



Independent EM&V Audit of the KCP&L GMO PY2017 Program Evaluations

Final Report

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MichaelsEnergy

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I Executive Summary

In April 2016, the Missouri Public Service Commission (the PSC) approved Missouri Energy Efficiency Investment Act (MEEIA) Cycle 2 DSM programs for the Great Plains Energy Services Incorporated (GPES) affiliate, Kansas City Power and Light (KCP&L) – KCP&L Missouri Operations Company (KCP&L-GMO) (Case No. EO-2015-0240). Of the sixteen Cycle 2 programs approved in the MEEIA, KCP&L implemented fifteen no later than the second quarter of 2016.¹ All programs will terminate no later than March 31, 2019. The MEEIA Cycle 2 Programs are:

- **Business EER – Standard** – Offered to KCP&L legacy Missouri C&I customers, this program is designed to offer a diverse set of measures that have standardized measure savings and an incentive process that helps to improve accessibility to the customer. Eligible measures include air conditioning units, lighting and controls, refrigeration, water heating, appliances and standard process equipment.
- **Business EER - Custom** - Offered to all KCP&L C&I customers, the program provides incentives for a broad range of projects that do not fit within the Business EER – Standard program. The program delivers rebates to projects that achieve a SCT score of 1.0 or higher.
- **Block Bidding** - Offers incentives to large C&I customers and trade allies to complete large projects that would be capped at \$100,000 for Business EER - Custom and \$400,000 for Business EER - Standard. Customers can reserve financial incentives ranging from \$50,000 to \$1 million for planned EE projects.
- **Strategic Energy Management** – Provides incentives for C&I customers to implement a continuous energy management improvement process that results in energy savings and reductions in energy intensity for industrial and large commercial clients.
- **Small Business Lighting** – Available to small business customers, with an average monthly demand below 100 kW, the program provides energy assessments that includes information on potential energy savings and anticipated payback and offers higher incentives on specific lighting measures than the Standard program to help small business customers overcome financial barriers to adoption.
- **Business Programmable Thermostat** – Incentivizes commercial customers to use a Nest thermostat, and allow KCP&L to remotely operate their HVAC system during peak demand periods by sending a signal to participating thermostats.
- **Demand Response Incentive** - Provides rebates to C&I customers for curtailing their energy usage during system peak demand periods. When KCP&L calls an

¹ The Home Appliance Recycling Rebate (HARR) program was discontinued by KCP&L at the time of the evaluations. It is not counted as an active program.

event, participants reduce their load toward a pre-defined firm power level to create the demand savings.

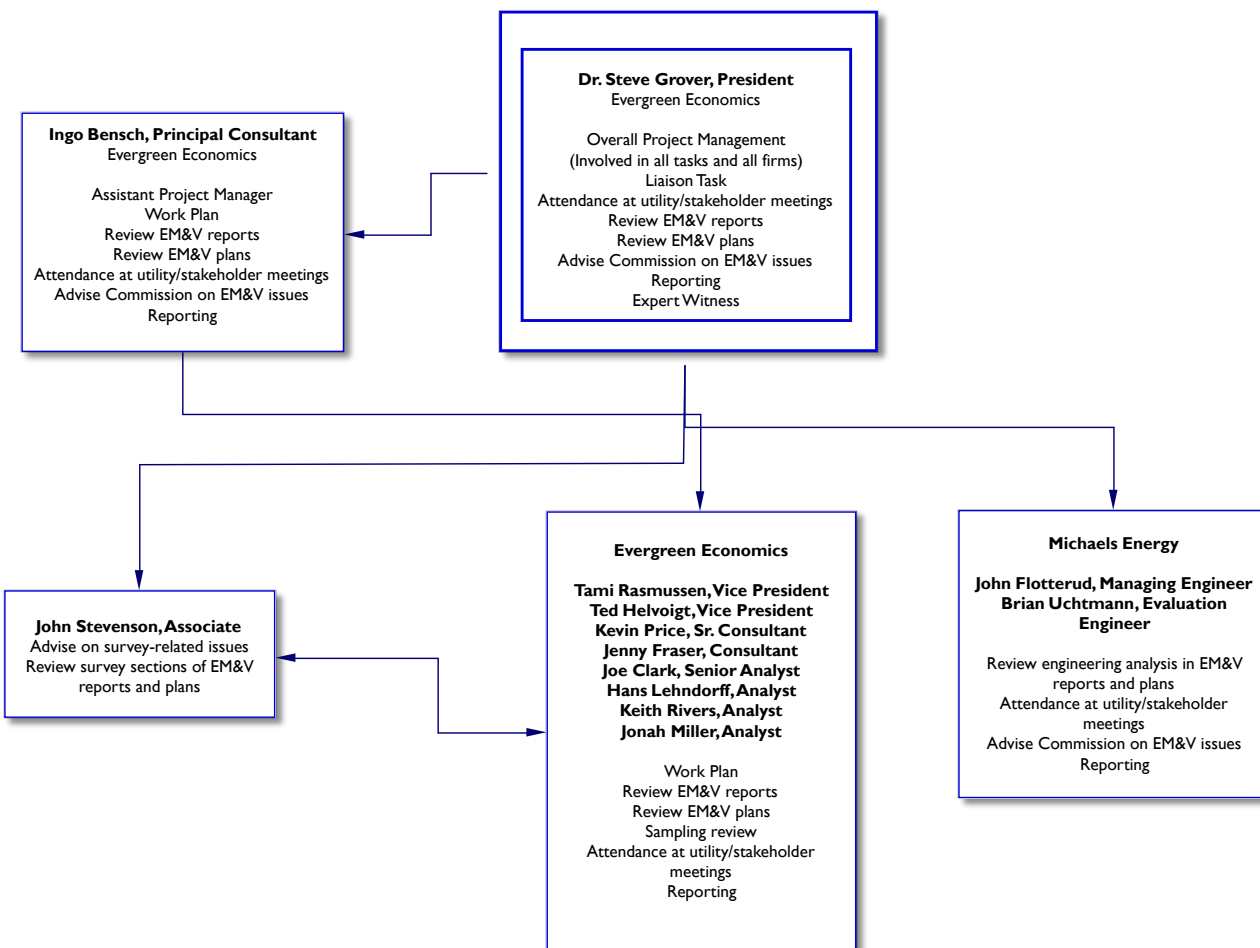
- **Whole House Efficiency** - Promotes home energy audits and comprehensive retrofits to encourage whole house improvements to existing homes. Customers are eligible for this program if they own or rent a residence and can receive assistance based on three tiers: Tier 1 - Home Energy Assessment and Energy Savings Kit (ESK), Tier 2 - Weatherization Measures, and Tier 3 - HVAC Equipment.
- **Home Lighting Rebate** - Offers upstream incentives to partnering manufacturers and retailers in the KCP&L-MO and GMO service territories to discount the shelf-price of LED bulbs.
- **Home Energy Report (HER) Program**- Distributes single-page print reports by mail to educate residential customers about their home energy usage and provide them with information designed to encourage behavior change in energy use.
- **Residential Programmable Thermostat** - Incentivizes residential customers to use a Nest thermostat, and allow KCP&L to remotely operate their HVAC system during peak demand periods by sending a signal to participating thermostats.
- **Income-Eligible Multifamily** - Offers energy efficiency upgrades to residents in multifamily housing that meet the incomes requirements and to multifamily housing owners whose buildings have income-eligible residents.
- **Home Online and Business Online Energy Audit** - Provide access for small business and residential customers to an online tool to track and analyze their energy use and receive educational materials on energy savings for heating, cooling, lighting, and other electrical equipment. This program claims no savings.

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

KCP&L-GMO contracted with an evaluation team led by Navigant Consulting, Inc. (Navigant) that included Illume Advising LLC (Illume), and NMR Group, Inc. (NMR). The evaluation team conducted comprehensive impact and process evaluations of KCP&L-GMO's energy efficiency portfolio in PY2017. For the purposes of this report the evaluation team will be referred to as "the Navigant team".

In 2018, the Missouri PSC contracted with Evergreen Economics to serve in the capacity of EM&V Auditor. Figure 1 shows the audit team members and organization, the individual team members by firm, and the associated audit responsibilities.

Figure 1: Evergreen Audit Team Organization



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

1.1 Summary of Audit Conclusions and Recommendations

A review of PY2017 evaluation report indicates that the reports and appendices are well written, complete, and meet the minimum requirements for impact and process evaluations stipulated in 4 CSR 240-22.070(8). The evaluation methods and reports are also consistent with the best practices established for the industry. During the course of the audit, we have identified a few areas where we believe that the evaluations can be improved, and these recommendations are detailed throughout this audit report.

Many of the initial issues raised by the audit team on the draft evaluation reports were addressed in the final evaluation report. Because of the discussions and modifications

made to the draft evaluation reports, we are not recommending any additional changes to the PY2017 savings.

The remaining issues are highlighted below, beginning with crosscutting issues relating followed by a few program-specific issues. For the remaining unresolved issues, the audit team and Navigant have already agreed to meet in early 2019 to develop solutions that will be applied to future evaluations.

Crosscutting Issues

Process for using secondary sources / Statewide TRM

During the review of the draft evaluation reports, the audit team had several conversations with Navigant regarding the need to outline a clear process on when in-state or out-of-state data are used to calculate savings. While this has been explained to some degree in the final evaluation report, there still does not appear to be a consistent process on how this is determined, other than evaluator judgment.

To help address this issue and make the entire process more consistent, we recommend that KCP&L utilize the statewide Missouri Technical Reference Manual (TRM)² when possible. The current Missouri TRM (updated March 31, 2017) can continue to be modified and updated as needed to meet program needs. If there are deviations from the official Missouri TRM values, then the evaluation report should clearly document why the alternative values are an improvement over the Missouri TRM.

Utilizing the statewide Missouri TRM would also have the advantage of applying consistent savings values and algorithms for Ameren MO and KCP&L for measures that are common to both utilities. The Missouri TRM can also be amended to include protocols for estimating free ridership and spillover, so that net savings can be assessed consistently across both utilities.

Self-report free ridership and spillover calculations

In the audit team comments on the draft evaluation reports, we noted some inconsistencies with how the free ridership and spillover self report questions were scored. Many of these questions utilize a 5-point rating scale, and for these questions we recommend that the scoring be done in even increments across the scale (i.e., 0=0%, 1=25%, 2=50%, 3=75%, 4=100%). For all questions utilizing a scale rating, we recommend that this incremental scoring be applied consistently for all questions used in the free ridership and spillover calculations.

² The latest version of the Missouri TRM can be found at <https://energy.mo.gov/sites/energy/files/MOTRMOrgins.pdf>

This issue was addressed in the final evaluation report, but we are noting it here for documentation purposes.

Program-specific Issues

Home Lighting Rebate Program

Estimating potential spillover from an upstream lighting program is very challenging, since customers often do not realize how the program is influencing their lighting purchase decisions. The current method utilized by the Navigant evaluation team relies on intercept surveys of lighting purchasers to gauge the potential influence of several program components. It has a set of questions and scoring algorithm that is similar to that used to estimate free ridership.

While the intercept method has some advantages, a significant challenge is that there is a very limited amount of time in which to ask questions, as most respondents are not willing to answer questions at a store for more than a few minutes.

The current approach appears to do an adequate job of asking about the importance of several program factors (program events, information) on the choice of non-program LED's and these responses provide some idea of how important these factors are in the lighting purchase decision. Those respondents that provide the highest importance ratings are identified as spillover.

What this method is lacking, however, is a similar set of questions to get at non-program influences on these same bulb purchases. It may be that the program factors were important, but that other non-program influences were *even more* important. These could include the need for bulbs of special color or size, and/or the lower prices of the non-program options. From the current method, it is not possible to weigh the importance placed on the program versus non-program factors since the non-program factors were not addressed in the surveys. The Navigant team maintains that the current method does adequately address the non-program influences, but we believe that the survey should walk through possible non-program factors so that the respondents actively consider both sides when they provide their influence ratings.

We recognize that there is not enough time with the customer to add questions to the intercept survey – the resulting survey battery would be too long to reasonably administer at the store. But despite this, we believe that the non-program influences still need to be accounted for in the spillover estimate.

Given the disagreement on this issue along with the general difficulties with estimating spillover for this upstream program, the audit team and Navigant will meet in early 2019 to discuss developing a negotiated deemed spillover adjustment, which is a process that is used in other states.

Home Energy Reports

We understand that the PY2017 impact estimates for the HER program were based on a billing regression model that was estimated as part of the PY2016 evaluation. We are reiterating an issue that we first raised last year about how the model accounts for participation in other efficiency programs. We have been discussing this issue with Navigant and will meet with them in early 2019 to determine how the billing regression model should be revised to address this issue.

The issue we raised in the PY2016 audit relates to how participation in other efficiency programs is addressed in the impact analysis. The comparison between the treatment and control groups in the pre-period should include a comparison of participation rates in the other KCP&L/GMO energy efficiency programs *during the pre-period*. It is not enough to simply adjust the regression results for the post period to account for ‘uplift’ that is attributable to the HER program.

Differences between the groups in program participation in the pre-period can affect the savings estimates in two ways. First, if there are differences in program participation rates, then some of the observed savings from the HER in the post-period should be attributed to the other efficiency programs. Second, the estimate of program uptake in the post-period will also be affected if there are already unequal levels of program participation in the pre-period. The magnitude of both these effects can be estimated by including a variable for program participation in the billing regression, if in fact there are differences in participation rates between treatment and control groups.

As noted above, we will be discussing this issue with Navigant in early 2019 and anticipate that it will be resolved for the next evaluation.

Whole House Efficiency

The PY2017 evaluation report has been updated to reflect reduced cooling EFLH, which addresses some of the previous concerns from the audit team about the estimated savings for this program.

The audit team and Navigant continue to disagree about the validity of the verified demand savings for early retirement CAC’s, however. We believe that the estimated demand savings from the evaluation are higher than what can be reasonably be expected for early retirements, even assuming that the pre-case CAC units are operating at 100 percent load during peak periods.

The audit team recommends a billing analysis approach going forward to verify the savings for early retirement cooling measures, which should address our concerns about the savings calculations and eliminate the need to set values for the various input parameters that are currently used in the savings calculations.

The audit team and Navigant met three times in 2018 to discuss these issues and were able to reach some mutually agreeable solutions for some of our concerns. Given this progress, we are not recommending any changes to the PY2017 savings values, and Navigant has agreed to work with the audit team in early 2019 to revise the estimation methods and address the remaining issues for the PY2018 evaluation.

As with the other outstanding issues, Navigant and the audit team will meet in early 2019 to determine a mutually agreeable approach for addressing these issues beginning with the PY2018 evaluations.

2 Introduction

The Missouri Energy Efficiency Investment Act (MEEIA) was passed in 2009, launching a new era for energy efficiency programs in Missouri. The Missouri Public Service Commission (the PSC) adopted four administrative rules (4 CSR 240-3.163, 4 CSR 240-3.164, 4 CSR 240-20.093 and 4 CSR 240-20.094) referred to as “MEEIA rules”) to implement MEEIA.³ MEEIA directs the PSC to permit electric corporations to implement Commission-approved demand side management (DSM) programs, with a goal of achieving cost-effective demand-side savings.

In 2009, the State of Missouri and KCP&L-GMO reached an agreement that launched KCP&L-GMO’s suite of residential and commercial energy efficiency programs, which began in 2013 as MEEIA Cycle 1. The MEEIA Cycle 1 programs ended on December 31, 2015, for KCP&L-GMO (Case No. EO-2012-0142). In early 2016, the PSC approved MEEIA Cycle 2 DSM programs for KCP&L-GMO (Case No. EO-2015-0055). All Cycle 2 programs were implemented no later than the second quarter of 2016, and all will terminate no later than March 31, 2019. The MEEIA Cycle 2 programs are:

- **Business EER - Standard** - Offered to KCP&L legacy Missouri C&I customers, this program is designed to offer a diverse set of measures that have standardized measure savings and an incentive process that helps to improve accessibility to the customer. Eligible measures include air conditioning units, lighting and controls, refrigeration, water heating, appliances and standard process equipment.
- **Business EER - Custom** - Offered to all KCP&L C&I customers, the program provides incentives for a broad range of projects that do not fit within the Business EER - Standard program. The program delivers rebates to projects that achieve a SCT score of 1.0 or higher.
- **Block Bidding** - Offers incentives to large C&I customers and trade allies to complete large projects that would be capped at \$100,000 for Business EER - Custom and \$400,000 for Business EER - Standard. Customers can reserve financial incentives ranging from \$50,000 to \$1 million for planned EE projects.
- **Strategic Energy Management** - Provides incentives for C&I customers to implement a continuous energy management improvement process that results in energy savings and reductions in energy intensity for industrial and large commercial clients.
- **Small Business Lighting** - Available to small business customers, with an average monthly demand below 100 kW, the program provides energy assessments that includes information on potential energy savings and anticipated payback and

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

offers higher incentives on specific lighting measures than the Standard program to help small business customers overcome financial barriers to adoption.

- **Business Programmable Thermostat** – Incentivizes commercial customers to use a Nest thermostat, and allow KCP&L to remotely operate their HVAC system during peak demand periods by sending a signal to participating thermostats.
- **Demand Response Incentive** - Provides rebates to C&I customers for curtailing their energy usage during system peak demand periods. When KCP&L calls an event, participants reduce their load toward a pre-defined firm power level to create the demand savings.
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- **Home Online and Business Online Energy Audit** – Provide access for small business and residential customers to an online tool to track and analyze their energy use and receive educational materials on energy savings for heating, cooling, lighting, and other electrical equipment. This program claims no savings.

To ensure that programs comply with Missouri’s rules regarding electric utility resource planning, the PSC has long-term resource planning rules that contain requirements for impact evaluations and process evaluations. The goal of the impact and process evaluations is “to develop the information necessary to evaluate the cost-effectiveness and improve the design of existing and future demand-side programs and demand-side rates, to improve the forecasts of customer energy consumption and responsiveness to demand-side programs and demand-side rates and to gather data on the implementation costs and

load impacts of demand-side programs and demand-side rates for use in future cost-effectiveness screening and integrated resource analysis.”⁴

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

- Utilities are expected to complete annual full process and impact evaluations for each DSM program.
- **At a minimum, impact evaluations should:**
 1. “develop methods of estimating the actual load impacts of each demand-side program” using one or both of the following methods:
 - a. “Comparisons of pre-adoption and post-adoption loads of program participants, corrected for the effects of weather and other intertemporal differences”; and
 - b. “Comparisons between program participants’ loads and those of an appropriate control group over the same time period”.
 2. “develop load-impact measurement protocols that are designed to make the most cost-effective use of the following types of measurements, either individually or in combination: monthly billing data, load research data, end-use load metered data, building and equipment simulation models, and survey responses or audit data on appliance and equipment type, size and efficiency levels, household or business characteristics, or energy-related building characteristics”.
 3. Develop protocols to collect data regarding demand-side program market potential, participation rates, utility costs, participant costs and total costs.
- **At a minimum, process evaluations should** address the following five questions:
 1. What are the primary market imperfections that are common to the target market segment?
 2. Is the target market segment appropriately defined or should it be further subdivided or merged with other segments?
 3. Does the mix of end-use measures included in the program appropriately reflect the diversity of end-use energy service needs and existing end-use technologies within the target segment?
 4. Are the communication channels and delivery mechanisms appropriate for the target segment?

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

5. What can be done to more effectively overcome the identified market imperfections and to increase the rate of customer acceptance and implementation of each end-use measure included in the program?

KCP&L-GMO contracted with Navigant Consulting, Inc. (Navigant) as the Evaluation, Measurement & Verification (EM&V) contractor, to conduct comprehensive impact and process evaluations of KCP&L-GMO's energy efficiency portfolio. Navigant conducted evaluations of both the commercial and residential energy efficiency programs.

In 2018, the PSC contracted with Evergreen Economics and Michaels Energy (the Evergreen team) to serve in the capacity of EM&V Auditor to review program evaluation activities and provide comments on compliance with 4 CSR 240-22.070(8) and the overall quality, scope and accuracy of the program evaluation reports. The following report presents Evergreen Economics' review of the KCP&L-GMO program evaluations for program year 2017 (PY2017).

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

- Thoroughly read each program's evaluation report in its entirety, summarizing key information on evaluation methodology, findings and recommendations for each program.
- Conducted a thorough review of all evaluation survey instruments and responses where available to confirm the methodologies used were reasonable and consistent with best practices and that reported findings aligned with the data collected.
- Reviewed, where available, specific evaluation tools and methodologies used for calculating program savings, including custom project savings calculations, and survey methods for developing net program impacts.

This report is organized into the following sections to help guide the reader through this summary of the key results:

- Section 3: Impact Evaluation Summary
- Section 4: Summary of Key Findings and Recommendations from the Process Evaluations
- Section 5: Review of Cost-Effectiveness Findings
- Section 6: Evergreen Team's Findings and Recommendations

3 Impact Evaluation Summary

This section summarizes the results and key findings and recommendations from the impact evaluations of KCP&L-GMO's residential and business energy efficiency program portfolio. Note that the following programs do not have associated energy savings in 2017:

- Business Online Energy Audit
- Home Online Energy Audit
- Income-Eligible Weatherization
- Block Bidding

3.1 Summary of Impact Evaluation Methods

Navigant followed the Missouri Code of State Regulations 4 CSR-240-22-070 (8), completing impact evaluations for each KCP&L-GMO program that reported energy savings in 2017. Missouri regulations state that programs should be evaluated using one or both of the methods and one or both of the protocols detailed below.

1) Impact Evaluation Methods

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

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

2) Load Impact Measurement Protocols

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

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

Table 1 below summarizes Navigant's methods and protocols for each program. The labels in columns two and three align with the Missouri requirements discussed above.

