his or her entire peak usage in accordance with the pricing.

2.5.2 Forecast summary

The forecast of potential savings from the Real Time Pricing program for selected years of the potential study is tabulated below.

Table II-82 Net RAP MWh Savings

Territory	Net RAP MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.0	0.0	0.0	368.1	539.5
Evergy MO West	0.0	0.0	0.0	85.0	137.7
TOTAL	0.0	0.0	0.0	453.1	677.2

Table II-83 Net RAP Summer MW Savings

Territory	Net RAP MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.0	0.0	0.0	3.1	4.4
Evergy MO West	0.0	0.0	0.0	2.8	3.9
TOTAL	0.0	0.0	0.0	5.9	8.2

The savings potential for the MEEIA scenario for the same years in listed below.

Table II-84 Net MEEIA MWh Savings

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.0	0.0	0.0	425.5	625.7
Evergy MO West	0.0	0.0	0.0	98.8	160.4

Territory	Net MEEIA MWh Savings				
	2023	2024	2025	2032	2042
TOTAL	0.0	0.0	0.0	524.3	786.1

Table II-85 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.0	0.0	0.0	3.6	5.1
Evergy MO West	0.0	0.0	0.0	3.2	4.5
TOTAL	0.0	0.0	0.0	6.8	9.5

2.5.3 Program Characteristics

Customers targeted

The Real Time Pricing program is applicable to 100% of commercial and industrial customers as there is 100% installation of AMI meters in the Evergy territories.

Market size

Table II-86 Market Size

Territory	Commercial	Industrial
Evergy MO Metro	20,464	795
Evergy MO West	24,041	163

Participation for selected years of the potential study is as follows:

Table II-87 RAP Participation

Territory	RAP Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	0	0	0	142	180
Evergy MO West	0	0	0	182	233
TOTAL	0	0	0	324	413

Table II-88 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	0	0	0	165	209
Evergy MO West	0	0	0	212	270
TOTAL	0	0	0	376	480

Budget

The budget for the RAP program across selected years of the potential study is as follows:

Table II-89 RAP Program Budge

Territory	RAP Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$-	$-	$-	$555.4	$711.0
Incentive Costs	$-	$-	$-	$-	$-
Evergy MO West					
Non-Incentive Costs	$-	$-	$-	$571.6	$731.7
Incentive Costs	$-	$-	$-	$-	$-
TOTAL					
Non-Incentive Costs	$-	$-	$-	$1,127.0	$1,442.7
Incentive Costs	$-	$-	$-	$-	$-

Below is the budget for the MEEIA scenario program for the same date ranges:

Table II-90 MEEIA Program Budget

Territory	MEEIA Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$-	$-	$-	$555.4	$711.0
Incentive Costs	$-	$-	$-	$-	$-
Evergy MO West					
Non-Incentive Costs	$-	$-	$-	$571.6	$731.7
Incentive Costs	$-	$-	$-	$-	$-
TOTAL					
Non-Incentive Costs	$-	$-	$-	$1,127.0	$1,442.7
Incentive Costs	$-	$-	$-	$-	$-

2.6 Critical Peak Pricing

2.6.1 Program Description

The commercial Critical Peak Pricing (CPP) program is structured the same way as residential CPP program, that is as a hybrid between a demand response program and a demand side rate. A tariff rider defines the pricing structure for the CPP program, wherein the price is set to a high value during peak events and a lower than 'flat-price' is offered during the rest of the year. A one-day notification period allows the customer to adjust his or her usage to the events. Even though the pricing follows the structure of ToU, unlike ToU where the customer response leans towards a permanent shift in usage, the CPP program allows for a one-time response like a DR program. AMI is required to obtain hourly energy usage and bill the customer accordingly.

The critical peak pricing program is modeled only for the MAP and MEEIA scenarios, starting in 2026.

Development Methodology

The CPP program is modeled as an opt-in program. Since the customer benefits from a lower rate during non-event hours, there are no incentives for this program. The non-incentive costs include marketing, customer education, products, and infrastructure to support the program.

The CPP rate was determined for Evergy based on research, benchmarking against similar programs available in other territories, and proposed rates from potential studies. Once the CPP price was determined, the discount on the rest of the hours was based on revenue neutrality assumptions, as discussed for demand rates. The savings impacts were modeled in ICF's ToURET.

2.6.2 Forecast summary

The forecast of potential savings from the CPP in the MEEIA scenario for selected years of the potential study is tabulated below.

Table II-91 Net MEEIA Summer MW Savings

Territory	Net MEEIA MW Savings				
	2023	2024	2025	2032	2042
Evergy MO Metro	0.0	0.0	0.0	2.7	3.9
Evergy MO West	0.0	0.0	0.0	2.5	3.5
TOTAL	0.0	0.0	0.0	5.2	7.4

2.6.3 Program Characteristics

Customers targeted

The CPP program is applicable to 100% of commercial customers as there is 100% installation of AMI meters in the Evergy territories.

Market size

Table II-92 Market Size

Territory	Commercial Buildings
Evergy MO Metro	20,268
Evergy MO West	24,041

The MEEIA scenario participation for selected years of the potential study is as follows:

Table II-93 MEEIA Participation

Territory	MEEIA Participation				
	2023	2024	2025	2032	2042
Evergy MO Metro	0	0	0	650	826
Evergy MO West	0	0	0	800	1,022
TOTAL	0	0	0	1,449	1,847

Budget

Below is the budget for the MEEIA scenario program for selected years of the potential study:

Table II-94 MEEIA Program Budget

Territory	MEEIA Program Budget (000s)				
	2023	2024	2025	2032	2042
Evergy MO Metro					
Non-Incentive Costs	$-	$-	$-	$305.1	$390.6
Incentive Costs	$-	$-	$-	$-	$-
Evergy MO West					
Non-Incentive Costs	$-	$-	$-	$305.1	$390.6
Incentive Costs	$-	$-	$-	$-	$-
TOTAL					
Non-Incentive Costs	$-	$-	$-	$610.2	$781.2
Incentive Costs	$-	$-	$-	$-	$-