Table 1: Impact Evaluation Methods and Protocols

Program	Impact Method	Impact Protocol	Description
C&I Programs			
Business EER - Standard	1a	2a and 2b	<ul style="list-style-type: none"> • Deemed measure savings review • Tracking database review • Onsite verification
Business EER - Custom	1a	2b	<ul style="list-style-type: none"> • Tracking database review • Engineering desk review • Telephone verifications
Strategic Energy Management	1a	2b	<ul style="list-style-type: none"> • Tracking data review • Engineering desk review
Small Business Lighting	1a	2a and 2b	<ul style="list-style-type: none"> • Deemed measures savings review • Tracking database review • Onsite verification and lighting logger study
Business Programmable Thermostat	1b	2b	<ul style="list-style-type: none"> • Deemed measure savings review • Tracking database review
Demand Response Incentive	1a	2a	<ul style="list-style-type: none"> • Tracking database review • Econometric and customer baseline analysis
Residential Programs			
Whole House Efficiency	1a	2b	<ul style="list-style-type: none"> • Deemed measure savings review • Tracking database review
Home Lighting Rebate	1a	2b	<ul style="list-style-type: none"> • Engineering desk review • Tracking database review • In-store intercept survey
Home Energy Report	1b	2a	<ul style="list-style-type: none"> • Billing Analysis
Residential Programmable Thermostat	1b	2b	<ul style="list-style-type: none"> • Deemed measure savings review • Tracking database review
Income-Eligible Multifamily	1a	2b	<ul style="list-style-type: none"> • Deemed measure savings review • Tracking database review

3.1.1 Net-to-Gross Calculation Methods

Navigant developed net-to-gross (NTG) ratios for selected KCP&L programs to estimate net program savings. Net savings are the portion of total estimated savings that are

directly attributable to a specific energy efficiency program. Net savings estimates typically account for one or more of the following:

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

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

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

Navigant conducted research to develop net-to-gross ratios for six programs, the Business EER Standard, Business EER Custom, Block Bidding, Small Business Lighting, Whole House Efficiency, and Home Lighting Rebate programs.

Navigant estimated free ridership, participant spillover, and non-participant spillover for the Small Business Lighting program using a self-report survey method. The approach used surveys designed to assess the likelihood that participants would have installed some or all of the energy efficiency measures incentivized by the program even if the program had not existed. The participant surveys were based on a framework developed by Energy Trust of Oregon.

Table 2 below summarizes the method used for each program.

Table 2: Net Savings Methods

Program	Estimated in 2017	Savings are Inherently Net	Deemed Value (1.00)	Prior Year Value
Commercial Programs				
Business EER - Standard				X
Business EER - Custom	X			
Block Bidding			X	
Small Business Lighting				X
Business Programmable Thermostat		X		
Demand Response Incentive		X		
Residential Programs				
Whole House Efficiency				X
Home Lighting Rebate	X			
Home Energy Report		X		
Residential Programmable Thermostat		X		
Income-Eligible Multifamily			X	

3.2 Summary of Impact Evaluation Findings

In this section, we provide a summary of the energy savings goals and accomplishments across KCP&L-GMO's energy efficiency program portfolio. Table 3 and Table 4 show KCP&L-GMO's energy efficiency targets, *ex ante* gross values, *ex post* gross values, the evaluated *ex post* net savings (evaluated) and net achievement compared to the targets for energy savings (kWh) and demand reductions (kW), respectively. To ensure clarity, these terms are defined as follows:

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

Table 3: KCP&L-GMO Portfolio Energy Savings in PY2017, kWh

Program	Ex Ante Gross Savings	Ex Post Gross Savings	Gross Realization Rate	NTG Ratio	Net Savings Ex Post	PSC – Approved 3-Year Targets	% of Target Reached
Business EER - Standard	50,198,997	43,069,646	86%	96%	41,346,860	38,710,762	107%
Business EER - Custom	5,942,836	6,179,481	104%	61%	3,769,484	30,079,932	13%
Block Bidding*	N/A	N/A	N/A	N/A	N/A	17,603,947	N/A
Strategic Energy Management	5,863,545	5,120,961	87%	100%	5,120,961	12,127,508	42%
Small Business Lighting	2,720,537	2,619,095	96%	87%	2,283,851	3,569,963	64%
Business Programmable Thermostat	143,220	73,990	52%	100%	73,990	79,002	94%
Demand Response Incentive	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Business Online Energy Audit	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Commercial Portfolio	64,869,135	57,063,173	88%	92%	52,595,146	102,171,114	51%
Whole House Efficiency	10,069,992	9,360,707	93%	80%	7,488,566	19,717,746	38%
Home Lighting Rebate	13,192,193	12,519,138	95%	83%	10,537,931	25,288,145	42%
Income-Eligible Weatherization	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Home Online Energy Audit	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Home Energy Report	21,011,479	21,011,479	100%	100%	21,011,479	21,070,772	100%
Residential Programmable Thermostat	5,656,266	3,193,544	56%	100%	3,193,544	6,144,138	52%
Residential Portfolio	49,929,930	46,084,868	92%	92%	42,231,520	72,220,801	58%
Income-Eligible Multifamily	5,148,380	4,353,778	85%	100%	4,353,778	10,014,278	43%
Multifamily Portfolio	5,148,380	4,353,778	85%	100%	4,353,778	10,014,278	43%
Total**	119,947,445	107,501,821	90%	92%	99,180,444	184,406,194	54%

*No impact evaluation was conducted for Block Bidding due to zero program participation in PY2017.

**Totals may not sum due to rounding

Overall, in PY2017, year two of the three-year cycle, the portfolio saw gross evaluated savings of an estimated 107,501,821 kWh, a gross realization rate of 90 percent. Total portfolio net savings were estimated at 99,180,444 kWh. The portfolio achieved approximately 54 percent the three-year MEEIA Cycle 2 energy target, which is a cumulative 3-year target, indicating the programs in aggregate, are progressing toward meeting the MEEIA Cycle 2 targets.

The residential portfolio achieved 58 percent of the three-year target net savings goal in 2017. The Home Energy Report program contributed the highest savings with 21,011,479 kWh, which is almost 100 percent of the 3-year target. The Home Lighting Rebate was the next highest contributor to the overall residential savings with 10,537,931 kWh net savings, which is 42 percent of the 3-year target.

The 2017 residential portfolio had lower overall savings than the C&I portfolio with 42,231,520 kWh net savings. Compared to the residential program, the C&I portfolio was less successful in terms of reaching the three-year goals with 51 percent of the goal achieved. This still places the C&I portfolio as a whole on track to meet the goal of three years. The Business EER – Standard program saw the largest savings in terms of total savings and as a proportion of the three-year savings goal, achieving net savings of 41,346,860 kWh or 107 percent of the three-year goal. The Strategic Energy Management program became active in 2017 and was the next highest contributor to the overall C&I portfolio with 5,120,961 kWh net savings or 42 percent of the 3-year target.

Table 4 displays the KCP&L-GMO results for demand savings. In PY2017, year two of the three-year cycle, the portfolio saw gross evaluated demand savings of an estimated 56,386 kW, a gross realization rate of 76 percent. Total portfolio net demand savings were estimated at 54,095 kW. The portfolio achieved approximately 51 percent of the three-year MEEIA Cycle 2 demand savings target, which is a cumulative 3-year target, indicating the programs are in aggregate progressing toward meeting the targets.

Table 4: KCP&L-GMO Portfolio Demand Savings in PY2017, kW

Program	Ex Ante Gross Savings	Ex Post Gross Savings	Gross Realization Rate	NTG Ratio	Net Savings Ex Post	PSC – Approved 3-Year Targets	% of Target Reached
Business EER - Standard	9,049	7,333	81%	96%	7,040	6,385	110%
Business EER - Custom	1,014	1,433	141%	61%	874	7,758	11%
Block Bidding*	N/A	N/A	NA	N/A	N/A	3,052	N/A
Strategic Energy* Management	N/A	N/A	NA	N/A	N/A	2,842	N/A
Small Business Lighting	471	421	89%	87%	367	592	62%
Business Programmable Thermostat	393	463	118%	100%	463	215	215%
Demand Response Incentive	37,697	19,522	52%	100%	19,522	55,000	35%
Business Online Energy Audit	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Commercial Portfolio	48,624	29,172	60%	97%	28,266	75,844	37%
Whole House Efficiency	3,977	5,828	147%	80%	4,662	5,072	92%
Home Lighting Rebate	1,321	1,421	108%	83%	1,202	2,669	45%
Income-Eligible Weatherization	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Home Online Energy Audit	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Home Energy Report	3,905	3,808	98%	100%	3,808	4,215	90%
Residential Programmable Thermostat	15,441	15,609	101%	100%	15,609	16,757	93%
Residential Portfolio	24,644	26,666	108%	95%	25,281	28,713	88%
Income-Eligible Multifamily	523	548	105%	100%	548	1,357	40%
Multifamily Portfolio	523	548	105%	100%	548	1,357	40%
Total**	73,791	56,386	76%	96%	54,095	105,914	51%

*No impact evaluation was conducted for Block Bidding due to no program participation in PY2017. No demand savings were claimed for Strategic Energy Management in PY2016 or PY2017.

**Totals may not sum due to rounding

Table 5 shows estimated free ridership, spillover, and non-participant spillover rates along with the final net-to-gross ratios across the KCP&L-GMO 2017 program portfolio.

Table 5: KCP&L-GMO Portfolio Estimated Free Ridership, Spillover and NTG Ratio

Program	Free Ridership Rates	Participant Spillover Rates	Non-participant Spillover	NTG Ratio
Business EER - Standard	0.05	0.002	0.004	96%
Business EER - Custom	0.41	0.02	0	61%
Block Bidding - Standard	N/A	N/A	N/A	96%
Block Bidding - Custom	N/A	N/A	N/A	61%
Strategic Energy Management	N/A	N/A	N/A	100%
Small Business Lighting	0.14	0.002	0.01	87%
Income-Eligible Weatherization	N/A	N/A	N/A	100%
Business Programmable Thermostat	N/A	N/A	N/A	100%
Demand Response Incentive	N/A	N/A	N/A	100%
<i>Total Commercial Portfolio</i>	N/A	N/A	N/A	96%
Whole House Efficiency	0.35	0.01	0.14	80%
Home Lighting Rebate	0.38	0.21	0	83%
Income-Eligible Home Energy Report	N/A	N/A	N/A	100%
Home Energy Report	N/A	N/A	N/A	100%
Residential Programmable Thermostat	N/A	N/A	N/A	100%
Income-Eligible Multifamily	N/A	N/A	N/A	100%

The following figures present summaries of 2017 net program savings compared to the three-year (2016-2018) MEEIA Cycle 2 program goals. Figure 2 and Figure 3 display the PY2017 net energy and demand savings targets and ex-post achievements by sector, as reported by evaluators. The residential and commercial portfolios, as well as the portfolio as a whole, are on track to meet or exceed the three-year MEEIA Cycle 2 goals. The multifamily program which had previously underperformed in 2016, more than doubled its net savings in 2017 achieving 40 percent of the program's three-year target net savings goal and is back on track to meet the three-year MEEIA Cycle 2 goals.

Figure 2: Energy Savings and Achievements by Sector: PY2017 MWh

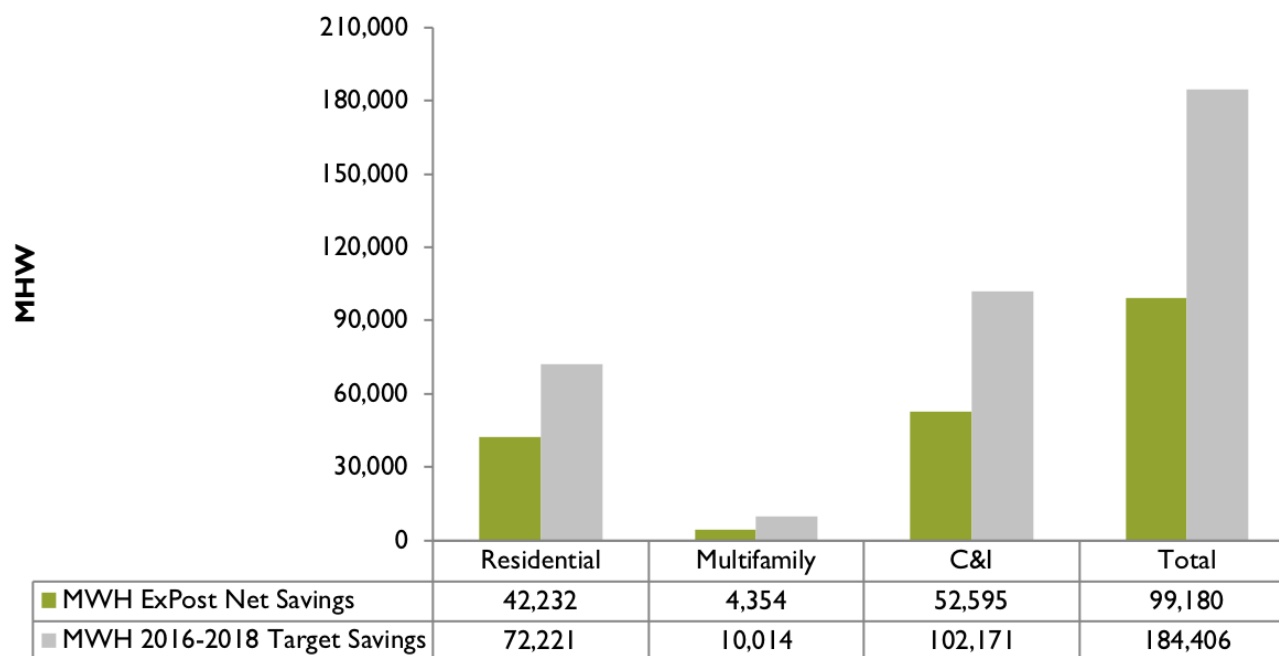


Figure 3: Demand Savings Targets and Achievements by Sector: PY2017 MW

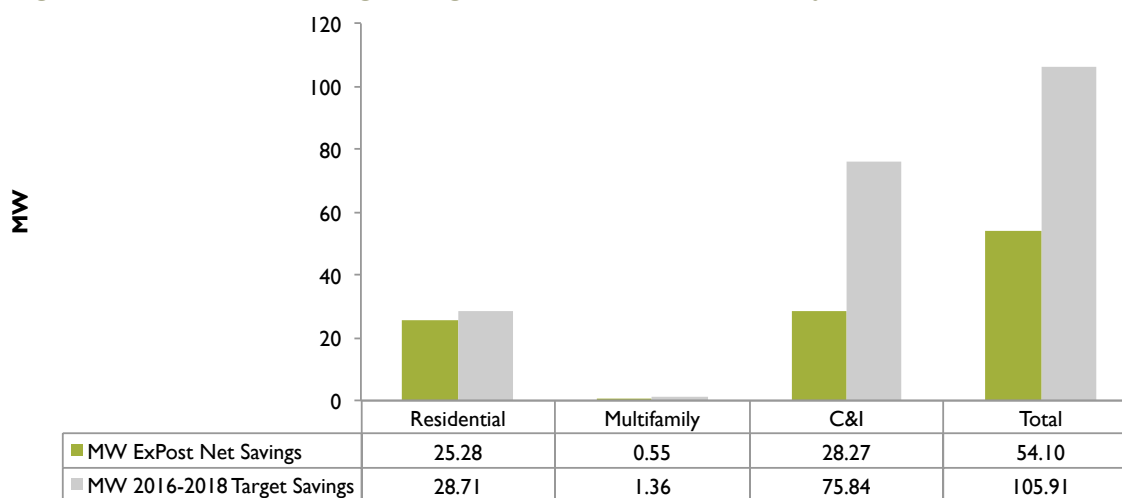


Figure 4 and Figure 5 present the findings for the 2017 energy target and demand savings goals and accomplishments for each Residential sector program for the 2017 program year.

Figure 4: Residential Programs Planned and Evaluated Savings: PY2017 MWh

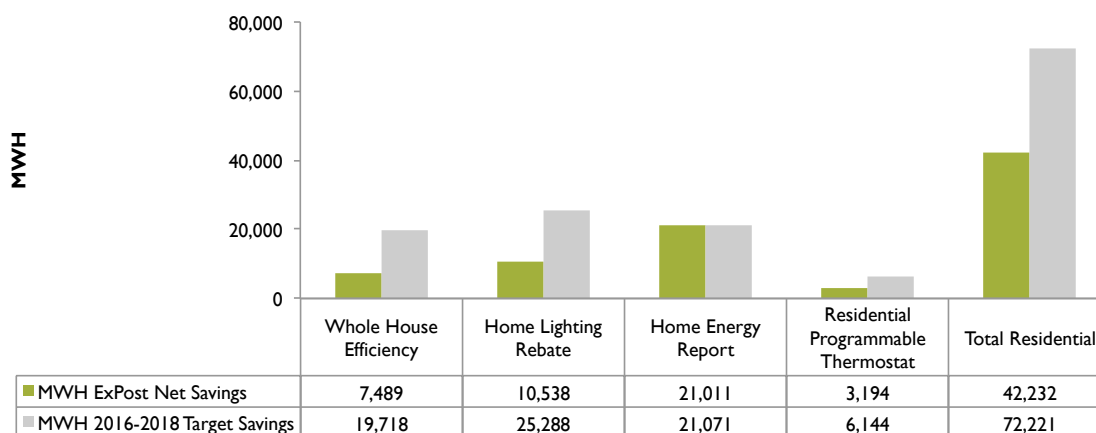
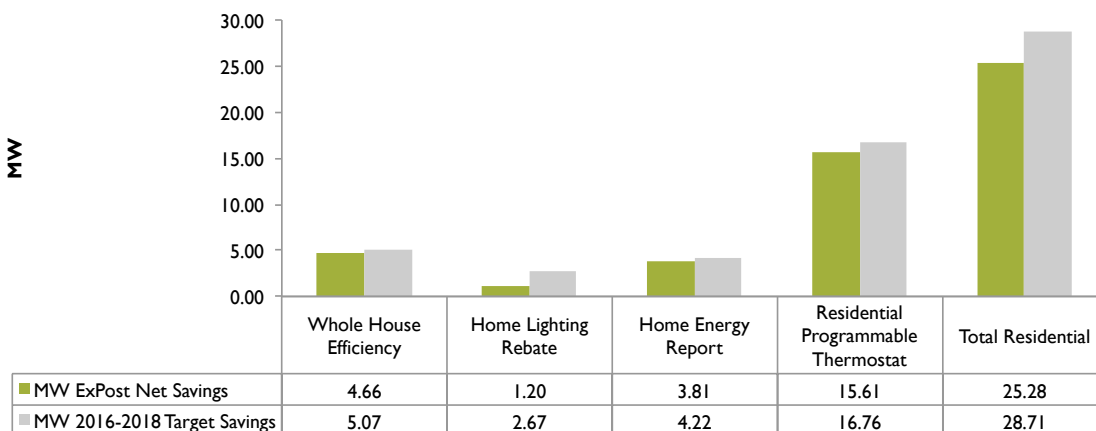


Figure 5: Residential Programs Planned and Evaluated Savings: PY2017 MW



At the portfolio level, the residential sector portfolio is on track to meet the MEEIA Cycle 2 energy and demand savings goals, achieving 58 percent of the net energy savings target of 72,364 MWh, and 88 percent of its net demand savings target of 28.71 MW. The Home Energy Report programs and Home Lighting Rebate contributed the most savings to the residential portfolio.

The 2017 Whole House Efficiency saw a gross realization rate of 93 percent, achieving 9,360 MWh of verified gross energy savings. The program achieved 7,489 MWh of verified net energy savings, 38 percent of the three-year MEEIA Cycle 2 target. The program achieved 4.66 MW of verified net coincident demand savings, 92 percent of the PY2016-PY2018 MEEIA target.

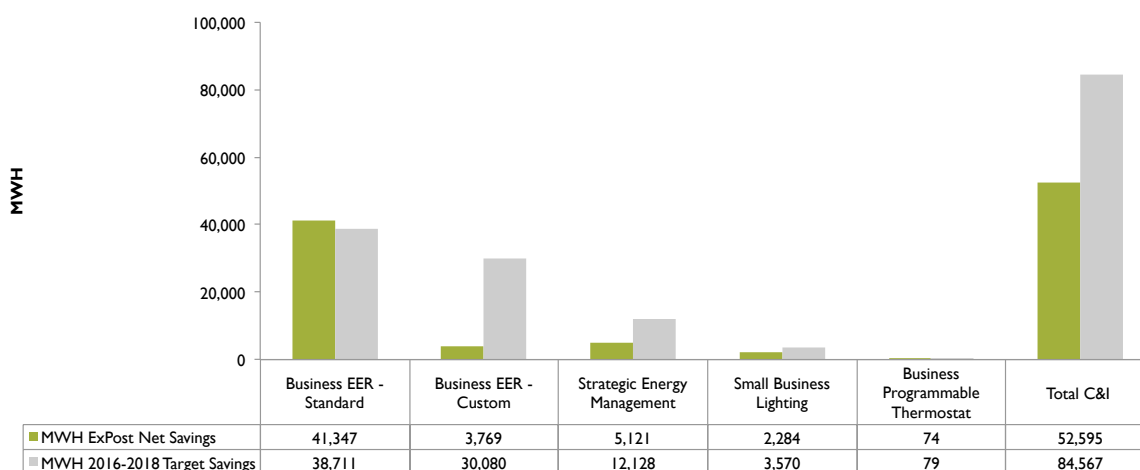
The Home Lighting Rebate Program achieved 13,192 MWh of verified gross energy savings at the customer meter in PY2017, for a realization rate of 95percent. Net energy savings totaled 10,538 MWh, or 42 percent of the three-year MEEIA Cycle 2 target. The program achieved 1,421 kW of verified gross demand savings at the customer meter in PY2017, for a realization rate of 108 percent. The net demand savings totaled 1,202 kW, or 45 percent of the three-year MEEIA target.

The Home Energy Report (HER) programs are on track or have exceeded the three-year MEEIA Cycle 2 targets. The combined savings from the three waves of HER program customers amounted to 21,011,479 kWh energy savings at the customer meter in PY2017 for a realization rate of 100 percent. The program achieved 100 percent of the three-year MEEIA Cycle 2 target. The standard HER program achieved 3,808 kW demand savings at the customer meter in PY2017 for a realization rate of 98 percent. The program achieved 90 percent of the Demand Savings three-year MEEIA Cycle 2 target.

The Residential Programmable Thermostat program also performed well against the 3-year Cycle 2 MEEIA target. The program saved and estimated 3,193,544 kWh at the customer meter in PY2017 for a realization rate of 56 percent and 52 percent of the 3-year Cycle 2 MEEIA target. The program achieved 15,609 kW of demand impact in PY2017 for a realization rate of 101 percent, meeting 93 percent of the 3-year MEEIA target.

Figure 6 and Figure 7 summarize the 3-year Cycle 2 MEEIA target savings and evaluated savings for each Commercial sector program for the 2017 program year.

Figure 6: C&I Programs Planned and Evaluated Savings: PY2017 MWh



*Total Commercial sector savings target excludes Block Bidding.

Figure 7: C&I Programs Planned and Evaluated Savings: PY2017 MW



* Total Commercial sector savings target excludes Block Bidding and Strategic Energy Management programs.

At the portfolio level, the commercial sector program portfolio is on track to meet the MEEIA Cycle 2 energy and demand savings goals, achieving 51 percent of the net energy savings target of 102,171 MWh, and 37 percent of its net demand savings target of 75.84 MW. The Business EER – Standard program contributed the majority of savings to the portfolio.

The PY2017 Business EER – Standard program had 752 projects achieving 43,070 MWh of verified gross savings and 7.33 MW verified gross demand savings. This represents an 86 percent realization rate for energy savings and an 81 percent realization rate for demand savings. The program achieved 41,347 MWh of verified net energy savings, meeting 107 percent of the three-year MEEIA Cycle 2 target. The program achieved 7.01 MW of verified net demand savings, 110 percent of the PY2016-PY2018 MEEIA target. Lighting projects represented 99.7 percent of the program savings with HVAC, pumps, fans, and refrigeration contributing the remaining 1 percent.

The PY2017 Business EER – Custom program had 6 projects achieving 6,179 MWh of verified gross savings and 1.43 MW verified gross demand savings. This represents a 104 percent realization rate for energy savings and a 141percent realization rate for demand savings. The program achieved 3,769 MWh of verified net energy savings, meeting 13 percent of the three-year MEEIA Cycle 2 target. The program achieved 0.87 MW of verified net demand savings, 11 percent of the three-year MEEIA Cycle 2 target.

The Small Business Lighting Program achieved 2,619 MWh of verified gross energy savings at the customer meter in PY2017, for a realization rate of 96 percent. Net energy savings totaled 2,284 MWh, or 64 percent of the three-year MEEIA Cycle 2 target. The program achieved 421 kW of verified gross demand savings at the customer meter in

PY2017, for a realization rate of 89 percent. The net demand savings totaled 367 kW, which is 62 percent of the three-year MEEIA Cycle 2 target.

The Business Programmable Thermostat program saved an estimated 73,990 MWh of energy savings at the customer meter in PY2017 for a realization rate of 52 percent. The program achieved 94 percent of the three-year MEEIA Cycle 2 target. The program achieved 463 MW of demand impact in PY2017 for a realization rate of 118 percent, meeting 215 percent of the three-year MEEIA Cycle 2 target.

Lastly, the Demand Response Incentive program achieved 35 percent of the three-year MEEIA Cycle 2 target. The program saw 19,522 kW in demand impacts in PY2017 for a realization rate of 52 percent.

3.3 Summary of Key Impact Evaluation Recommendations

3.3.1 Recommendation Adoption Tracking

The Navigant 2016 KCP&L-GMO EM&V report provided impact evaluation recommendations for the Cycle 2 program portfolio. This section reviews the adoption status of these recommendations for the following Programs continued in 2017.

- **Business Energy Efficiency Program – Standard**
- **Business Energy Efficiency Program – Custom**
- **Small Business Lighting Program**
- **Programmable Thermostat**
- **Demand Response Incentive**
- **Whole House Efficiency Program**
- **Home Lighting Rebate Program**
- **Home Energy Report**
- **Income Eligible Multi-Family Program**

The Navigant 2017 KCP&L-GMO EM&V report does not explicitly provide information of the status of the 2016 recommendations. Consequently, the Evergreen team cannot provide information on whether the 2016 recommendations were adopted in all cases. A list of PY2016 recommendations and adoption status is included in Table 6.

Table 6: PY2016 Impact Evaluation Recommendation Tracking

Program	EM&V PY2016 Recommendation	Program Response
Business Energy Efficiency Program – Standard	During the tracking data review, the evaluation team found that the IC’s project files had a difference in quantity and savings versus KCP&L’s electronic tracking database. Navigant suggests KCP&L consider adding quality control (QC) steps to make sure these two data sources match.	Not Adopted. Remains in recommendations 2017
	Account for actual building types to accurately predict the savings. Currently, all tracked savings assume performance variables that reflect operation of an office building.	Not Adopted. Remains in recommendations 2017
	Use a single data source for all lighting measure inputs	Not reported as an issue in 2017
	Account for low in-service rates due to lights in storage or inability to locate fixtures	Not Adopted. Remains in recommendations 2017
Business Energy Efficiency Rebate - Custom Program	Maintain the International Energy Conservation Code (IECC) 2012 baseline for lighting power density based on the building area approach.	Not reported as an issue in 2017
	Include the total quantity installed value in the program tracking database especially for lighting projects	Not reported as an issue in 2017
	Provide a column in the tracking database that has a brief narrative describing the installed energy efficient measures or equipment	Not Adopted. Remains in recommendations 2017
	Ensure alignment between the electronic program tracking database and project files.	Not reported as an issue in 2017
	Align the peak demand calculations with the GMO C&I peak time period. If zero peak demand savings are claimed please indicate reason why.	Not Adopted. Remains in recommendations 2017
	For lighting projects collect and record information on whether the space is conditioned and custom lighting operating hours	Not reported as an issue in 2017
	For lighting projects ensure CFs, lighting controls, WHF, and peak demand are correctly employed	Not reported as an issue in 2017
	For lighting projects, collect both pre-and post-retrofit trending data to improve verification and avoid using assumptions or a prescriptive approach	Not reported as an issue in 2017
	For new construction lighting projects use the Building Area or Space-by-Space method rather than using a representative baseline of fixtures	Not reported as an issue in 2017

	For new construction projects, use zero for the baseline incremental cost	Not reported as an issue in 2017
	Include incremental cost in the tracking database.	Not Adopted. Remains in recommendations 2017
	Ensure alignment between the electronic program tracking database and project files.	Not reported as an issue in 2017
	Include a primary key code that will link directly to the KCP&L deemed measure savings database used to support the MEEIA Cycle 2 reported savings filed for the program	Not reported as an issue in 2017
Small Business Lighting Program	Use a single authoritative reference to look up the various values used in the calculations (for example, WHFs, CFs, etc.). The evaluation team recognizes MO is currently working on a TRM, but it is not the active reference for the state. Until that time, Navigant suggests using the Illinois TRM to ensure a consistent reference source.	Not reported as an issue in 2017
	Navigant recommends accounting for actual building types to accurately predict the savings.	Not Adopted. Remains in recommendations 2017
	Navigant recommends using an ISR of 99 percent while calculating the reported savings.	Not Adopted. Remains in recommendations 2017
	Navigant used an ISR of 99 percent based on findings from the onsite verification. This was mainly due to lights in storage or an inability to locate the fixtures.	Not reported as an issue in 2017
Business Programmable Thermostat	Reconcile data collected by Nest and CLEAResult so the system records the following data: Account Number, Premise Number, Thermostat Serial Number, Installation Date, Rush Hour Rewards Activation Date, and Seasonal Savings Enrollment Date.	Not reported as an issue in 2017
	Maintain a list of active device serial numbers during each event. This would allow Navigant to verify program participation and DR impact by event more accurately.	Not reported as an issue in 2017
Demand Response Incentive	Consider including net power received in interval data.	Not reported as an issue in 2017

Whole House Efficiency Program	Confirm that tracking database includes parameters that were excluded in PY2016, including heating capacity for heat pumps, HSPF, Baseline and efficient EER and SEER values, number of floors in residence, home age, and equipment age.	Not reported as an issue in 2017
	Amend processes used to calculate the program's reported savings to align with the algorithms and sources used by the evaluation team.	Not Adopted. Remains in recommendations 2017
Home Lighting Rebate Program	Revise energy and demand savings calculations to account for leakage, assumed to be 12 percent of HLR LED bulb sales (KCP&L-MO currently makes no adjustment for leakage).	Not reported as an issue in 2017
	Assume a lifetime ISR of 94.2 percent for all HLR LED bulb sales (KCP&L-MO currently makes no adjustment for ISR)	Not reported as an issue in 2017
	Estimate net savings separately for standard and specialty LEDs rather than using a program- wide NTG ratio, as the mix of standard and specialty LEDs could vary from year to year	Not reported as an issue in 2017
	Assume a NTG ratio of 85.8 percent for standard LEDs and 76.2 percent for specialty LEDs	Updated Value recommended in 2017
	Reduce annual HOU from 938 hours to 840 hours for HLR LED bulb sales installed in residential settings	Not Adopted. Remains in recommendations 2017
	Reduce peak CF from 0.095 to 0.08 for HLR LEDs bulb sales installed in residential settings	Not reported as an issue in 2017
Home Energy Report	Account for four percent C&I cross-sector sales contribution of HLR LED bulb sales by applying HOU and CF values of 3,306 and 0.6, respectively	Not Adopted. Remains in recommendations 2017
	Continue to use Oracle-reported savings for tracking purposes.	Continues to be adopted
Income-Eligible Multifamily Program	KCP&L-MO should meet with the program implementer, Opower, to discuss how the income-eligible cohort was selected, and how the messaging in their reports was targeted	Not reported as an issue in 2017
	Include more detailed information on inputs used and baseline values for DI measures, particularly for low-flow showerheads and aerators as these had differing realization rates; this indicates input assumptions are not fully matching those used in verification	Not reported as an issue in 2017

3.3.2 PY2017 Recommendations

Navigant provided recommendations from the PY2017 program evaluations, which seek to guide and improve future impact evaluations. Table 7 presents the evaluator recommendations by program

Table 7: PY2017 Impact Evaluation Recommendations

Program	EM&V PY2017 Recommendation
Business Energy Efficiency Program – Standard	Include a value in the Quantity Removed field for any instances where the quantity replaced is more than one such that the efficient wattage represents the number of baseline lamps replaced
	For all non-lighting measures, include the size of the product installed to ease calculation of the savings
	Include additional QC of reported efficient wattage to check if it aligns closely with deemed savings assumed wattage
	Calculate deemed savings by building type
	Improve predictions by including building type in savings estimate
	Account for lower ISR due to some lights being in storage
Business Energy Efficiency Rebate - Custom Program	Use results of onsite logger analysis for lighting measures for HOU, CF, and WHF
	Provide a column in the tracking database that has a brief narrative describing the installed energy efficient measures or equipment.
	Track savings values for all the implemented eligible measures.
	Track project cost and incremental cost for each project, when possible.
	Consolidate a list of Custom measure categories for both tracking and marketing.
	Provide a detailed introduction to each measure category on the website.
	Continue to submit well- organized project files to help the impact evaluation process.
	Monitor project files for consistency when more projects enter in PY2018.
For Custom lighting operating hours, collect a detailed operating schedules(8:00am - 7:00pm on weekdays et al.). This helps determine the coincidence factors and creation of lighting operating hours.	
For projects that lighting fixtures operate 24/7 annually, make sure use 1.0 as the coincidence factor.	
If occupancy sensors or special lighting controls are installed as part of the lighting upgrade, make sure claim additional savings for the installation of lighting controls.	

	<p>Align the peak demand calculations with the KCP&L C&I peak period, particularly for non-lighting projects. If zero peak demand savings are claimed, please indicate reasons why.</p> <p>If hourly data analysis could be performed, better to not use 2- degree interval of temperature or other bin data analysis approach.</p>
	<p>Include additional QC of reported efficient wattage to check if it aligns closely with deemed savings assumed wattage</p> <p>Consider including incremental cost in the tracking database, which will help for calculating the benefit-cost ratios.</p>
Small Business Lighting Program	<p>Use an ISR of 99 percent while calculating the reported savings</p> <p>Reduce negative savings by training contractors to replace fixtures like for like and not fixtures that replace more than one lamp when only one lamp is being replaced.</p> <p>Consider creating deemed savings by measure and building type using the HOU and CF by building type determined from onsite verification.</p>
Business Programmable Thermostat	<p>Consider running an assessment with the thermostat telemetry data to identify why some thermostats did not participate in some RHR events. Such information could lead to process improvements in the future of the program.</p> <p>The process evaluation identified that many customers wanted text message notification as well as Nest App push notification for their event notification. These forms of notification are already offered by KCP&L. Navigant recommends increased marketing of event notification options to improve customer awareness of events and customer satisfaction.</p> <p>The process evaluation identified that some customers took additional energy saving actions during events. KCP&L should consider using AMI data to identify non-thermostat related impacts during event hours.</p> <p>Navigant recommends including tips on alternative forms of savings electricity outside of thermostat use in customer survey. These types of tips could increase future energy savings.</p>
Demand Response Incentive	<p>Navigant recommends that KCP&L send Navigant a unique list of customers for tracking data. In addition, the evaluation team recommends that KCP&L ensures Navigant receives the same interval data as A2A</p>
Whole House Efficiency Program	<p>Navigant recommends the program implementer ensure that the tracking database contains all data needed to track installed program measures and calculate program savings. This includes all equipment specifications and household characteristics for baseline and efficient measure installations.</p>

Accurately tracking equipment specifications is especially important for Tier 3 HVAC units. Two significant drivers of HVAC savings, and therefore program savings, are the SEER and energy efficiency ratio ratings of all HVAC equipment removed through the program. Navigant used KCP&L's PY2015 ACUR program evaluation values to estimate the existing SEER and energy efficiency ratio values in the market, but unit-specific data is preferable as the market continues to evolve. The program implementer should consider ways to accurately track these values for removed units and identify whether those values are nameplate or measured. Measured SEER and energy efficiency ratio values are preferable. However, if nameplate values are tracked, Navigant will consider approaches to leverage those SEER and energy efficiency ratio values to reflect measured values through the application of an adjustment factor.

Navigant also recommends that the program implementer consider ways to ensure that participating HVAC units comply with the program's Operations Manual, particularly the SEER values of units to be removed by the program. The program's Operations Manual limits the maximum SEER rating for units that can be removed and participate in the program to 10. In some instances (less than one percent of units) the removed units had SEER ratings higher than 10. Consider options to limit this such as additional staff training to thoroughly review applications and a quality control checklist to verify this data point.

Finally, Navigant recommends that the program implementer amend the methodology used to calculate the program's reported savings to align with the algorithms, inputs, and sources used to calculate the evaluated savings as detailed in Appendix J. Alignment will bring realization rates closer to 100 percent (or 1.0) while providing more accurate data for tracking progress toward targets and overall program management.

	Account for leakage, assumed to be 14 percent of HLR LED bulb sales (GMO currently makes no adjustment for leakage)
	Retain an annual HOU of 840 hours for HLR standard LED bulb sales installed in residential settings
Home Lighting Rebate Program	Adopt an annual HOU of 986 for HLR specialty LED bulb sales installed in residential settings
	Account for the C&I cross-sector sales contribution of HLR LED bulb sales by applying HOU and CF values of 3,306 and 0.6, respectively, to 4% of the bulbs sold through the program
	Assume a NTG ratio of 88 percent for standard LEDs and 71 percent for specialty LEDs

Home Energy Report	<p>Conduct an analysis of demand impacts using advanced metering infrastructure (AMI) data from a sample of treatment and control customers. While the Oracle methodology is robust, it does not include customers from KCP&L. Navigant suggests using a post-only difference approach (most customers will not have AMI data available for the pre-period) to confirm the applicability of Oracle's demand reduction estimate to the KCP&L program.</p>
	<p>Continue to use Oracle-reported savings for tracking purposes.</p>
	<p>Evaluate the reported savings every 2-3 years to monitor continued consistency between evaluated savings and implementer-reported savings.</p>
Income-Eligible Multifamily Program	<p>The tracking data and savings calculations provided by KCP&L and Nexant are appropriate for the program. The tracking data included type, quantity, and location of measures, which was sufficient to review the measures. Detailed information for the two custom measures (combined for GMO and KCP&L- MO) was not included in the original tracking data; instead, measures were simply listed as custom. Navigant recommends that detailed custom measure data is captured in the tracking data moving forward.</p>
Strategic Energy Management	<p>Navigant recommends annualizing energy savings for each SEM model. Savings should be estimated based on the most recent 12 months or be adjusted to represent a 12-month period. Since this is a multiyear program, savings for each year should be included separately and steps should be taken to only count the savings found in the reported program year.</p>
	<p>Develop a process for coordination across C&I programs to identify capital projects at SEM sites, and ensure savings models are adjusted accordingly.</p>
	<p>When creating detailed energy models, All outliers should be identified, explained and carefully handled. If data points are removed, the model should be annualized as discussed above. All outliers should be checked in both the baseline model and the measurement model to ensure that any seasonal or reoccurring outliers are handled the same in both models.</p>
	<p>When creating detailed energy models Placeholder variable that represent certain project installations or permanent site change should be used sparingly as they do not change in the measurement model.</p>
	<p>When creating detailed energy models When possible, all variable should be independent variables to not count the impact of certain changes multiple times.</p>
	<p>When creating detailed energy models Each model should include a variable that represents site load. This could be a production variable for manufacturing sites, occupancy for hospitals or offices, or other similar variables that adjust site usage to site operation.</p>

4 Process Evaluation Summary

This section summarizes key methods and findings from the PY2017 process evaluations of KCP&L-GMO's residential and business energy efficiency program portfolio. The first subsection summarizes the process evaluation methods used by the Navigant team, and includes an assessment of how the process evaluation aligns with the minimum requirements for demand-side process evaluations set forth by the Missouri Code of State Regulations (CSR). The second subsection reviews the status of the program evaluation recommendations from the PY2016 evaluations.

4.1 Summary of Process Evaluation Methods and Alignment with Missouri CSR Minimum Requirements

The residential and commercial program evaluations adopted a wide range of process evaluation methods. Table 8 below summarizes the process evaluation methods applied for each program.

Table 8: Process Evaluation Method Summary

Program	Methods	Description
Business EER - Standard	<ul style="list-style-type: none"> • Program Staff Interviews • Program Material Review • Customer Survey Review 	The evaluation team interviewed key program staff, reviewed program materials and reviewed the IC administered participant surveys (n= greater than 50).
Business EER - Custom	<ul style="list-style-type: none"> • Program Staff Interviews • Program Material Review • Trade Ally Surveys • Participant Surveys 	Two staff interviews with the program manager and implementation contractor. The evaluation team received 18 completed participant survey and 11 trade ally surveys.
Block Bidding	<ul style="list-style-type: none"> • Program Staff Interviews • Program Material Review 	Two staff interviews with the program manager and implementation contractor
Strategic Energy Management	<ul style="list-style-type: none"> • Program Staff Interviews • CLEAResult Interviews • Participant Interviews 	The evaluation team completed interviews with program staff, CLEAResult and participants. Seven participants were interviewed.
Small Business Lighting	<ul style="list-style-type: none"> • Program Staff Interviews • Program Material Review • Participant Survey Review 	The evaluation team completed staff interviews, a program material review and reviewed IC administered participant surveys.
Business Programmable Thermostat	<ul style="list-style-type: none"> • Program Staff Interviews • Program Material Review • Participant Surveys 	Post-event and post-season customer surveys. Staff interview with the product manager.
Demand Response Incentive	<ul style="list-style-type: none"> • Program Staff Interviews • Program Material Review 	Staff interviews with the program manager and implementation contractor.

Program	Methods	Description
Whole House Efficiency	<ul style="list-style-type: none"> • Program Staff Interviews • Program Material Review 	Two staff interviews with the program manager and implementation contractor. Review of program documentation and marketing materials.
Home Lighting Rebate	<ul style="list-style-type: none"> • Program Staff Interviews • In-store Intercept Surveys 	Completed staff interviews and numerous in-store intercept surveys.
Home Energy Reports	<ul style="list-style-type: none"> • Program Staff Interviews • Program Material Review • Participant Surveys • CET Survey Review 	Staff interviews with the program manager and implementation contractor as well as a program materials review, survey of treatment and controls group customers, and a review of the implementation contractors survey results.
Residential Programmable Thermostat	<ul style="list-style-type: none"> • Program Staff Interviews • Program Material Review • Participant Surveys 	Post-event and post-season customer surveys. Staff interview with the product manager.
Income-Eligible Multifamily	<ul style="list-style-type: none"> • Program Staff Interviews • Program Material Review 	Staff interviews were completed with the KCP&L program manager and implantation contractor.
Home and Business Online Energy Audits	<ul style="list-style-type: none"> • Program Staff Interviews • Program Material Review • Customer Survey 	Two staff interviews with the program manager and implementation contractor.

The Department of Economic Development set forth minimum requirements for demand-side program process evaluations, in 4 CSR 240-22.070(9).⁵ At a minimum, process evaluations should answer the following five key questions:

- **Question 1:** What are the primary market imperfections common to the target market segment?
- **Question 2:** Is the target market segment appropriately defined, or should it be further subdivided or merged with other market segments?
- **Question 3:** Does the mix of end-use measures included in the program appropriately reflect the diversity of end-use energy service needs and existing end-use technologies within the target market segment?
- **Question 4:** Are the communication channels and delivery mechanisms appropriate for the target market segment?

⁵ Rules of Department of Economic Development, Division 240 - Public Service Commission, Chapter 22 - Electric Utility Resource Planning. 2011. <https://www.sos.mo.gov/cmsimages/adrules/csr/current/4csr/4c240-22.pdf>

- **Question 5:** What can be done to more effectively overcome the identified market imperfections and to increase the rate of customer acceptance and implementation of each end-use measure included in the program?

Each program evaluation provided a response to all five questions. The full text response to these questions is provided as Appendix A to this report. Evergreen reviewed each text response to determine if the process evaluations provided a substantive response to each question. Across the program evaluations, we found that most provided a thoughtful, substantive response to each question, although in some cases the response was largely similar or identical to previous year evaluations. Table 9 below presents an assessment of the responses to the five key questions across the program evaluations. For each question, we assign a score of 1, 2 or 3:

- **1** indicates an updated, substantive response clearly linked to process evaluation findings.
- **2** indicates a response that is different from the previous program year evaluation but is not linked to process evaluation findings or is not substantive in nature.
- **3** indicates that the response has not changed at all from the previous year process evaluation.

The evaluations provide substantive, updated responses to the five key questions that are clearly linked to the most recent evaluation findings.

Table 9: Assessment of Response to Minimum Required Process Evaluation Questions

Program	Question 1: Primary Market Imperfections	Question 2: Target Market Segment	Question 3: Diversity of End-Use Needs	Question 4: Communication Channels and Delivery Mechanisms	Question 5: Overcoming Market Imperfections
Business EER – Standard	1	1	1	1	1
Business EER - Custom	1	1	1	1	1
Block Bidding	1	1	1	1	1
Strategic Energy Management	1	1	1	1	1
Small Business Lighting	1	1	1	1	1
Business Programmable Thermostat	1	1	1	1	1
Demand Response Incentive	1	1	1	1	1
Whole House Efficiency	1	1	1	1	1
Home Lighting Rebate	1	1	1	1	1
Home Energy Report	1	1	1	1	1
Residential Programmable Thermostat	1	1	1	1	1
Income-Eligible Multifamily	1	1	1	1	1

* **1** = Updated, substantive linked to process evaluation findings. **2** = Different from the previous program year evaluation but is not linked to process evaluation or not substantive in nature. **3** = Response has not changed at all from the previous year process evaluation.

4.2 PY2017 Process Evaluation Findings and Recommendations

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

4.2.1 Process Evaluation Findings

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

In the following sections we summarize key process evaluation findings across five topic areas, customer satisfaction, program participation, program marketing, program delivery and program implementation changes.

4.2.1.1 Customer and Trade Ally Satisfaction

KCP&L programs appear to be performing to customer and trade ally satisfaction. Across these programs, in general customer and trade ally satisfaction is high. The satisfaction results reported indicate that the programs are well-run and meeting needs of customers and trade allies. Table 10 below presents a summary of satisfaction results across the programs where satisfaction research was conducted.

Table 10: Customer and Trade Ally Satisfaction Findings Summary

Program	Process Evaluation Findings Summary
Business EER - Standard	Customer satisfaction is high with participant's surveyed rating the program an average score of 9, with 10 being the highest score and indicating extremely satisfied.
Business EER - Custom	End-user participant satisfaction is high with 80% of participants being very likely to participate in future KCP&L programs. Some trade allies are dissatisfied with the rebate amount.
Small Business Lighting	Customer satisfaction is high, with the six customers giving an average score over 9 with 10 being extremely satisfied. Many of the trade allies increased participation in the second year.
Strategic Energy Management	The average overall satisfaction with the SEM program was 7.6 on a 10-point scale. Total participants surveyed is n=7.
Programmable Thermostat Programs	Satisfaction was relatively high in PY17. 76% and 63% of respondents rated their overall experience with RHR and SS, respectively, as satisfied and very satisfied.
Whole House Efficiency	Participants and trade allies are generally very satisfied with each of the three program tiers. Participant's satisfaction with the three rebate options ranged from and average of 4.1 to 4.7 on a 5-point scale.
Home Lighting Rebate	The evaluation team found that while satisfaction is high, the program might benchmark its incentive levels to comparable program in other jurisdictions and/or explore the CE of raising incentives.
Home Energy Report	Navigant reviewed the customer engagement tracker survey and found that 73% of customers responding agree or strongly agree that the tools help customers learn about energy use.
Online Energy Audit	Navigant reviewed the customer engagement tracker survey for the HER. More than 61% of customers surveyed who have used the tool agreed the tool helps them make better decisions about their energy use at home.

* No customer satisfaction research was conducted for the Block Bidding, Demand Response, and IE Multifamily. Customer satisfaction will be evaluated for Demand Response in PY18.

4.2.1.2 Program Participation

The Navigant evaluation found that across all programs, in general, program participation met expectations. The Evergreen team noted that participation information was not included for several programs. We recommend more information on participation numbers be provided in future evaluations. Table 11 provides a summary of participation findings from the evaluation.

Table 11: Program Participation Findings Summary

Program	Process Evaluation Findings Summary
Business EER - Standard	The program had 1,786 projects, among those, 752 projects were from the GMO territory.
Business EER - Custom	Overall, the GMO Custom program had 47 projects completed in PY2017, and increase of 41 percent compared to PY2016's six projects.
Block Bidding	No projects were completed in PY2017 for GMO Block Bidding program.
Strategic Energy Management	The program recruited 16 participants in the PY2017.
Small Business Lighting	While explicit participation numbers were not provided, the evaluation notes that the program has surpassed its 3-year target in only 2 years.
Programmable Thermostat Programs	The programs will eliminate nearly all marketing in PY2018 because they're close to the program's enrollment capacity.
Demand Response Incentive	In PY2017 the target market expanded to include customers with smaller loads as the list of Tier 1 customers. Navigant verified impacts for 55 out of the 60 GMO customers.
Whole House Efficiency	Specific participation data not provided in the evaluation. Few participants are taking a true whole house approach and participating in more than one program tier. It was noted that participation had increased in PY2017 compared to PY2017.
Home Lighting Rebate	No specific participation information was provided. Approximately 426,000 incentivized bulbs were sold.
Home Energy Reports	In PY2017 the program targeted 150,000 customers with home energy reports.
Income Eligible Multifamily	No specific participation information was provided
Online Energy Audit	In PY2017, more than 14,235 customers in the combined KCP&L-MO and GMO territories completed the online WUM audit.

4.2.1.3 Program Marketing and Awareness

Across the programs, Navigant found that most programs have good customer awareness, and that KCP&L is employing appropriate marketing approaches. The Evergreen team found that reporting on marketing and program awareness in the Navigant evaluation is satisfactory, and the findings are summarized in Table 12.

Table 12: Program Marketing and Awareness Findings Summary

Program	Process Evaluation Findings Summary
Business EER - Standard	KCP&L developed targeted marketing materials for certain segments to help explain benefits of implementing energy conservation. For example, KCP&L developed a good, better, best marketing campaign for high bay lighting to make comparing LED high bay fixtures to metal halide or linear fluorescent fixtures more straightforward.
Business EER - Custom	KCP&L created a more targeted marketing campaign for PY2017, based on identified industries with the most potential for new Custom projects. The results of marketing to often take time to materialize, yet the efforts are worthwhile even if results are not immediately seen. Targeting new sectors with awareness and marketing is valuable and important for maintaining high net savings and program staff feels they are seeing responses that will translate into future projects in the pipeline.
Block Bidding	The Block Bidding program's target market is KCP&L's largest customers. KCP&L reached out to new customers in four key market segments: large industrial, property management firms, new construction projects, and national TAs.
Strategic Energy Management	SEM team works with its key accounts team to identify high energy usage customers with approximately 10 MWh of annual consumption and then validates whether these customers have the savings potential to participate in the program by conducting onsite visits.
Small Business Lighting	Communication channels and delivery mechanisms are working for the program, leading to the success of the program as evidence by the fact that it surpassed its 3-year target after 2 years of participation.
Programmable Thermostat Programs	The program focused marketing efforts on increasing DIY thermostat activation for the RHR program through language on the online portal, email reminders and phone reminders. GMO will eliminate nearly all marketing in PY2018 because they are close to the program's enrollment capacity.
Demand Response Incentive	Targeted email marketing was executed in PY2017. High usage customers were identified through CLEAResult's propensity modeling and received emails asking them to inquire about the DRI program. Also in PY2017, the product manager initiated phone and email notifications 24 hours and 4 hours before events started.

Program	Process Evaluation Findings Summary
Whole House Efficiency	The program has been marketing to participating customers by email. The campaign consists of a series of emails that guide customers that participated in one tier through the steps, and benefits of participating in other program tiers. The program has also been marketing on social media websites and conducting in-store product demonstrations at home improvement stores.
Home Lighting Rebate	KCP&L-GMO and the IC market the program widely through mass media (including the Internet) and within retail stores. This strategy matches the current program budget and has been suitable to meet sales and savings targets through PY2017.
Home Energy Report	The program uses two primary communication channels: paper mailed reports and emails.
Income-Eligible Multifamily	Communication channels and delivery are appropriate given the direct interaction with property owners/managers and tenants.
Online Energy Audit	All communication channels and delivery mechanisms are appropriate for the target market segments. In PY2017, the program used multiple communication channels including targeted emails, Facebook ads and boosted posts, banner ads on the KCP&L website, messaging on HERs, and bill inserts to guide residential customers to the tools, particularly the WUM section.

4.2.1.4 Program Operations and Delivery

The Navigant evaluation provides adequate and appropriate information on program operations and delivery. The evaluation found that overall, the KCP&L programs are operating as designed and being delivered to the target market effectively, with few significant challenges. Table 13 provides a summary of key findings for each program.

Table 13: Program Operations and Delivery Findings Summary

Program	Process Evaluation Findings Summary
Business EER - Standard	Program operations and program delivery are working well, with high program satisfaction. The Standard program is complementary other Business EER programs by providing rebates for the more typical capital projects. KCP&L is working to better align the two programs. From the customer perspective, the Standard program and the Custom program are one program not two programs. Most of the measures that are not covered by Standard are covered by another program. The program is not intended to stand-alone from the customer perspective but be considered an integrated C&I portfolio.
Business EER - Custom	Program operations and program delivery are working well, with high program satisfaction. The Custom program also serves new construction projects. Beginning in PY2016, LED retrofit lighting projects were moved from the Custom program to the Standard program. The Custom program still serves new construction LED lighting projects and LED lighting projects with greater than 8,000 hours of annual use.
Block Bidding	No participation under this program in PY2017.
Strategic Energy Management	The program is designed in a manner consistent with other SEM programs. While participants are in the early stages of the program operations and program delivery are working well.
Small Business Lighting	Navigant's findings indicate the SBL program is operating well in the territory, surpassing the 3-year MEEIA Cycle 2 target by the end of PY2017.
Programmable Thermostat Programs	A new product manager took over the Residential and Business PT programs and brought in several new processes and program changes. In PY2017, the program focused marketing efforts on increasing DIY thermostat activation for the RHR program. KCP&L-GMO will eliminate nearly all marketing in PY2018 because they're close to the program's enrollment capacity.
Demand Response Incentive	Most customers did not meet their contracted expected peak demand during event periods on days with a similar temperature to the event days. KCP&L has identified recruitment of customers with smaller demand savings potential as an area for improvement. Additionally, KCP&L's product manager has taken great efforts to improve communication channels and ensure delivery mechanisms are appropriate for the DRI program.

Program	Process Evaluation Findings Summary
Whole House Efficiency	<p>Navigant’s process evaluation research found that participants and trade allies are generally very satisfied and program operations and delivery are working well. The program had more participation in PY2017 due to increased customer outreach via email campaigns and social media marketing, as well as growing partnerships with trade allies. Additionally, Navigant found that the program Operations Manual identifies lack of education for both end-use consumers and trade allies as a primary barrier to residential energy efficiency upgrades, along with high upfront costs- particularly for HVAC purchases.</p>
Home Lighting Rebate	<p>Program operations and program delivery are working well, with high program satisfaction among suppliers and customers. In PY2017 the program experiences a substantial program design change due to the program’s success at being close to its 3-year net-savings target in only 2 years.</p>
Home Energy Report	<p>In PY2017 the program format remained unchanged and will not change in PY2018. However, in PY2018, KCP&L will be upgrading its customer system, which will result in one missed electronic HER and will require updates to the Oracle data ingest process.</p>
Income-Eligible Multifamily	<p>Navigant found that communication channels and delivery are appropriate given the direct interaction with property owners/managers and tenants and the program includes appropriate measures for its current targets.</p>

4.2.1.5 Program Implementation Challenges

Table 14 provides a summary of key findings for each program that relate to program implementation challenges.

Table 14: Program Implementation Challenges Findings Summary

Program	Process Evaluation Findings Summary
Business EER - Standard	The primary implementation challenge noted by Navigant is low participant awareness of program non-lighting measures. The effect from other end uses was less than 1%, but other programs such as the Custom program cover many of those measures.
Business EER - Custom	The primary implementation challenge noted by Navigant is low participant awareness of program non-lighting measures and projects that qualify for Custom incentives. KCP&L product managers and implementation contractor have taken substantial efforts for the purpose of moving the KCP&L-MO Custom program forward including focusing on the new construction marketing, launching a midstream HVAC program, studying the benefits of retro-commissioning projects and restructuring the incentive for the program for PY2018.
Block Bidding	Navigant found that large customers targeted by the Block Bidding program have often opted out of KCP&L's rebate program because incentive caps precluded them from getting out the same value they are putting in to the program. Secondly, large projects are complex and have long lead times that do not fit into annual rebate program timelines. However, a new component, the Buy Now option, helps overcome the second barrier, which allows customers whose project timelines do not align with the scheduled auction dates.
Strategic Energy Management	Navigant noted that the primary implementation challenge was the time and money needed to participate in the program; however, KCP&L is considering creating a Shared Energy Manager position to help the customers save both time and money. Additionally, Navigant found that some participants felt the rebates received do not offset the Energy Efficiency rider making it difficult for the large customers to cost-justify participating in programs.
Small Business Lighting	The SBL program is running well and as intended. However, Navigant found that the primary market imperfection common to the target market for the SBL program is that most of the customers that qualify for the project have fewer resources such as time and money to pursue the efficient lighting projects. Overall, the SBL program ran successfully but exhausted all funding before the end of the cycle. Moving forward, Navigant suggest the implementer and KCP&L considers changes to future program so that they can last the entire cycle.
Programmable Thermostat Programs	Navigant found that KCP&L is close to reaching enrollment goals for Cycle 2, thus, it's redirecting efforts from enrollment to continuing thermostat activation and designing a process to handle thermostat participants that move out of their home.

Program	Process Evaluation Findings Summary
Demand Response Incentive	Navigant found that there are two main barriers for participating in the DRI program, including: (1) businesses do not have automatic load curtailment; and (2) for some customers, the point of contact (as indicated on the contract) neglected to pass the event notification onto the individual who can manually curtail load at the customer site.
Whole House Efficiency	Based on the participant survey, one of the most common suggested improvements were advertising the WHE program more so that more customers could benefit from it. Navigant suggests that the program should continue to pursue strategies to increase customer participation in more than one program tier, including expanding the initiative to have Tier 3 trade allies implement Tier 2 building shell measures for their customers. Additionally, the program Operations Manual identifies lack of education for both end-use consumers and trade allies as a primary barrier to residential energy efficiency upgrades, along with high upfront costs—particularly for HVAC purchases. Surveyed participants and trade allies alike support that view.
Home Energy Report	The primary challenge for the program is that many customers do not read the home energy reports; 29% of CET survey respondents either did not recall receiving the report or did not read the report.
Income-Eligible Multifamily	The primary difficulty in this market is tenants are often not allowed to make significant alterations, and property owners and landlords have little incentive to increase efficiency because they usually do not pay—directly or indirectly, for utilities. However, the program has prioritized direct outreach and in-person interaction with building owners/managers to increase awareness of the IEMF program and energy efficiency opportunities.

4.3 Summary of Key Process Evaluation Recommendations

Based on the evaluation findings, Navigant provided overall evaluation conclusions and recommendations. Additionally, Navigant provided 15 overarching recommendations that they term, “the most important recommendations resulting from Navigant’s process evaluation activities for PY2017” (PY2017 Evaluation Report, page xlii”).

These recommendations are:

- An overall recommendation is to use the Standard program to help increase participation in other C&I programs.
- Navigant recommends KCP&L develop strategies to leverage previous program participation in lighting measures to encourage participation in other end use measures.
- When sending out the rebate check, KCP&L could consider including additional documentation on what the rebate is about, why they received it, and other

programs that are available.

- Monitor the effect of switching to a specialty-focused program in PY2018.
- Continue program incentives and marketing, despite reduced budget.
- Focus marketing efforts on benefits of ENERGY STAR LEDs.
- KCP&L could consider emphasizing low cost energy saving actions or tips geared toward lower-energy users on reports sent to the 2016 Expansion wave.
- The program should continue to keep abreast of new ways to use and save energy to provide up-to-date tips.
- The program may want to consider signing up more customers for email reports so that customers can receive messaging from both channels.
- KCP&L took major strides in PY2017 to increase Rush Hour Rewards activation rate for DIY customers. KCP&L should continue this effort to close the gap of thermostats that have not yet been activated.
- Navigant recommends KCP&L consider working with property owners on access to the thermostat program in future program years and MEEIA Cycle 3. At the moment, the program is less accessible for multi-family housing to participate in. Access to this market could provide more energy savings and DR impact.
- Navigant recommends that KCP&L consider expanding the BYOD program measure in MEEIA Cycle 3. BYOD is common in other jurisdictions and is cheaper than the DIY and DI measure.
- The IC began using propensity modeling in PY2017 to select customers to recruit. KCP&L should continue to refine propensity modeling to select customers for the program.
- As the DRI program continues to grow, KCP&L should consider that having both large and smaller customers could lead to a dilution of focus and specific feedback to both customer groups. KCP&L is actively addressing this issue through the implementation of account managers who check in with program participants throughout the program year.
- Navigant recommends continuing to work on event behavior management in PY2018.

4.4 Status Of 2016 Process Evaluation Recommendations

The evaluators tracked and reported KCP&L-GMO's response to process evaluation recommendations made in the 2016 evaluation reports. This section reviews the adoption.

Table 15 below presents the PY2016 process evaluation recommendations by project and the evaluators' assessment of KCP&L-GMO's response.

Table 15: PY2016 Process Evaluation Recommendation Tracking

Program	Recommendation	Adopted
Business EER - Standard	Work with trade allies to increase participant awareness of the non-lighting measures.	Y
	Specialize its training to specific markets such as property management and data centers.	Y
	Provide trade ally training for under-performing end uses such as HVAC, motors, and building controls.	Y
Business EER - Custom	Focus on increasing awareness of non-lighting projects by engaging customers in the early planning phases and increasing outreach efforts to large customers, trade allies, design professionals, and architects.	Y
	Introduce a building controls program for the medium to larger customers and continue engagement for those customers who have already made energy efficiency improvements.	Y
	Maintain flexibility on adjusting the incentive structure to best balance participation with Block Bidding.	Y
	Continue previous efforts of defining the target markets and meeting with large customers, trade allies, and design professionals through dedicated events or specific program outreach.	Y
	Engage in outreach and training to smooth the application process for customers and trade allies and continue to expand the customer express application offerings for straightforward or replicable measures.	Y
	Keep in communication with trade allies (TAs) and large customers and give adequate notice about upcoming Block Bidding auctions to better fit the long lead times of larger projects.	Y
Block Bidding	Monitor the PY2017 participation and consider expanding the Block Bidding program to encompass mid-sized customers if kilowatt-hour goals for PY2017 are not met.	Y
	Assess the balance between Block Bidding and other KCP&L programs, potentially through a mid-year review, to ensure that the program is capturing a new market.	N
	Conduct periodic reviews with customers to ensure that direct contact remains the best communication channel.	Y
Strategic Energy Management	The market imperfections identified through this program were the time and money needed to participate energy saving behaviors. This program addresses the barrier of cost by providing technical staff, training, and	Y

	support at little-to-no cost for participating customers. The barrier of time is something that can likely be better addressed through this program in several ways	
	In the future, the program may have to target smaller customers with a more diverse mixture of building types and operations.	Y
	The program identifies and addresses the major end uses for these sites, but several end uses may need special attention to maintain the program savings realized. Navigant suggests that KCP&L consider creating a program that could address measures that require regular maintenance or upkeep to realize savings.	Y
	The current model of account managers introducing the customers to the program has worked well with these large clients and marketing for this program is limited. When the program considers expanding to a larger number of customers, a more proactive approach may need to be considered to meet program goals	Y
Small Business Lighting	Provide more marketing materials to participants and trade allies	Y
	Increase the rebate cap	Y
	Offer ongoing open field tool training	N
Whole House Efficiency	Consider geotargeting online advertising or mailings to neighborhoods with a high density of older homes.	Y
	Consider whether it would be feasible to provide cost estimates—and ideally payback period estimates—for recommended measures within the Energy Savings Kit home assessment report.	Y
	Explore whether additional advertising or trade ally marketing support could increase participation in less popular measures.	Y
	Consider a more comprehensive energy audit rather than Energy Savings Kit for customers with a higher level of EE knowledge.	Y
Home Lighting Rebate	Consider whether a series of personalized follow-up contacts from the EEP would build on the trust established during the Energy Savings Kit and encourage more participation in other KCP&L programs.	Y
	KCP&L-GMO should monitor the effects of further expanding program offerings in grocery stores, drugstores, and online and continue regular and open communications with the implementation contractor (IC).	Y
	Monitor the cost-effectiveness of the newly added component incorporating grocery store, drugstore, and online retailers.	N
	While satisfaction is high, the program might benchmark its incentive levels to comparable programs in other jurisdictions and/or explore the cost-effectiveness of raising incentives.	Y

	Marketing materials could be improved to distinguish and explain the differences between ENERGY STAR and non-ENERGY STAR LEDs and consistently use the ENERGY STAR logo and highlight the benefits of ENERGY STAR.	N
	Ensure that retailers are training their employees and encourage that they are actively educating customers about ENERGY STAR LEDs and how to select the correct bulb for their needs.	Y
Home Energy Reports	KCP&L may want to focus this research on the IE-HER group because that wave is not meeting savings expectations.	Y
	KCP&L could consider including questions on the CET survey or conducting a separate survey to understand customer satisfaction with the different parts of the HER program.	Y
Home Online Energy Audit	KCP&L could consider strategies or promotions to encourage customers to return to the tools more frequently.	Y
	KCP&L can consider surveys or interviews with residential and small and medium business customers to better understand how they are using the tools and what would make them more useful.	Y
Programmable Thermostats	Continuing to monitor the market for how the Nest solution compares to competition can help ensure the program is matching the market.	Y
	In the coming PY consider targeting Honeywell replacements for customers with large HVAC loads per thermostat.	Y
	The mix of end-use measures included in the program (i.e., PTs) meets the needs of the existing market. However, there are other vendors of similar solutions that could be benchmarked toward the ability to handle multiple thermostat vendors and additional program functionality.	Y
	Due to high program participation, consider focusing on marketing channels that best allow targeting Honeywell replacements for customers with large HVAC loads per thermostat.	Y
	Monitor program savings targets in addition to enrollment goals to ensure that program cost-effectiveness remains high.	Y
Demand Response Incentive	Consider data management processes to streamline data collection, storage and retrieval.	Y
	Consider tying program payments to the amount of impact per customer.	Y
	Consider how to scale outreach as program begins to target smaller savings opportunities.	Y

5 Review of Cost-Effectiveness

Navigant calculated the cost-effectiveness for the individual KCP&L-GMO energy efficiency and demand response programs, as well as the cost-effectiveness of the portfolios of energy efficiency and demand response programs. Navigant calculated cost-effectiveness using the five standard benefit-cost ratios that calculate cost-effectiveness from the vantage points of different stakeholder groups:

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

Navigant conducted these tests in a manner consistent with the 2001 California Standard Practice Manual (SPM).⁶ For this evaluation audit, Navigant provided output files that included measure specific cost and benefit inputs, detailed load shapes, electricity avoided costs, program administration costs, electricity rates, and other assumptions including discount rates.

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

- Confirmed summary values included in the final evaluation report matched the values in the results file;
- Confirmed that the reported costs matched the costs input into the cost-effectiveness input files, including administrative costs, incentive costs, and participant incremental equipment costs;

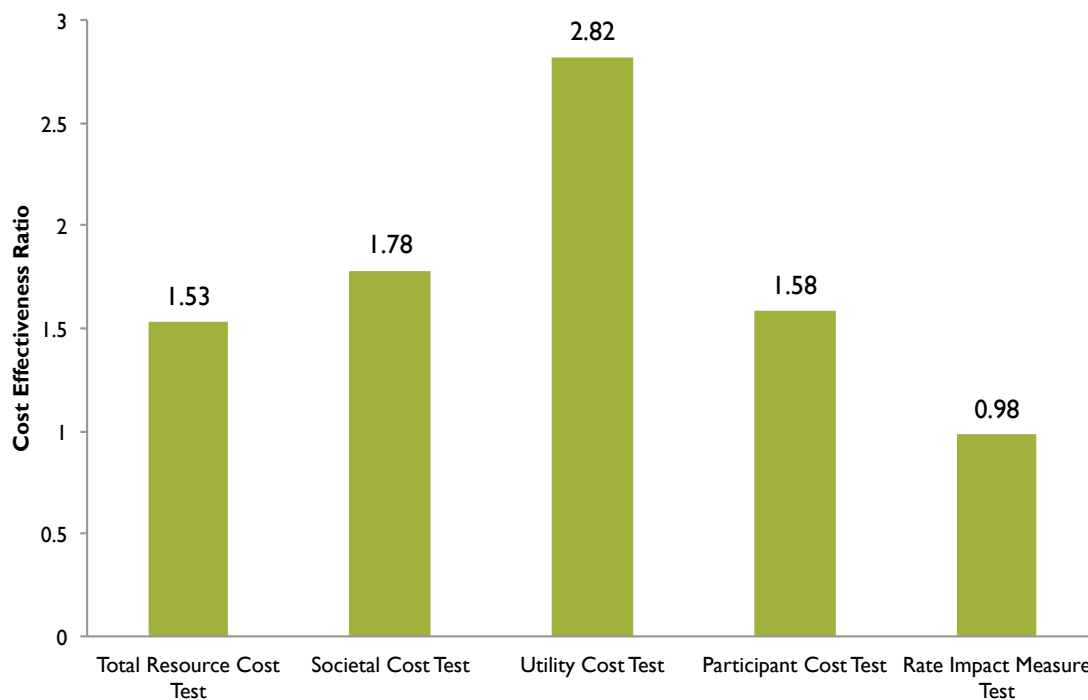
⁶ California Public Utilities Commission. October 2001. "California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects." http://www.cpuc.ca.gov/NR/rdonlyres/004ABF9D-027C-4BE1-9AE1-CE56ADF8DADC/0/CPUC_STANDARD_PRACTICE_MANUAL.pdf

- Reviewed avoided cost of energy and demand values and confirmed Navigant used appropriate values to calculate program level benefits;
- Confirm that measures received appropriate cost-effectiveness input values, from appropriate sources, consistent with the sources used in the Navigant evaluation reports (i.e., kWh savings, expected usable life (EUL), incremental cost); and
- Confirmed that discount rates were appropriate.

5.1 Cost-Effectiveness Results

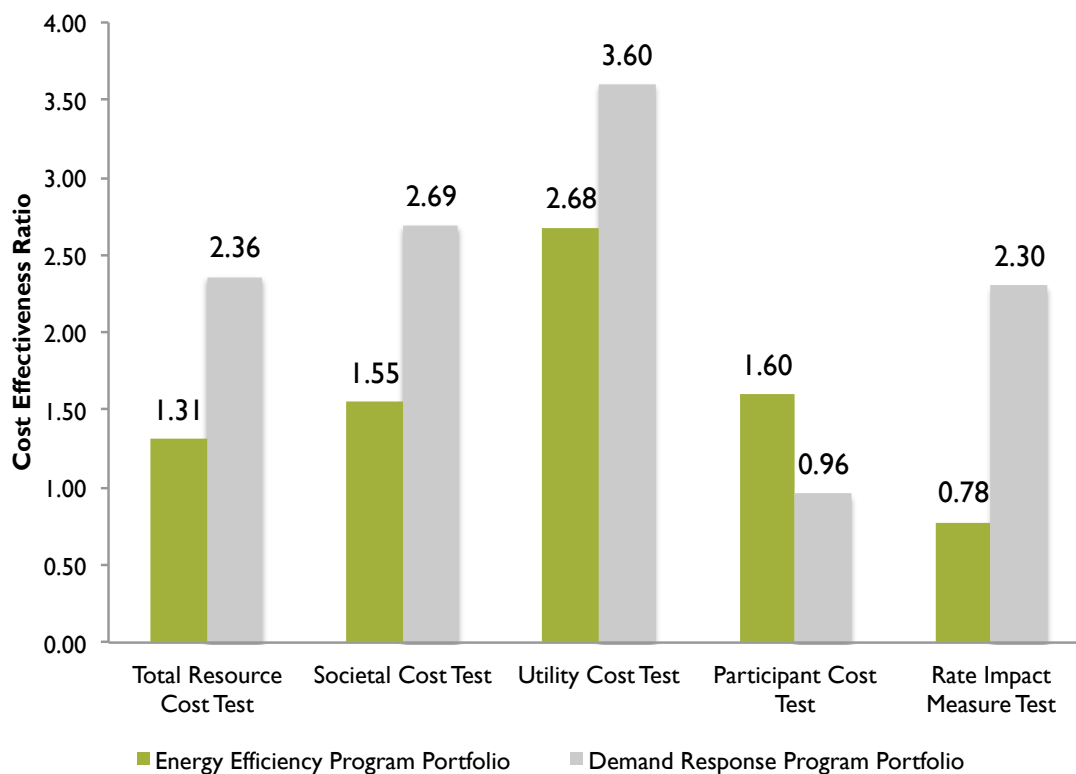
The overall KCP&L-GMO program portfolio is cost-effective for the second year of MEEIA Cycle 2, PY2017. As Figure 8 shows, GMO's overall energy efficiency and DR portfolio is cost-effective for all tests except the Rate Impact Test; the Rate Impact Test is the most conservative cost-effectiveness test.

Figure 8: KCP&L GMO Portfolio Level Cost-Effectiveness Test Results



Looking at the energy efficiency and demand response portfolios separately, Navigant reported similar results to the overall program. Figure 9 presents the results of the cost-effectiveness tests for the KCP&L-GMO's energy efficiency and demand response portfolios. The energy efficiency portfolio is cost-effective across all tests except the Rate Impact Measure Test, while the demand response portfolio is cost-effective across all tests except the Participant Cost Test.

Figure 9: KCP&L GMO Cost-Effectiveness Test Results – Energy Efficiency and Demand Response Portfolios



While the portfolio was cost-effective in PY2017, individual program cost-effectiveness varied. Table 16 on the following page presents the program specific cost-effectiveness test results. We also present the cost-effectiveness results for PY2016 for comparison.

Table 16: Cost-Effectiveness Test Results

Program	TRC		SCT		UCT		PCT		RIM	
	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017
Business EER - Standard	1.37	1.82	1.58	3.72	2.29	1.46	1.86	0.95	0.69	1.52
Business EER - Custom	0.38	1.18	0.47	1.71	0.49	1.05	1.3	0.78	0.33	0.95
Block Bidding	0.59	N/A	0.71	N/A	0.64	N/A	3.55	N/A	0.38	N/A
Strategic Energy Management	N/A	2.33	N/A	2.17	N/A	12.06	N/A	0.57	N/A	2.17
Small Business Lighting	0.78	1.28	0.88	1.91	0.91	1.33	1.75	0.76	0.47	1.07
Business Programmable Thermostat	2.06	2.09	2.39	2.82	2.82	0.28	0.93	2.38	1.98	1.80
Demand Response Incentive	3.09	3.27	3.09	1.26	1.73	INF*	433.33	1.26	1.73	3.27
Whole House Efficiency	0.94	1.16	1.17	2.10	1.6	1.34	1.19	0.69	0.71	0.99
Home Lighting Rebate	1.73	1.38	2.02	1.88	2.14	3.44	4.39	0.45	0.52	1.24
Home Energy Report	0.71	0.97	0.71	0.97	0.71	INF*	INF*	0.37	0.32	0.97
Residential Programmable Thermostat	1.54	2.66	1.79	4.88	1.83	0.69	1.29	2.58	1.29	2.29
Income-Eligible Multifamily	0.90	1.97	1.01	1.81	0.90	INF*	INF*	0.46	0.36	1.79

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

Using the PCT test, most programs are not cost-effective from the participant perspective, except the Business and Residential Programmable Thermostat Program and the Demand Response Incentive Program. Three programs are not cost-effective under the RIM test.

6 Audit Conclusions

A review of PY2017 evaluation report indicates that the reports and appendices are well written, complete, and meet the minimum requirements for impact and process evaluations stipulated in 4 CSR 240-22.070(8). The evaluation methods and reports are also consistent with the best practices established for the industry. During the course of the audit, we have identified a few areas where we believe that the evaluations can be improved, and these recommendations are detailed throughout this audit report.

Many of the initial issues raised by the audit team on the draft evaluation reports were addressed in the final evaluation report. Because of the discussions and modifications made to the draft evaluation reports, we are not recommending any additional changes to the PY2017 savings.

The remaining issues are highlighted below, beginning with crosscutting issues relating followed by a few program-specific issues. For the remaining unresolved issues, the audit team and Navigant have already agreed to meet in early 2019 to develop solutions that will be applied to future evaluations.

Crosscutting Issues

Process for using secondary sources / Statewide TRM

During the review of the draft evaluation reports, the audit team had several conversations with Navigant regarding the need to outline a clear process on when in-state or out-of-state data are used to calculate savings. While this has been explained to some degree in the final evaluation report, there still does not appear to be a consistent process on how this is determined, other than evaluator judgment.

To help address this issue and make the entire process more consistent, we recommend that KCP&L utilize the statewide Missouri Technical Reference Manual (TRM)⁷ when possible. The current Missouri TRM (updated March 31, 2017) can continue to be modified and updated as needed to meet program needs. If there are deviations from the official Missouri TRM values, then the evaluation report should clearly document why the alternative values are an improvement over the Missouri TRM.

Utilizing the statewide Missouri TRM would also have the advantage of applying consistent savings values and algorithms for Ameren MO and KCP&L for measures that are common to both utilities. The Missouri TRM can also be amended to include protocols

⁷ The latest version of the Missouri TRM can be found at <https://energy.mo.gov/sites/energy/files/MOTRMOrgins.pdf>

for estimating free ridership and spillover, so that net savings can be assessed consistently across both utilities.

Self-report free ridership and spillover calculations

In the audit team comments on the draft evaluation reports, we noted some inconsistencies with how the free ridership and spillover self report questions were scored. Many of these questions utilize a 5-point rating scale, and for these questions we recommend that the scoring be done in even increments across the scale (i.e., 0=0%, 1=25%, 2=50%, 3=75%, 4=100%). For all questions utilizing a scale rating, we recommend that this incremental scoring be applied consistently for all questions used in the free ridership and spillover calculations.

This issue was addressed in the final evaluation report, but we are noting it here for documentation purposes.

Program-specific Issues

Home Lighting Rebate Program

Estimating potential spillover from an upstream lighting program is very challenging, since customers often do not realize how the program is influencing their lighting purchase decisions. The current method utilized by the Navigant evaluation team relies on intercept surveys of lighting purchasers to gauge the potential influence of several program components. It has a set of questions and scoring algorithm that is similar to that used to estimate free ridership.

While the intercept method has some advantages, a significant challenge is that there is a very limited amount of time in which to ask questions, as most respondents are not willing to answer questions at a store for more than a few minutes.

The current approach appears to do an adequate job of asking about the importance of several program factors (program events, information) on the choice of non-program LED's and these responses provide some idea of how important these factors are in the lighting purchase decision. Those respondents that provide the highest importance ratings are identified as spillover.

What this method is lacking, however, is a similar set of questions to get at non-program influences on these same bulb purchases. It may be that the program factors were important, but that other non-program influences were *even more* important. These could include the need for bulbs of special color or size, and/or the lower prices of the non-program options. From the current method, it is not possible to weigh the importance placed on the program versus non-program factors since the non-program factors were not addressed in the surveys. The Navigant team maintains that the current method does

adequately address the non-program influences, but we believe that the survey should walk through possible non-program factors so that the respondents actively consider both sides when they provide their influence ratings.

We recognize that there is not enough time with the customer to add questions to the intercept survey – the resulting survey battery would be too long to reasonably administer at the store. But despite this, we believe that the non-program influences still need to be accounted for in the spillover estimate.

Given the disagreement on this issue along with the general difficulties with estimating spillover for this upstream program, the audit team and Navigant will meet in early 2019 to discuss developing a negotiated deemed spillover adjustment, which is a process that is used in other states.

Home Energy Reports

We understand that the PY2017 impact estimates for the HER program were based on a billing regression model that was estimated as part of the PY2016 evaluation. We are reiterating an issue that we first raised last year about how the model accounts for participation in other efficiency programs. We have been discussing this issue with Navigant and will meet with them in early 2019 to determine how the billing regression model should be revised to address this issue.

The issue we raised in the PY2016 audit relates to how participation in other efficiency programs is addressed in the impact analysis. The comparison between the treatment and control groups in the pre-period should include a comparison of participation rates in the other KCP&L/GMO energy efficiency programs *during the pre-period*. It is not enough to simply adjust the regression results for the post period to account for ‘uplift’ that is attributable to the HER program.

Differences between the groups in program participation in the pre-period can affect the savings estimates in two ways. First, if there are differences in program participation rates, then some of the observed savings from the HER in the post-period should be attributed to the other efficiency programs. Second, the estimate of program uptake in the post-period will also be affected if there are already unequal levels of program participation in the pre-period. The magnitude of both these effects can be estimated by including a variable for program participation in the billing regression, if in fact there are differences in participation rates between treatment and control groups.

As noted above, we will be discussing this issue with Navigant in early 2019 and anticipate that it will be resolved for the next evaluation.

Whole House Efficiency

The PY2017 evaluation report has been updated to reflect reduced cooling EFLH, which addresses some of the previous concerns from the audit team about the estimated savings for this program.

The audit team and Navigant continue to disagree about the validity of the verified demand savings for early retirement CAC's, however. We believe that the estimated demand savings from the evaluation are higher than what can be reasonably be expected for early retirements, even assuming that the pre-case CAC units are operating at 100 percent load during peak periods.

The audit team recommends a billing analysis approach going forward to verify the savings for early retirement cooling measures, which should address our concerns about the savings calculations and eliminate the need to set values for the various input parameters that are currently used in the savings calculations.

The audit team and Navigant met three times in 2018 to discuss these issues and were able to reach some mutually agreeable solutions for some of our concerns. Given this progress, we are not recommending any changes to the PY2017 savings values, and Navigant has agreed to work with the audit team in early 2019 to revise the estimation methods and address the remaining issues for the PY2018 evaluation.

As with the other outstanding issues, Navigant and the audit team will meet in early 2019 to determine a mutually agreeable approach for addressing these issues beginning with the PY2018 evaluations.

Appendix A: Full Process Evaluation Responses to Minimum Question Requirements

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

Table 17: Minimum Process Evaluation Questions

Issue Number	Question
Issue 1	What are the primary market imperfections common to the target market segment?
Issue 2	Is the target market segment appropriately defined, or should it be further subdivided or merged with other market segments?
Issue 3	Does the mix of end-use measures included in the program appropriately reflect the diversity of end-use energy service needs and existing end-use technologies within the target market segment?
Issue 4	Are the communication channels and delivery mechanisms appropriate for the target market segment?
Issue 5	What can be done to more effectively overcome the identified market imperfections and to increase the rate of customer acceptance and implementation of each end-use measure included in the program?

Table 18: Issue 1 - What are the primary market imperfections common to the target market segment?

Program	2016 Summary Response	2017 Summary Response
Business EER - Standard	<p>The C&I customer—and especially the smaller customer—has limited resources, including time and money, to devote to researching and implementing energy conservation.</p> <ul style="list-style-type: none"> The Standard program is successfully building market awareness of energy efficiency options. 76% of survey respondents were not originally planning to implement energy efficient measures, and 87% indicated that without the program they would have chosen less efficient options. Further, almost half (48%) of respondents indicated they went on to purchase additional energy efficient measures due to program participation and rebates. KCP&L is successfully engaging the smaller C&I customers; the participant survey indicated that 78% of participants had less than 100 employees. The participant survey also indicated that many customers rely on the trade ally's advice regarding energy efficiency as 68% of customers heard about the rebate through their contractor. And finally, 76% of the customers had not selected the purchased equipment prior to learning about the program. The Standard program has influenced the trade allies: 53% of respondents showed that they now offer higher efficiency equipment as their first recommendation to their customers, and 63% of the respondents are adding new high efficiency products to their offerings. 	<p>Smaller C&I customers have limited resources for researching energy conservation. Developing targeted marketing materials can help these customers implement energy conservation measures.</p> <ul style="list-style-type: none"> KCP&L has focused on developing targeted marketing materials for certain segments to help explain the benefits of implementing energy conservation. For example, KCP&L developed a good, better, best marketing campaign for high bay lighting to make comparing LED high bay fixtures to metal halide or linear fluorescent fixtures more straightforward. Alongside this marketing campaign, they created a sales incentive specifically for LED high bays for the trade allies to encourage them to sell before the end of the year. While most high bay measures were installed in larger facilities such as industrial sites or warehouses, over 30% of the high bay projects in PY2017 were installed in “Retail,” “School,” “Office,” and “Other” building types. This indicates that high bay measures are present in many building types and marketing campaigns may increase uptake of these measures independent of facility size. The good, better, best analysis for high bays also provided a framework that the business owner could use for other applications.

Program	2016 Summary Response	2017 Summary Response
<p>Business EER - Custom</p>	<p>Customers have a limited awareness of the breadth of end uses and projects that qualify for Custom incentives.</p>	<p>KCP&L is narrowing its target market segment for the purpose of new customer acquisition. The program would benefit from continued alignment of its trade ally network with these efforts.</p> <ul style="list-style-type: none"> • KCP&L identified K-12 schools, data centers, and new construction projects as its target market segments for the Custom program in PY2017. <ul style="list-style-type: none"> ○ One customer was a school and one customer was a data center in PY2017. ○ Navigant confirmed with CLEAResult that new construction projects are tracked within the program tracking system. Navigant will request this information in PY2018 to better understand whether new construction participation is increasing in response to program efforts. • Activities directed toward these segments in PY2017 included a targeted campaign to K-12, greater outreach to contractors and design professionals in new construction, and one-on-one discussions and education efforts for trade allies. <ul style="list-style-type: none"> ○ Fewer than half of surveyed trade allies identified K-12 schools as part of their target market segment. ○ One surveyed trade ally listed new construction projects as a customer that would particularly benefit from participating, but felt that they did not know how to engage new construction customers. • KCP&L should consider increasing training and support to help trade allies better engage KCP&L's target market segments as well as continue efforts to recruit trade allies already active in the target market segments.

Program	2016 Summary Response	2017 Summary Response
Block Bidding	The caps for the Standard and Custom programs create a barrier for large customers whose projects could be into the millions of dollars.	<p>Large customers targeted by the Block Bidding program pose two unique challenges in addition to lack of program awareness, which KCP&L is actively trying to address. First, large customers have opted out of KCP&L's rebate programs because incentive caps precluded them from getting out the same value that they are putting in to the program, limiting the pool of Block Bidding-eligible customers. Second, large projects are complex and have long lead times (often 18+ months) that do not fit into annual rebate program timelines. KCP&L took the following steps to address these problems:</p> <ul style="list-style-type: none"> • For PY2017, KCP&L used a split cap, meaning that projects that are over the Custom program's incentive cap of \$100,000 or the Standard program's incentive cap of \$400,000 will be eligible to participate in the Block Bidding program. • A new component, the Buy-Now option, helps overcome the second barrier by allowing customers whose project timelines do not align with the scheduled auction dates to still take advantage of Block Bidding funds. • KCP&L is flexible in extending project completion dates if the project or TA demonstrates sufficient movement toward completion.

Program	2016 Summary Response	2017 Summary Response
SEM	<p>The primary market imperfections are that customers have a limited amount of time and money to devote to energy conservation.</p> <ul style="list-style-type: none"> • There are number of factors that are cost- or time-prohibitive for many C&I customers: • The cost of having an outside expert perform an extensive onsite assessment • The cost and time to submit a report outlining identified measures • The cost and time to develop the onsite expertise on how to implement the recommended measures • In addition, many C&I customers do not have the time needed to oversee or facilitate an effort such as SEM. 	<p>A market imperfection identified in this program was the time and money needed to participate in these types of activities. KCP&L is considering creating a Shared Energy Manager position to help the customers save both time and money.</p> <p>Some participants were uncertain about the continuation of the program. This may affect the persistence of the energy savings achieved and the promotion of the program.</p>
Small Business Lighting	<p>The primary market imperfection common to the target market for this program is that most SBL customers have less resources and money to pursue the EE projects.</p> <ul style="list-style-type: none"> • Typically, small business customers tend to be on fixed tight budget and cannot afford to spend extra resources, time, and money on energy efficiency projects. Participant survey results support this, as 70% of the survey respondents suggested that they would have either not installed efficient lights or would have postponed the installation by at least a year in the absence of the program. 	<p>The primary market imperfection common to the target market for the SBL program is that most of the customers that qualify for the program have less resources such as time and money to pursue the efficient lighting projects.</p> <ul style="list-style-type: none"> • Small business customers are likely to be limited in both time and money to pursue lighting projects that could lead to fast paybacks. The SBL program addresses this issue in two ways. First, the incentive levels are higher than the Standard program—with up to 70% of project costs to help with the lack of available funds. Second, the trade ally facilitates the incentive process by proposing the efficient lighting solution, managing the preapproval process, and handling the rebate.

Program	2016 Summary Response	2017 Summary Response
Residential and Business Programmable Thermostat	<p>The primary market imperfection the PT programs address is that residential and small commercial customers have little incentive to reduce electricity usage during peak periods given the rate structures in place at most utilities. As a result, utilities use thermostat programs to obtain needed demand reductions using opt-in designs.</p> <ul style="list-style-type: none"> • KCP&L can call curtailment events during which Nest cycles participants' HVAC systems to achieve aggregate demand reductions. If DR resources are large enough, they can offset enough demand to delay or avoid the need to purchase power at spot market prices or invest in new sources of generation to meet peak summer demand. DR is a form of negative generation and can be called on during periods of high demand in the same manner as a peaking power plant might be built and brought online to serve the same end, but at a lower cost. • In addition, the Nest learning thermostat adjusts to customer behavior year-round enabling energy savings throughout the year—not only during event hours. Unlike the previous Honeywell thermostats, customers can remotely control their Nest devices, which also enable year-round energy savings. 	<p>Utilities use residential and small commercial thermostat DR programs to obtain needed demand reductions. The programs address the fact that traditional rate structures do not provide customers appropriate incentives to reduce electricity usage during peak periods.</p> <ul style="list-style-type: none"> • KCP&L calls curtailment events during which Nest cycles participants' HVAC systems to achieve aggregate demand reductions. If DR resources are large enough, they can offset enough demand to delay or avoid the need to purchase power at spot market prices or invest in new sources of generation to meet peak summer demand. DR is a form of negative generation and can be called on during periods of high demand in the same manner as a peaking power plant might be built and brought online to serve the same end, but at a lower cost. • In addition, the Nest learning thermostat adjusts to customer behavior year-round; this enables energy savings throughout the year, not only during event hours. Unlike the previous Honeywell thermostats, customers can remotely control their Nest devices, which also enable year-round energy savings.

Program	2016 Summary Response	2017 Summary Response
Demand Response Incentive	<p>A barrier to participating in the DRI program is that businesses do not have automatic load curtailment.</p> <ul style="list-style-type: none"> Manual load shedding limits the ability of these businesses to participate in DR programs like DRI that require them to reduce a significant amount of load with minimal notice. Securing automated load reduction technologies is not currently cost-effective for many customers and cannot be accomplished using the financial incentives provided by the DRI program alone. As such, a subset of businesses is not able to participate in this program. 	<p>Two main barriers for participating in the DRI program are: (1) businesses do not have automatic load curtailment; and (2) for some customers, the point of contact (as indicated on the contract) neglected to pass the event notification on to the individual who can manually curtail load at the customer site.</p> <ul style="list-style-type: none"> Manual load shedding limits the ability of customers to participate in DR programs that require them to reduce a significant amount of load with minimal notice. Securing automated load reduction technologies is not currently cost-effective for many customers and cannot be accomplished using the financial incentives provided by the DRI program alone. As such, a subset of businesses is not able to participate in this program. In PY2016 and PY2017, the customer point of contact for some participants was the CFO or the head of facilities. Such individuals are often eager to sign participation contracts but fail to either contact the appropriate individual to verify that manual load curtailment is possible on a day's notice or fail to notify the necessary individual that an event is taking place. For PY2018 participation, the KCP&L product manager has confirmed that a customer's point of contact is aware of the responsibilities associated with being a DRI participant. Thus, Navigant expects to see this barrier of participation reduced for PY2018.

Program	2016 Summary Response	2017 Summary Response
Whole House Efficiency	<p>The program operations manual identifies lack of education for both end-use consumers and trade allies as a primary barrier to residential energy efficiency upgrades, along with high upfront costs—particularly for HVAC purchases. Surveyed participants and trade allies alike support that view.</p> <ul style="list-style-type: none"> Some participants in the Home Energy Audit and Energy Savings Kit program track indicated a desire for more detailed information than is provided in the home assessment report, particularly on measure costs. The surveyed HVAC trade allies indicated that the primary barriers to residential customers upgrading to high efficiency HVAC equipment are cost and an unwillingness to replace equipment that is still functioning. As shown in Figure 7-1, while nearly all (83%) trade allies stated that the high cost was one of the top three barriers, most trade allies rated the unwillingness to do an early replacement project as the most significant barrier (42% vs. 21% for high cost). Trade allies also indicated that the program had a significant effect on their customers' willingness to replace still-functioning equipment, indicating that the program is having some success in addressing this barrier. 	<p>The program Operations Manual identifies lack of education for both end-use consumers and trade allies as a primary barrier to residential energy efficiency upgrades, along with high upfront costs—particularly for HVAC purchases. PY2016 surveyed participants and trade allies alike support that view.</p> <ul style="list-style-type: none"> Cost continues to be a barrier to residential energy efficiency upgrades, especially for HVAC purchases. However, increased Tier 3 participation may be an indicator that the program is having some success addressing this barrier by affecting customers' willingness to replace still-functioning equipment. This aligns with the reports from trade allies during the PY2016 surveys and with input provided by the program's product manager and implementation manager in PY2017.

Program	2016 Summary Response	2017 Summary Response
<p>Home Lighting Rebate</p>	<p>The program seeks to address imperfections of price, availability, and consumer knowledge of efficient lighting choices. The program has made strong progress on each, offering incentives that reduce the shelf price of LEDs, diversifying the retail channels and venues through which consumers can buy supported LEDs, and engaging in marketing and educational campaigns that explain the benefits of energy efficient lighting.</p>	<p>The program seeks to address imperfections of price, availability, and consumer knowledge of efficient lighting choices. The program has made strong progress on each, offering incentives that reduce the shelf price of LEDs, diversifying the retail channels and venues through which consumers can buy supported LEDs, and engaging in marketing and educational campaigns that explain the benefits of energy efficient lighting. The great success of the program in PY2016 led to budget reductions to maintain Cycle 2 portfolio spending caps. Therefore, the program now focuses primarily on reducing the shelf price and increasing the availability of specialty LEDs.</p> <ul style="list-style-type: none"> • The HLR program reduced the shelf price of standard LEDs by \$1.49 from \$3.76 to \$2.27. For specialty LEDs, the program reduced the price by \$2.66 from \$7.38 to \$4.72. Manufacturers and retailers sometimes added their own discounts to reduce the shelf price further. • The HLR program expanded to grocery and drug stores in PY2017, signing MOUs with these retailers to sell LEDs in these sectors and achieving the sales described above. Typically, the program will extend MOUs when program partners achieve initial sales targets. However, when KCP&L reduced the program incentive budget, ICF and KCP&L decided not to extend MOUs with grocery and drugstore retailers and decided not to issue new MOUs in these sectors. Plans to open an online store were also put on hold. • GMO included the HLR program in portfolio-wide marketing efforts in the mass media. The HLR program specific marketing and outreach occurred at the point of sale through educational signage that explained the benefits of LEDs and small in-store promotional events.

Program	2016 Summary Response	2017 Summary Response
Home Energy Report	<p>Some residential customers do not understand how their behaviors, appliances, and electronic devices can affect their energy use and contribute to their monthly bills. Customers are also unaware of cost-effective strategies to reduce energy in their home.</p> <ul style="list-style-type: none"> The PY2016 program targeted over 125,000 customers for the HER program and over 20,000 for the IE-HER program to receive reports. Based on responses to the CET survey, 71% of treatment customers agree that KCP&L provides tools to help customers learn about energy use. While more customers cite the similar homes comparison as a feature they like about the home energy reports, a small number of customers question the accuracy of the similar homes comparison. 	<p>Some residential customers do not understand how their behaviors, appliances, and electronic devices can affect their energy use and contribute to their monthly bills. Customers are also unaware of cost-effective strategies to reduce energy in their home.</p> <ul style="list-style-type: none"> The PY2017 program targeted over 150,000 customers to receive five HERs. An additional 50,000 customers served as a control group in the experimental design. Based on responses to the CET, 73% of treatment customers agree that KCP&L provides tools to help customers learn about energy use. Furthermore, 71% of treatment customers report that the energy efficiency tips on the report are useful, while 61% report that the HERs help the customer make better decisions to use and save energy.
Income-Eligible Multifamily	<p>The target market for this program is a low-income, multifamily resident, targeting both owners and tenants. This market has limited capital availability and low awareness of EE options.</p> <ul style="list-style-type: none"> The primary difficulty in this market is the inability of income-eligible tenants to afford EE measures, as well as the limited incentive for the owners to increase EE when the tenants pay the utility bills. Another obstacle to this market is lack of knowledge—many customers may not be aware of the extent to which increasing EE could lower their energy use and their energy bills. 	<p>The target market for this program is a low-income, multifamily resident, targeting both owners and tenants. Program implementation staff reports that a key barrier to penetrating the target market is the ability to identify qualifying properties (discussed in more detail in question 2.) In addition, as found in the PY2016 evaluation, the target market generally has limited capital availability and low awareness of energy efficiency options.</p> <ul style="list-style-type: none"> The program has prioritized direct outreach to building owners/managers to increase awareness of the IEMF program and energy efficiency opportunities. Program staff reports that the direct outreach and in-person efforts have been the most effective outreach strategy to increase program awareness and encourage participation among this customer segment.

Table 19: Issue 2 - Is the target market segment appropriately defined, or should it be further subdivided or merged with other market segments?

Program	2016 Summary Response	2017 Summary Response
Business EER - Standard	<p>KCP&L has a well-defined target market (C&I) for the Standard program. No further subdivisions appear necessary given current program participation.</p> <ul style="list-style-type: none"> • All three of KCP&L's C&I customer classes have participated in the Standard program. • KCP&L has made a concerted effort to engage trade allies, as this group interacts with the customer in the early stages of a new project. Engaging the customer early in the process has been a key goal for all the C&I programs. • Contractors (68%) and the KCP&L website (11%) are the primary sources from which participants are learning about the Standard program's measures. These resources and self-outreach are promising, though they indicate there is a potential opportunity to increase cross-program promotion (4%) as a way for customers to gain awareness about the program 	<p>KCP&L has a well-defined target market (C&I) for the Standard program. No further subdivisions appear necessary given current program participation</p> <ul style="list-style-type: none"> • All of KCP&L's C&I customer classes have participated in the Standard program. • KCP&L considers the Custom program to be complimentary to the Standard program since both programs target some of the same customers but focus on different measures. • KCP&L is actively tracking the sales cycle to understand sales conversion from prospective to completed projects in the targeted market. It is working to identify areas to improve sales conversions of all customer types.

Program	2016 Summary Response	2017 Summary Response
<p>Business EER - Custom</p>	<p>KCP&L-MO has a well-defined target market for the Custom program.</p> <ul style="list-style-type: none"> • All three of KCP&L-MO's C&I customer classes have participated in the Custom program. The program does tend to have more participants from the Tier I industrial and large commercial sectors due to their ability to implement larger projects with end uses not captured in the Standard program. • KCP&L-MO has made a concerted effort to engage trade allies and design professionals as these two groups interact with the customer in the early stages of new construction or facility expansion. Engaging the customer as early in their design process as possible has been a key goal for the C&I programs. • KCP&L-MO has been identifying the four greatest vertical sectors for opportunities; these are data centers, manufacturing, K-12 schools, and municipalities. 	<p>The custom program targets various; complex projects that require concerted effort beyond those in the standard program. In doing so, it rewards participants with greater savings and value by going beyond the lowest price point or fastest payback.</p> <ul style="list-style-type: none"> • Projects can be varied and diverse in both potential end use measures and project implementation, making it difficult to reach the correct decision maker when selling the Custom program. • The HVAC sector has been a challenge due to timing of replace on burnout. Often replacement is urgent and the amount of time to process the rebate is a negative selling point. Additionally, the Custom program in its current design is not able to influence the stocking patterns of distributors. KCP&L is launching its mid-stream program in an attempt to increase HVAC measure participation in the Custom program through direct engagement with distributors. • Customers and trade allies are unaccustomed to thinking of EE as an investment in benefits other than the direct savings and payback from reduced operational costs and utility bills. • Customers are most motivated by the direct financial benefits of EE and in response trade allies are relying on the incentive to sell the measures. <ul style="list-style-type: none"> ○ Over 75% of the 18 surveyed customers were motivated to do their project by either reduced operating costs, lower utility bills, or the availability of the rebate. Over half of the 11 surveyed trade allies were not satisfied with the rebate amount. This can help explain low participation if trade allies are relying on the rebate itself as a motivating factor, yet feel it is too low to properly incentivize customers.

Program	2016 Summary Response	2017 Summary Response
Block Bidding	<p>While a participant may win a bid, they may not be able to implement energy efficient projects.</p> <ul style="list-style-type: none"> In PY2016 there were three winning bids out of five auctions. However, only one customer successfully implemented their project. Navigant recommends monitoring customer participation for PY2017. If the initial bidding processes do result in the level of kilowatt-hour savings anticipated, KCP&L could expand the marketing of this program to the medium-sized customer. 	<p>The target market is defined as any customer or trade ally with a large enough capacity to exceed the Custom or Standard incentive cap and achieve 1 million kWh in savings. However, KCP&L saw limited participation amongst existing customers in past years and is looking to update the Block Bidding target market to increase participation.</p> <ul style="list-style-type: none"> The majority of the winning Block Bidding customers in PY2017 were not able to utilize the entirety of their funds, either due to too-long project lead times or not enough savings capacity. This suggests that the 1 million kWh savings requirement may be unnecessarily limiting eligible participants. KCP&L considered outreach to mid-sized customers to increase participation. However, this is not recommended unless KCP&L also lowers the minimum 1 million kWh savings requirement. As noted, large customers had trouble utilizing the entirety of their Block Bidding funds, and it is likely that smaller customers will see even less success and fewer project completions. In PY2017 KCP&L reached out to new customers in four key market segments: large industrial, property management firms, new construction projects, and national TAs. In addition to capitalizing on the Custom program pipeline, KCP&L sought to fast track new large customers directly into the Block Bidding program.

Program	2016 Summary Response	2017 Summary Response
SEM	<p>KCP&L has a well-defined target market for the SEM program. KCP&L's SEM team works with its key accounts team to identify high energy usage customers with approximately 20 MWh of annual consumption and then validates whether these customers have the savings potential to participate in the program by conducting onsite visits.</p> <ul style="list-style-type: none"> To achieve this ideal megawatt-hour threshold, KCP&L targets customers from the industrial sector and commercial customers from the public sector (customers with multiple sites that have shared knowledge and experiences between their sites, which includes healthcare, municipalities, and schools). This limited market fits well with the program structure; it also helps facilitate group training and the ability for sites to interact at a similar level during the training. In the future, the program may have to target smaller customers with a more diverse mixture of building types and operations. As this occurs, the program should carefully construct the cohorts so that customers with similar operations are grouped together. This way training can be targeted to meet the needs of these customers and peer interaction will be more valuable for the participants. 	<p>KCP&L has a well-defined target market for the SEM program. KCP&L's SEM team works with its key accounts team to identify high energy usage customers with approximately 10 MWh of annual consumption and then validates whether these customers have the savings potential to participate in the program by conducting onsite visits.</p> <ul style="list-style-type: none"> To achieve this ideal megawatt-hour threshold, KCP&L targets customers from the industrial, commercial, and public (customers with multiple sites that have shared knowledge and experiences between their sites, including healthcare, municipalities, and schools) sectors.

Program	2016 Summary Response	2017 Summary Response
Small Business Lighting	<p>KCP&L has a well-defined target market for the SBL program.</p> <ul style="list-style-type: none"> The SBL program targets small business customers who have a peak demand of 100 kW or lower at a single site³¹. Targeting customers with this lower demand identifies the small business owner who characteristically has limited resources in time and money. The SBL program removes these obstacles to encourage participation. Additionally, when a trade ally applies for an incentive through the SBL program, their application goes through a pre-approval process where the program team checks the eligibility of the project. This way the program team makes sure the projects coming through are eligible for the SBL program. Continue current efforts as they are showing traction with both trade allies and participants. 	<p>KCP&L made some small adjustments in PY2017 to the qualification criteria to further define the customer segment for the SBL program.</p> <ul style="list-style-type: none"> The SBL program targets small business customers who have an average monthly coincident peak demand of 100 kW or lower. This kilowatt cap applies if it is a single account and single meter, or if there is a single account with multiple meters, or if the customer has multiple accounts and multiple meters. The previous threshold was 250 kW for multiple meters or multiple accounts, but KCP&L and the implementer changed this to better target the small business customer. The lower demand helps to identify the small business owner who could benefit from additional incentives and education about efficient lighting measures. Some additional groups that might benefit from the higher incentives and additional energy efficiency (EE) education are nonprofit organizations such as churches or community centers. These organizations tend to have limited budgets for improvements. However, in some cases these organizations did not qualify for the SBL program due to their coincident demand being higher than 100 kW. All applications submitted to the SBL program by a trade ally go through a preapproval process where the implementer confirms that the project is eligible for the program. This allows for the program to be consistent in which customers are part of the SBL program.

Program	2016 Summary Response	2017 Summary Response
Demand Response Incentive	<p>The target market segment is defined as all commercial customers that can reduce their demand to at least 25 kW below estimated peak usage when a curtailment event is called between June 1 and September 30 of a given year.</p> <ul style="list-style-type: none"> To date, the program has focused on customers with the highest savings potential to maintain a cost-effective program. There is still an opportunity to recruit as the program is cost-effective. In PY2016, the program had eight Tier 1 participants. In PY2017 and PY2018 the target market will need to expand to include customers with smaller loads as the list of Tier 1 customers will have been exhausted after PY2016. KCP&L is working with CLEAResult on methods to accomplish this task. When the program expands, Navigant suggests focusing on reaching high impact customers first to best maintain cost-effectiveness. 	<p>The target market segment is defined as all commercial customers that can reduce their demand to at least 25 kW below estimated peak usage when a curtailment event is called between June 1 and September 30 of a given year.</p> <ul style="list-style-type: none"> The program has continued to focus on customers with the highest savings potential to maintain a cost-effective program. The DRI program product manager used a propensity model to identify high usage customers, redirecting the program recruitment process to be data-driven. The program implementer built this propensity model for PY2017 recruitment and continues to refine it through PY2017 and into PY2018. For PY2018, the DRI product manager emphasized improving the accuracy of EPD and FPL calculations. Much of these efforts went into redefining EPD values and FPLs for existing customer contracts. Through a planned increase in recruitment efforts, KCP&L anticipates an increase in program participation beginning in PY2018.

Program	2016 Summary Response	2017 Summary Response
Whole House Efficiency	<p>KCP&L's primary target audience for this program is broadly defined as owners of single-family homes, although 2-4 unit residences and renters are also eligible.</p> <ul style="list-style-type: none"> KCP&L's product manager indicated that the program is especially interested in engaging homeowners with older heat pumps because of the high potential for electricity savings. Surveyed trade allies note that the customers that participate in energy efficiency programs tend to be higher income households in the suburbs. When asked if there are customer types who would benefit from the program but are not currently participating, one trade ally specifically noted neighborhoods with many older homes as a good target for weatherization measures (Brookside, Waldo) and downtown. Consider geotargeting online advertising or mailings to neighborhoods with a high density of older homes. 	<p>KCP&L's primary target audience for the program is broadly defined as owners of single-family homes, although 2-unit to 4-unit residences and renters are also eligible.</p> <ul style="list-style-type: none"> The program continues to target single-family homes and 2-unit to 4-unit residences. The implementation team has employed participant targeting techniques to identify homes with large savings potential based on the concentration of single-family homes within a community, the age of those homes, previous program participation patterns in the community, and demographics.

Program	2016 Summary Response	2017 Summary Response
Home Lighting Rebate	<p>The program appropriately defines the target market as all residential customers, although the evaluation results suggest that targeted marketing may help recruit additional hard-to-reach (HTR) customers (i.e., income-eligible households, renters, non-English speaking households, bargain store shoppers). The evaluation found that HTR shoppers are less familiar with LEDs and less likely to report buying LEDs in the past 6 months.</p> <ul style="list-style-type: none"> • Based on consumer survey responses, it appears that HTR customers have less familiarity and experience with energy efficient lighting, especially LEDs. For example: <ul style="list-style-type: none"> ○ Income-eligible and renter respondents were significantly less likely than their counterparts (non-income-eligible and homeowner) to be somewhat or very familiar with LEDs. ○ Less than one-third of frequent bargain store shoppers reported purchasing LEDs in the past 6 months, while roughly three-fifths of non/infrequent bargain stores shoppers (61%) reported doing so. • Navigant suggests that the program consider sharpening its educational and marketing efforts geared toward HTR customers. Continue to partner with bargain stores, and, if possible, offer less expensive ENERGY STAR LEDs that exceed the life and light quality of CFLs at bargain stores. 	<p>The program appropriately defines the target market as all residential customers. PY2016 results suggested that targeted marketing may help recruit additional hard-to-reach (HTR) customers (i.e., income-eligible households, renters, non-English speaking households, bargain store shoppers), but the recent incentive budget reductions have limited the ability of GMO and the IC to expand outreach to HTR customers.</p> <ul style="list-style-type: none"> • Although many materials are available in both English and Spanish, the program did not develop marketing that specifically targeted HTR customers. This is appropriate given the need to manage HTR program expenditures to the remaining budget. The program will continue to provide incentives and marketing support for standard LEDs in the discount channel, which disproportionately serves the HTR population.

Program	2016 Summary Response	2017 Summary Response
Home Energy Report	<p>The target market segment is appropriately defined as residential customers in single family homes.</p> <ul style="list-style-type: none"> The initial waves included the highest energy users. As the program adds waves, the new waves include customers beyond the highest energy users. In 2014, KCP&L-MO added the IE-HER program to the portfolio to expand the reports to additional customer segments. 	<p>The target market segment is appropriately defined as residential customers in single- family homes.</p> <ul style="list-style-type: none"> The initial waves included the highest energy users. As the program adds waves, the new waves include customers beyond the highest energy users. For example, the 2016 Expansion wave and the 2017 wave include customers that have lower baseline energy use.
Residential and Business Programmable Thermostats	<p>The target market is a residential and small commercial customer. It is appropriately defined because large C&I customers have the Demand Response Incentive program.</p> <ul style="list-style-type: none"> This program, which addresses both residential and C&I customers, is well accepted by the market. Currently the target market does not need to be further subdivided as it is meeting and exceeding program targets. In the coming PY consider targeting Honeywell replacements for customers with large HVAC loads per thermostat. 	<p>The target market appropriately addresses residential and small commercial customers. The Demand Response Incentive (DRI) program provides DR opportunities for large C&I customers.</p>

Program	2016 Summary Response	2017 Summary Response
Income-Eligible Multifamily	<p>The market for income-eligible multifamily is well-defined and does not need to be consolidated or expanded because the program explicitly defines the population using Federal Poverty Guidelines.</p> <ul style="list-style-type: none"> KCP&L-MO defines the target market of income-eligible customers as multifamily properties that are either subsidized or occupied by more than 50% tenants who have household incomes below 200% of the Federal Poverty Income Guidelines, which translates to less than \$23,760 per year for a single person or \$48,600 per year for a family of four. 	<p>The market for income-eligible multifamily is currently defined using the federal poverty level income guidelines and is largely limited to federally subsidized properties as identified in the National Housing Preservation database. Program staff report that a key barrier to participation is determining other non-subsidized properties that might be eligible for participation in the IEMF program.</p> <ul style="list-style-type: none"> GMO defines the target market of income-eligible customers as multifamily properties that are either subsidized or occupied by more than 50% tenants who have household incomes below 200% of federal poverty level income guidelines, which translates to less than \$23,760 per year for a single person or \$48,600 per year for a family of four. When non-subsidized properties have contacted the IEMF program regarding participation, the program requires the property owner/manager to verify the income level of all tenants. A total of 50% of all tenants residing in the property must be at or below the 200% federal poverty income level. Program staff report that they do not have the resources to assist property owners/managers with this process. Program staff report interest in alternative methodologies for identifying income-eligible multifamily units. An alternative methodology to identify income-eligible multifamily units is by using MHDC rent equivalent values and/or the US Department of Housing and Urban Development (HUD) fair market rent values that are published annually.

Table 20: Issue 3 - Does the mix of end-use measures included in the program appropriately reflect the diversity of end-use energy service needs and existing end-use technologies within the target market segment?

Program	2016 Summary Response	2017 Summary Response
Business EER - Standard	<p>While the Standard program addresses a participant’s HVAC, lighting, and refrigeration energy end-uses, 89% of the rebate activity in PY2016 was for lighting measures.</p> <ul style="list-style-type: none"> The Standard program complements the other Business EER programs by providing rebates for the more typical capital projects. Almost three-quarters of trade allies surveyed (72%) replied with no additional measures suggested. For those suggesting measures (two out of 19), there was no clear overlap in suggestions, with one suggesting only including lighting controls (dimmers) and the other suggesting low volume HVAC measures for consideration. 	<p>While the Standard program addresses a participant’s water heating, lighting, refrigeration, and manufacturing energy end-uses, 95% of the projects in PY2017 were for lighting measures.</p> <ul style="list-style-type: none"> The Standard program complements the other Business EER programs, specifically the Custom program, by providing rebates for the more straightforward projects. KCP&L is working to better align the two programs. From the customer perspective, the Standard program and the Custom program are one program, not two. Most of the measures that are not covered by Standard are covered by another program. The program is not intended to stand-alone from the customer perspective but be considered an integrated C&I portfolio.

Business EER - Custom

The Custom program addresses the participant's energy end uses that do not fall under KCP&L-MO's other C&I programs.

The Custom program complements the Standard program and provides a diverse mix of end-use measures that do not qualify for Standard rebates. Projects with incentives of more than \$100,000 exceed the Custom cap and will be eligible for the Block Bidding program.

- KCP&L moved LED exit signs and several non-lighting measures from the Standard to the Custom program, further diversifying the end-use mix.
- While the diversity of measures currently in the Custom program is necessary to complement the Standard program, the open-endedness means customers and trade allies require additional training and awareness to take full advantage of its offerings.
- Current trade allies still skew heavily toward lighting solutions. Of the 11 trade allies surveyed, nine implement lighting solutions.
- Non-lighting trade allies (n=2) were more satisfied overall (average satisfaction score of 5/5) than lighting customers (n=9) (average satisfaction score of 3.33/5).

Block Bidding

The Block Bidding program addresses participant energy end uses for energy efficient projects that exceed the financial caps of KCP&L's other C&I programs. The Block Bidding program encompasses all end uses and addresses projects saving more than 1 million kWh per year. These projects could possibly go across multiple buildings or properties to allow for greater savings.

- For PY2017, projects that are over the Custom program's rebate cap of \$100,000 or the Standard program's rebate cap of \$400,000 will be eligible to participate in the Block Bidding program.
- Navigant recommends monitoring the balance between programs to ensure goals are continuously being met. The Block Bidding program is a complement to KCP&L's Business EER – Custom and Standard programs. As a combination, these three programs will address the EE needs of the large C&I customer. KCP&L could monitor the end uses and the quantity of savings in these three programs to ensure the program is capturing a new market.

The Block Bidding program addresses participants' need for large energy efficient projects that exceed the financial caps of KCP&L's other C&I programs. While the program should remain open-ended in terms of the measures that are eligible, KCP&L is working to identify specific end use measures for targeted marketing that are most likely to make up these larger projects.

- The Block Bidding program encompasses all end uses and addresses projects that save more than 1 million kWh per year. Projects can be implemented across multiple buildings or properties to allow for greater savings.
- KCP&L initiated informal conversations with new TAs and players in the aforementioned target segments, and past customers, to better understand which end use measures fit these customers' specific needs.

SEM	<p>The SEM program addresses all the major energy end-uses for a participant.</p> <ul style="list-style-type: none"> • The SEM program focuses on behavior-based and no-cost/low-cost measures that may fall under any major end use. For the SEM program, it is difficult to answer this question as the measures implemented are on a case-by-case basis. • Overall, the SEM program can address any end use at a facility if there are possible behavior-based, no-cost/low-cost measures available. Other Business EER programs like Standard and Custom are available to address non-behavior-based needs. • Several end uses may need special attention to maintain the program savings realized. Navigant suggests that KCP&L consider creating a program that could address measures that require regular maintenance or upkeep to realize savings. These measures include air compressor leak detection and repair and boiler tune-ups. These measures have significant effects on the site's energy usage; however, due to their short measure life, they need to be maintained on a regular basis. 	<p>The SEM program addresses all the major energy end-uses for the majority of participants.</p> <ul style="list-style-type: none"> • The SEM program focuses on behavior-based and no-cost/low cost measures that may fall under any major end use. • Overall, the SEM program can address any end use at a facility if there are possible behavior-based, no-cost/low cost measures available. Other Business EER programs like Standard and Custom are available to address non-behavior-based needs. • <p>Overall, the program addresses most of its customers' energy saving opportunities. However, one participant noted that the recommendations provided did not achieve their expected level of savings.</p> <ul style="list-style-type: none"> • Navigant will work with KCP&L and CLEAResult to address these concerns.
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Small Business Lighting

The SBL program provides lighting measures for small business customers. with 62% of the trade ally survey respondents indicating they were happy with the program offerings.

- For trade allies providing suggestions for other measures, there was not a clear, consistent suggestion. Suggestions included breaking out exterior to more detailed measures, specifically targeting plug-in CFLs, and allowing all linear replacement lengths instead of the current limited categories.
- Continue with lighting as the only end use at this time as it is a significant end use for small businesses. Continue to monitor trade ally feedback for potential additional measures that should be considered for program inclusion.

The lighting measures provided by the SBL program cover the wide range of lighting types that may be present in a small business. Expanding to other end-use categories may be worth considering for Cycle 3 as part of a small business direct install program.

- The incentives available for the SBL program range from less than \$1 for a 28 W, 4-foot fluorescent lamp to more than \$450 for LED high bay fixtures replacing a fixture with more than 750 W. This large range in available rebates exemplifies the diversity of lighting measures available in the SBL program.
- If the SBL program were to expand to another end-use category, other rebates could focus on heating or cooling measures, water saving measures, or refrigeration measures.

Demand Response
Incentive

The mix of end-use measures included in the program appropriately reflects the diversity of end-use energy service needs and existing end-use technologies within the target segment.

- Participants control how they meet their demand reduction obligations through curtailing or rescheduling end uses, using backup generators, or both.
- End-use options that can be chosen include but are not limited to: rescheduling use to off-peak time; temporarily shutting down factory production lines; reducing motor, process, lighting, and cooling loads; and turning off or lowering water heater set points.
- For DRI customers that produce their own onsite electricity, it would be useful for KCP&L-MO to develop a method to include their net power received in the interval data.

The mix of end-use measures included in the program appropriately reflects the diversity of end-use energy service needs and existing end-use technologies within the target segment.

- There was no change in mix of end-use measures in PY2017. Participants control how they meet their demand reduction obligations through curtailing or rescheduling end uses, using backup generators, or both.
- End-use options that can be chosen include but are not limited to: rescheduling use to off-peak time; temporarily shutting down factory production lines; reducing motor, process, lighting, and cooling loads; and turning off or lowering water heater set points.
- In PY2017, the energy consultants (ECs) and CLEAResult representatives worked with many existing customers to confirm that their end-use technologies contracted to curtail were in fact curtailable before the event season to help ensure surprises did not occur during event season.

Across the three program tiers, the program offers measures that cover most of the common energy end uses in residential homes. However, most energy savings and participation comes from AC units and heat pumps, with little participation in the heat pump water heater, air sealing, or insulation measures.

- Weatherization trade allies perceive that the program has not provided the same level of marketing support to them as it provided to the HVAC trade allies. Navigant's review of the marketing materials provided by KCP&L supports that perception.
- Weatherization trade allies expressed a desire to see the windows incentive reinstated. A few participants also mentioned that the program would improve by adding incentives for windows and appliances. Navigant recognizes that KCP&L dropped the windows incentives due to cost-effectiveness problems in previous PYs.
- In anticipation of the program possibly adding an HVAC tune-up measure, Navigant asked HVAC trade allies a question about the barriers facing customers regarding HVAC tune-ups. The clear majority of trade allies agreed that the primary barriers are lack of customer awareness of the need for tune-ups and the perception that their HVAC equipment is still functioning properly.
- Explore whether additional advertising or trade ally marketing support could increase participation in less popular measures.
- Explore ways to highlight the synergies of the program's different tiers to achieve a better overall result for customers. One example could be identifying the level of weatherization improvement that would allow the selection of a lower SEER/Heating Seasonal Performance Factor (HSPF) HVAC unit. While the HVAC unit would be less efficient, the improved weatherization could allow a similar experience for the customer at a reduced total cost.

Whole House Efficiency

Across the three program tiers, the program offers measures that cover most of the common energy end uses in residential homes. However, most energy savings and participation comes from air conditioning units and heat pumps, with little participation in the heat pump water heater, air sealing, or insulation measures.

Participation across all measure tiers increased in PY2017, including more than triple participation in Tier 3 measures in PY2017 compared to PY2016. This increase resulted in PY2017 verified energy savings that were more than double the amount in PY2016.

The WHE program added several new measures in PY2017 and phased out others.

- **Tier 1:** LED bulbs of varying wattage values contributed 2.5% and 0.4% of verified gross energy and demand savings, respectively, in PY2017. A new furnace filter alarm measure contributed an additional 0.02% and 0.01% of verified gross energy and demand savings, respectively.
- **Tier 2:** Window measures were phased out completely in PY2017. The 17 windows that came through the program during the phase out contributed 0.01% and 0.001% of verified gross energy and demand savings, respectively.
- **Tier 3:** The program added new HVAC tune-up, refrigerant charge adjustment, and coil cleaning measures. These new measures contributed 10.8% of energy savings and 11.3% of demand savings in PY2017.

Home Lighting Rebate

The program appropriately supports LED bulbs only, having dropped CFLs in PY2016 in keeping with market trends and conditions. The evaluation results suggest that adding LED downlights, retrofit kits, and integrated fixtures could diversify the end-uses for this technology.

- While interviewees believed that the program should continue supporting LED bulbs, suppliers suggested adding LED downlight and retrofit kits and fixtures.
- If possible, work with the IC to determine if adding LED downlight and retrofit kits and integrated fixtures to the program would further program goals to achieve savings and increase adoption.

The program supported standard and specialty LEDs through PY2017, but it will focus mainly on specialty bulbs in PY2018 to maintain budget integrity. This design makes sense given the budget constraints.

- Suppliers interviewed in PY2016 suggested that the program add LED downlight and retrofit kits and integrated LED fixtures. In-depth interviews with program and IC staff in PY2017 suggest that they are considering these additions for MEEIA Cycle 3.
- The program budgetary constraints mean that GMO must decide how to spend limited funds in an efficient manner. However, the focus on specialty bulbs may strain GMO's ability to achieve gross and net savings targets given lower specialty sales and NTG ratios. If this occurs, KCP&L could provide a special offer on standard LEDs in PY2018 to meet overall MEEIA Cycle 2 targets, although this is unlikely, as KCP&L's Product Manager has indicated, based on portfolio performance, they are unlikely to invest further funds towards the HLR program in MEEIA Cycle 2.

Home Energy Report

Home energy reports provide a diverse set of suggestions that target all residential end uses. The focus of the report is to modify behaviors; therefore, the program does not offer rebates for specific measures but does promote rebates provided through other KCP&L programs.

- These tips include many low- and no-cost actions as well as suggestions to buy efficient equipment and appliances. The IE-HER program highlights more low- and no-cost ways to save energy.
- The tips cover the main residential electricity end uses: lighting, HVAC, electronics, water heating, appliances, and pools.
- The program should continue to keep abreast of new ways to use and save energy to provide up-to-date tips. The program should also monitor trends in prices that may affect the affordability of tips.

HERs provide a diverse set of suggestions that target all residential end uses. The focus of the report is to modify behaviors; therefore, the program does not offer rebates for specific measures, but does promote rebates provided through other KCP&L programs.

- These tips include many low cost and no cost actions and suggestions to buy efficient equipment and appliances.
 - The tips cover the main residential electricity end uses: lighting, HVAC, electronics, water heating, appliances, and pools.
 - The print reports also cross-promoted Nest thermostats and rebates for air conditioners or heat pumps through GMO programs. The email reports included messaging on Energy Analyzer, air conditioner tune-ups, rebates on a new air conditioners or heat pumps, seasonal umbrella messaging about KCP&L programs, Nest thermostats, and in-home assessments.
 - Based on the evaluation survey, 10%-20% of treatment customers own smart home assistants, home security, smart light bulbs, or smart appliances.
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<p>Residential and Business Programmable Thermostat</p>	<p>The program aligns with the overall diversity of end-use energy service needs and existing technologies by using the cooling end-use for DR purposes. This is appropriate as it is the highest contributor to peak demand in the residential and small C&I sector.</p> <ul style="list-style-type: none"> If the program does not meet participant goals, KCP&L could consider researching if including more thermostat options would reduce a possible barrier to participation. In the future, competition among PT vendors and evolving technological developments could lead to the market shifting from one vendor toward another. Navigant suggests KCP&L monitor the market to avoid missing market trends. The mix of end-use measures included in the program (i.e., PTs) meets the needs of the existing market. However, there are other vendors of similar solutions that could be benchmarked toward the ability to handle multiple thermostat vendors and additional program functionality. 	<p>The program aligns with the overall diversity of end-use energy service needs and existing technologies by using the cooling end-use for DR purposes. This is appropriate because it is the highest contributor to peak demand in the residential and small C&I sector. This was noted in the PY2016 evaluation report and found to be consistent in PY2017.</p> <ul style="list-style-type: none"> In the future, competition among PT vendors and evolving technological developments could lead to the market shifting from one vendor toward another. Navigant suggests KCP&L monitor the market to avoid missing market trends. The BYOD segment of the RHR population is small. KCP&L could consider expanding the BYOD customer segment through targeted marketing in MEEIA Cycle 3. BYOD programs are comparatively inexpensive to operate and a way that many utilities run thermostat programs successfully.
<p>Income-Eligible Multifamily</p>	<p>Navigant found that the program includes appropriate measures for its current targets.</p> <ul style="list-style-type: none"> The program includes the following end-use measures: aerators, low-flow showerheads, water pipe insulation, lighting, and smart power strips. Common area measures include lighting and an option for custom measures for those measures deemed to be appropriate for that property. The custom program encompasses all end-uses, and therefore addresses all EE potential in the target market segment. 	<p>As in PY2016, Navigant found that the program includes appropriate measures for its current targets.</p> <ul style="list-style-type: none"> The program includes the following end-use measures: aerators, low flow showerheads, water pipe insulation, lighting, and smart power strips. Common area measures include lighting and an option for Custom program measures for measures deemed appropriate for that property. The custom program encompasses all end uses and, therefore, addresses all energy efficiency potential in the target market segment.

Table 21: Issue 4 - Are the communication channels and delivery mechanisms appropriate for the target market segment?

Program	2016 Summary Response	2017 Summary Response
Business EER - Standard	<p>The Standard program primarily marketed to and recruited customers through one-on-one conversations with the larger customers and working with the trade ally network for medium to smaller customers. High participant satisfaction is one indication that the program's communication channels and delivery mechanisms are generally appropriate for the target market segment.</p> <ul style="list-style-type: none"> Of the trade ally respondents, 60% were somewhat to extremely satisfied with the marketing materials they received, 72% were satisfied with the training they received, and 82% felt the training was of the right length (not too long or too short). 	<p>The IC for the Standard program works one on one with the larger customers. Medium and smaller customers are addressed through the trade-ally network. In addition, there is also targeted marketing for some sectors with historically lower participation. Due to the high level of participation in the Standard program, these channels are appropriate for the target market.</p> <ul style="list-style-type: none"> KCP&L developed additional channels for communication by creating high quality targeted videos for property managers and special energy conservation coffee for schools and universities. Of the program participants that participated in the implementer administered survey, more than 85% of the participants indicated that they participated in the program due to the available rebate and or recommendations from the contractor. This is in line with the low free ridership found in the PY2016 survey. It also indicates that communications about KCP&L programs is leading to participation in these programs. The program staff has identified that the majority of errors with rebate form submittal is found with new trade allies and has worked on new trade ally training to reduce these errors.
Business EER - Custom	<p>In PY2016, there was an increase in the program's outreach efforts. The marketing or recruitment of the Custom program was conducted through face-to-face interactions with customers, trade allies, energy consultants, and design firms, with the focus to increase participant awareness of the program in the early stages of a project. As mentioned above, PY2016</p>	<p>Marketing and outreach in PY2017 refocused and emphasized training and awareness in a few key target market segments over broader sales messaging. KCP&L should continue these efforts as trade allies feel there is still room for improvement in training and support for new customer acquisition.</p> <ul style="list-style-type: none"> KCP&L created a more targeted marketing campaign for PY2017, based on identified industries with the most potential

Program	2016 Summary Response	2017 Summary Response
	<p>was a transition year for the Custom program; therefore, it is unclear if the low actual savings were caused by this transition or the marketing efforts. Navigant recognizes that KCP&L-MO creates a custom express application process for certain straightforward and replicable measures. KCP&L-MO also focuses on smoothing the application process through outreach and training efforts. Navigant recommends continuing these efforts with more customers and contractors, especially non-lighting contractors.</p>	<p>for new Custom projects. The results of marketing to often take time to materialize, yet the efforts are worthwhile even if results are not immediately seen. Targeting new sectors with awareness and marketing is valuable and important for maintaining high net savings and program staff feel they are seeing responses that will translate into future projects in the pipeline.</p> <ul style="list-style-type: none"> o Outreach efforts to engineering and design firms began in PY2017 and educated new construction customers and contractors, while creating awareness of the Custom program's offerings. <ul style="list-style-type: none"> o KCP&L ran an awareness campaign targeting K-12 schools that included premium mailers, digital ads, and video testimony, coupled with a dedicated K-12 outreach specialist. o KCP&L program staff felt that results from these marketing efforts are being realized, with an uptick in Custom applications in the last few months of PY2017. In PY2017, one K-12 customers completed a project. • Marketing strategies included one-on-one trade ally trainings, sector-specific fact sheets, attending trade shows, new customer cold calls, and joint sales calls, however, trade allies felt they still needed more support to persuade new customers to pursue energy efficiency through the Custom program. <ul style="list-style-type: none"> o About 36% of the 11 trade allies surveyed were satisfied with the amount and type of training provided and 45% were satisfied with their communication from KCP&L. • A challenge for any custom program is striking a balance between the data collected for each project and the ease of the application process for the customers and trade allies. To the extent possible, the application process should be

Program	2016 Summary Response	2017 Summary Response
		<p>streamlined to minimize the back-and-forth between customers, trade allies, and the implementation contractor to ensure the greatest number of completed projects.</p> <ul style="list-style-type: none"> ○ Trade allies felt that the application process was at times cumbersome and not worth the time for smaller projects. ○ The IC found that trade allies can be unresponsive to incomplete application notices and requests for application updates. KCP&L should work with the IC on ways to improve the application process and these communication channels and make them a better experience for all involved. <ul style="list-style-type: none"> • Planned future efforts include greater support for HVAC customers, such as walkthroughs, and sponsoring design meetings to facilitate conversation between architects, design teams, trade allies, customers, and the KCP&L Custom program team. These efforts will likely increase trade ally satisfaction and address the need for additional support in bringing new, non-lighting customers into the program
Block Bidding	<p>Commercial customers with identified savings of 1 GWh or more per year prefer a direct marketing approach. An auction house conducted the marketing and recruitment of the Block Bidding program; this is consistent with other similar programs nationally.</p> <p>The Block Bidding program defines the program eligibility to KCP&L's commercial customers, trade allies, or ESCOs who have identified savings of 1 GWh or more per year. As such, Overlay's direct contact to these market segments was an appropriate delivery mechanism.</p> <p>The main communication channel for the Block Bidding program is direct contact with the large customer by KCP&L, its IC, or the auctioneer. Navigant feels this is appropriate given the diversity and needs of the large</p>	<p>In PY2017, KCP&L refocused its outreach efforts from one-on-one communication with existing large customers, to generating more awareness and interest in the program from new customers and trade allies. It still conducts much of its project-generating outreach through the RFQ process.</p> <ul style="list-style-type: none"> • Overlay, the subcontracted auction company, executes the marketing efforts directed toward existing customers through RFQ announcements, call center direct phone calls, and the KCP&L website. Once a bid is won, Overlay conducts monthly touch points with the winner to monitor and support the project's progression. • For auction participants, KCP&L holds a mandatory pre-RFQ training session to educate customers on the Block Bidding process, which was attended by three customers for the 2017

Program	2016 Summary Response	2017 Summary Response
	<p>customer base, and suggests periodic reviews with customers to ensure participants indicate this is the best communication pathway.</p>	<p>RFQ cycle. The presentation was clear and well organized, and the winning bid savings chart was valuable in understanding how bids are calculated.</p> <ul style="list-style-type: none"> ○ Overlay Consulting updated the winning bid savings chart in response to an error in the winning bid savings chart and communicated that to KCP&L and sent that to the bid winners. The updated winning bid savings chart will be applied for future auctions in MEEIA Cycle 3. • KCP&L's main form of project-generating outreach is through the RFQ process. It is important that potential Block Bidding customers are aware of the RFQ requirements and timeline for planning purposes, however this form of outreach has the unintended consequence of highlighting the work that goes into applying for the rebate and not the benefits of the program. Marketing should extend beyond recruiting for the RFQ and include more general informational materials about the Block Bidding program and the value it can bring to large customers or TAs. • In PY2017, KCP&L attended several industry events, including an industrial summit event and a real estate forum, which generated awareness and networking opportunities. KCP&L began reaching out to large, national TAs who already have experience with the reverse auction process in other service regions (e.g., AEP). • Aligning the Block Bidding outreach with KCP&L's business development and new service requests generated several Buy-Now projects.
SEM	<p>KCP&L directly markets the SEM program to its customers through key accounts. This is appropriate as these accounts prefer a personalized approach in place of a broad-focused marketing effort.</p>	<p>KCP&L directly markets the SEM program to its customers through key accounts. This is appropriate, as these accounts prefer a personalized approach in place of a broad-focused marketing effort.</p> <ul style="list-style-type: none"> • Larger energy consumers prefer a personalized approach where the benefits of the program to their specific facility are

Program	2016 Summary Response	2017 Summary Response
	<ul style="list-style-type: none"> Larger energy consumers prefer a personalized approach where the benefits of the program to their specific facility are discussed. KCP&L's passive approach for the program has been successful in recruiting 16 participants for the 2016 pilot year. No participant interviews were slated for the SEM program for PY2016 evaluation. However, this will be a focus of the team's PY2017 process evaluation activities. Marketing for this program is extremely limited, and the current model of account managers introducing the customers to the program has worked well with these large clients. When the program considers expanding to a larger number of customers, a more proactive approach may need to be considered to meet program goals. 	<p>discussed.</p> <ul style="list-style-type: none"> KCP&L's approach for the program successfully recruited 16 participants for PY2017. <p>The SEM program delivery is varied to meet the diverse needs of the participant, these included:</p> <ul style="list-style-type: none"> Training workshops. Workbooks tailored specifically to the industrial or commercial participant guiding the participants throughout the training and implementation of the program. Onsite Energy Scans provided by the IC to identify low cost energy saving measures and opportunities to save energy through participation in KCP&L's other EE programs.
Small Business Lighting	<p>Communication channels and delivery mechanisms are working for the program as-is though there are opportunities for further improvement.</p> <ul style="list-style-type: none"> Over 90% of participants surveyed indicated no other methods of learning about the program were needed. However, trade ally survey participants identified opportunities for potential marketing and communication improvements, with only 50% indicating they were aware of and had received program marketing materials. Five out of 12 trade ally survey respondents 	<p>Communication channels and delivery mechanisms are working for the program as- is, though there are opportunities for further improvement.</p> <ul style="list-style-type: none"> The effective communication channels helped lead to the success of the SBL program as evidenced by the fact that it surpassed its 3-year target in only 2 years. Also, KCP&L clearly communicated the amount of remaining funding on the webpage when the programs started to get close to exhausting funds near the end of PY2017. Finally, the webpage clearly indicated the availability of other programs, such as the Standard program, if the projects did not meet the SBL eligibility criteria. The implementer reached out to all SBL

Program	2016 Summary Response	2017 Summary Response
	<p>suggested that there should be more direct marketing to customers. Another five (out of 12) respondents suggested that more marketing support should be provided to trade allies and contractors.</p> <ul style="list-style-type: none"> This is a typical finding in a process evaluation—trade allies almost always recommend additional marketing efforts. Further, all participant respondents except one said that they do not think that any improvements are needed. However, with only 50% of the trade allies aware of the marketing materials, KCP&L has an opportunity to provide additional training and marketing materials to the trade ally network toward boosting awareness. Navigant suggests monitoring marketing efforts by trade allies and consider opportunities for further encouraging co-promotion to amplify marketing messages during targeted promotional periods to drive responses. 	<p>customers and communicated about the early ending of the program and gave them directions on when they needed to submit projects for inclusion.</p> <ul style="list-style-type: none"> For the SBL program, KCP&L developed two case studies for targeted marketing, one of a bank and one of a gift boutique. These case studies provide useful information to potential program participants. However, there is no way to access these case studies directly on the webpage. Increasing the amount of material available online may increase participation if the program starts up again in Cycle 3.
Demand Response Incentive	<p>Navigant found that the communication channels and delivery mechanisms are intermittent. While communication with program participants takes place at the start of the season, the program could benefit from more continuous communication throughout the DR season.</p> <p>CLEAResult leverages KCP&L’s energy consultant’s one-on-one relationships with customers who have high savings opportunities (referred to as Tier 1 customers) for recruiting purposes.</p> <p>KCP&L cross promotes DRI with the Business EER program.</p> <p>While methods of communication are sufficient at current program size, Navigant recommends more continuous</p>	<p>Although room for improvement exists, KCP&L’s product manager has taken great efforts to improve communication channels and ensure delivery mechanisms are appropriate for the DRI program.</p> <ul style="list-style-type: none"> The following topics were identified in the product manager interview as areas that have been improved for PY2018: <p>In PY2017, the product manager initiated phone and email notifications 24 hours and 4 hours before events started in which customers needed to confirm notification receipt. A2A sent these notifications. If A2A did not receive receipt confirmation, the KCP&L product manager asked the energy consultant or CLEAResult to reach out to customers directly. The highest usage customers were often notified of potential events more than 24 hours in advance by their energy consultants.</p>

Program	2016 Summary Response	2017 Summary Response
	<p>communication with customers throughout the DR season. Assuming the program continues to grow, more methods of communication may be needed for individualized program assistance. In addition, Navigant encourages continued partnership with internal programs such as the current partnership with the Business EER program to cross-promote programs.</p>	<ul style="list-style-type: none"> • During the PY2017 event season, the product manager found that their email notifications were going to certain customers' spam email folder. The DRI team has ensured their email notifications are going to the appropriate contact at the customer site by asking customers to mark the DRI email account as not spam. • Every interaction with a customer becomes an opportunity to cross-promote programs. KCP&L does not partake in blind prospecting when recruiting participants. Instead, KCP&L recruits customers for the DRI program using customer contacts from other energy efficiency programs such as KCP&L's suite of C&I programs. In PY2017, with the introduction of customer propensity modeling by the program implementer, KCP&L expanded the pool of potential participants outside of existing energy efficiency programs. • Targeted email marketing was executed in PY2017. High usage customers were identified through CLEAResult's propensity modeling and received emails asking them to inquire about the DRI program. The product manager has a full marketing plan for PY2018 that includes targeted email and direct mail marketing. The marketing plan also includes DR forums in which potential customers and participating customers are invited to a lunch forum to learn about the program. The product manager expects to recruit new participants through the forum. • KCP&L's product manager reworked communication channels and delivery mechanisms for PY2018 that have improved program recruitment in the following ways: • The product manager created and formalized an initial recruitment questionnaire that CLEAResult utilizes to better identify whether customers would be suitable DRI participants. As an example, the enhanced questionnaire now identifies whether there are certain days or hours that a customer cannot participate in an event. If the customer

Program	2016 Summary Response	2017 Summary Response
		<p>passes this initial round of interview, then CLEAResult deploys engineering resources onsite to assess whether the customer would be a good participant. During this visit the CLEAResult representative gathers necessary data to create a facility audit report and to identify the curtailment plan. When the audit report is delivered, CLEAResult verifies the proposed curtailment plan is understood and agreeable and if whether the customer is interested in and willing to participate in the program.</p> <ul style="list-style-type: none"> For PY2018, KCP&L is focusing on behavior management by identifying, before the contract is signed, the specific individual that will physically perform curtailment and how they will perform curtailment. The CLEAResult recruiter identifies the disconnect point for curtailment with the individual performing curtailment to ensure everyone is in alignment with the curtailment plan and to proactively identify any issues with it. The product manager has initiated participant account management for the PY2018 recruitment season to maintain relationships with DRI participants throughout the year to make sure items are in order for the curtailment season and customer contacts are up to date. Continuous communication with customers throughout the DR season was a recommendation Navigant provided KCP&L in PY2016.
Whole House Efficiency	<p>Participating customers report a high level of overall satisfaction with the program, with some variations based on the program track in which they participated. High participant satisfaction is one indication that the program's communication channels and delivery mechanisms are generally appropriate for the target market segment.</p> <ul style="list-style-type: none"> Given the substantial role that trade allies play in delivering this program, trade ally satisfaction is another important indicator. Trade allies indicate 	<p>Participating customers report a high level of overall satisfaction with the program, with some variations based on the program track in which they participated.</p> <ul style="list-style-type: none"> The WHE program continued to market the measures to the target market of single- family homes and 2-unit to 4-unit residences, and participation has more than doubled since PY2016. KCP&L's product manager indicated that relationships with trade allies have continued to strengthen, which is an indicator of continued focus on increasing

Program	2016 Summary Response	2017 Summary Response
	<p>somewhat lower levels (though ratings are within expected values) of program satisfaction than participants do, particularly regarding rebate amounts and the marketing support provided by the program.</p> <ul style="list-style-type: none"> When trade allies were asked how the program could improve, the most common answer was “more marketing directly to customers” (cited by 39% of trade allies), followed by “more marketing support for contractors/trade allies” (21%). These are common responses from trade allies in program evaluation surveys; trade allies frequently perceive that the program can do more marketing and advertising than individual trade allies are capable of funding. Consider a more comprehensive energy audit rather than Energy Savings Kit for customers with a higher level of EE knowledge. Consider offering Energy Auditor /Insulation and Air Sealing trade allies additional training and easy-to-understand program information that they can leave behind with customers so that customers understand the program process from start to finish. If the program chooses to reinstate the HVAC tune-up rebate, consider developing an awareness campaign or educational materials that would assist trade allies in persuading their customers of the need for tune- ups. 	<p>participation and ensuring high customer satisfaction.</p> <ul style="list-style-type: none"> In addition, the program has been marketing to participating customers by email. The campaign consists of a series of emails that guide customers that participated in one tier through the steps, and benefits of participating in other program tiers. The program has also been marketing on social media websites and conducting in-store product demonstrations at home improvement stores.
Home Lighting Rebate	KCP&L-GMO and the IC market the program widely through mass media (including the Internet) and within retail stores, but there is room for improvement.	GMO and the IC market the program widely through mass media (including the internet) and within retail stores. This strategy matches the current program budget and has been suitable to meet sales and savings targets through PY2017.

Program	2016 Summary Response	2017 Summary Response
	<ul style="list-style-type: none"> • KCP&L-GMO marketing aligned with the portfolio-level “We’re great at energy efficiency” campaign, but the marketing material reviewers observed that materials did not consistently reference ENERGY STAR lighting. • There are opportunities to improve marketing targeted at HTR populations. Except for one retailer, point of purchase materials had Spanish translations only in fine print as opposed to being in full-sized font. Additionally, during the consumer survey, none of the 14 frequent bargain store respondents reported seeing any marketing or displays; on the other hand, more than two-fifths of other shoppers (42%) reported seeing marketing or displays. • The team emphasizes that promotional efforts carry a consistent portfolio theme. The program could possibly shift to a system of consistently referencing and highlighting ENERGY STAR and using the ENERGY STAR logo whenever possible to differentiate from non-ENERGY STAR models. 	<ul style="list-style-type: none"> • The program has met—and sometimes exceeds—sales and savings targets with their current HLR marketing efforts. As described above, these efforts have served to increase sales of program-supported bulbs. • Budget constraints advise against revising the marketing efforts for PY2018.
Home Energy Report	<p>The HER program uses two primary communication channels: paper mailed reports and emails.</p> <ul style="list-style-type: none"> • All treatment customers received five paper reports in PY2016. • Customers with email addresses on file also received monthly email reports. • Customers could also access an online portal to monitor energy use through the Home Online Energy Audit. • The timing and frequency of messaging through these channels is appropriate given the need to 	<p>The HER program uses two primary communication channels: paper mailed reports and emails.</p> <ul style="list-style-type: none"> • All treatment customers received four or five paper reports in PY2017. • Customers with email addresses on file (about 12%) also received monthly email reports. • Customers could also access an online portal to monitor energy use through the Home Online Energy Audit. • The timing and frequency of messaging through these channels is appropriate given the need to provide information through multiple mediums over time so participants can monitor the

Program	2016 Summary Response	2017 Summary Response
Residential and Business Programmable Thermostat	<p>provide information through multiple mediums over time so participants can monitor the effect of any efficiency and consumption changes they make.</p> <ul style="list-style-type: none"> The program may want to consider signing up more customers for email reports so that customers can receive messaging from both channels. Navigant notes that this would require capturing and sharing more customer emails with Opower, which may or may not be feasible given the program resources. <p>Marketing has been successful, as KCP&L exceeded its initial PY target of 1,000 thermostats for the KCP&L-MO territory for PY2016.</p> <ul style="list-style-type: none"> CLEAResult handles marketing via email to customers that were previously in the thermostat program. In addition, the CLEAResult technicians cross-promote the Residential PT program with the WHE's Energy Savings Kit program and in the HER program mailers. 	<p>effect of any efficiency and consumption changes they make.</p> <p>KCP&L has successfully reached enrollment targets. In fact, in PY2017, marketing ramped down a bit to reduce new enrollment. Marketing efforts in PY2017 focused on increasing thermostat activation for the Rush Hour Rewards program.</p> <ul style="list-style-type: none"> As in PY2016, the CLEAResult technicians cross-promoted the Residential PT program with the Whole House Efficiency's (WHE's) Energy Savings Kit program but ceased promotion through HER program mailers in November 2017 due to intended enrollment slowdown. Other methods of communication have been through social media and participant promotion through peer-to-peer word-of-mouth communication between customers. Many survey respondents who were dissatisfied with event notification channels requested notification through means that are already available (such as text or push notifications). Navigant recommends re-educating customers on notification channels for the upcoming DR season. Additionally, evaluation surveys revealed that additional education and communication regarding program goals and purposes would be useful to customers.

Program	2016 Summary Response	2017 Summary Response
Income-Eligible Multifamily	<p>Communication channels were initially not appropriate for the program, but the delivery system for the tenant measures is appropriate.</p> <ul style="list-style-type: none"> • Communication channels and delivery are appropriate given the direct interaction with the end- user (tenant). The program is DI for the tenants, and they are not required to fill out any paperwork as a part of the program. • KCP&L identified property owners as the most promising points of contact for recruiting program participants. Compared to property managers, property owners have the authority and capital to make decisions and commit to larger projects with deeper energy savings. Further, this opened up additional opportunities with the same property owner, as owners often have more than one property. • During the interview, the program manager at KCP&L indicated that there was not sufficient information on the website for property owners and managers to pursue participation in the program in an efficient manner. • Working with the property owners directly is an appropriate communication mechanism. Navigant recommends including high frequency custom measures in a prescriptive manner in future PYs to ease implementation. 	<p>Communication channels focus largely on direct outreach and in-person contacts. Several additional communication and outreach channels are used, including leveraging partnerships with the MHDC, USDA, and other organizations involved in low income housing.</p> <ul style="list-style-type: none"> • Communication channels and delivery are appropriate given the direct interaction with property owners/managers and tenants. • The program also works with MHDC, US Department of Agriculture (USDA), and other organizations to identify potential building owners and/or buildings eligible to participate in the program. • Program staff reports that direct outreach has been the most effective method of increasing awareness about the IEMF program.

Table 22: Issue 5 - What can be done to more effectively overcome the identified market imperfections and to increase the rate of customer acceptance and implementation of each end-use measure included in the program?

Program	2016 Summary Response	2017 Summary Response
Business EER - Standard	<p>KCP&L's success with lighting within the Standard program is strong. The effect from other end uses was 11%, which could indicate an opportunity to further expand non-lighting measure usage through follow-ups with trade allies to identify measures to consider for a marketing and education push.</p> <ul style="list-style-type: none"> Of the 19 trade allies surveyed, 17 respondents had lighting as their primary measure. Consider trade ally training specifically for the non-lighting end uses such as HVAC, motors, and building controls. Increasing trade ally awareness of the other measures in the Standard program could increase the number of trade allies that specializes in non-lighting equipment. Consider establishing an online tracking system for customers and trade allies to monitor the status of the application and rebate check. 	<p>In PY2017, KCP&L continued to have strong success with the efficient lighting measures in the Standard program. The effect from other end uses was less than 1%, but many of those measures are covered by other programs such as the Custom program.</p> <ul style="list-style-type: none"> KCP&L has had great success with the lighting rebates. Even after lowering rebate amounts in the fall of 2017, the participation remained strong in the Standard program through the end of the program cycle.

Business EER - Custom

This will be a focus for 2017 as participation ramps up. Low participation due to carryover from MEEIA Cycle I did not provide sufficient information to draw conclusions for this question. Navigant recommends continuing to develop and periodically review best practices of the current outreach efforts to maintain momentum.

There is opportunity for KCP&L to address the market imperfections identified in the previous questions by leveraging last year's outreach efforts, tailoring the project sales pitch, and providing greater support for trade allies.

- Customer and trade ally feedback indicated that the rebate amount paid out was not always worth the effort the process required. To address this, as stated in Question 2, KCP&L wants increased emphasis on the non-energy benefits of a project, to sell the solution, not just the incentive.
- Tailoring the outreach and sales proposition language based on the type of customer and measure will help attract customers with non-lighting projects. For example, KCP&L finds that these projects are typically assessed in terms of ROI and payback instead of kWh and kW savings.
- In addition to the non-energy benefits, emphasizing ROI, reduced lifecycle operating costs, and payback instead of just energy savings or incentive amounts.
- As already planned, improving relationships with the trade allies in the Custom program should be a focus for PY2018. Trade allies were dissatisfied with multiple aspects of the program. By giving trade allies the tools they need to sell Custom jobs, such as ongoing training, materials, and support throughout the rebate process, KCP&L can better leverage the trade ally network to increase program participation and reach new customers.
- To increase new customer acquisition, KCP&L can seek to benefit from the relationships they have developed with mechanical, electrical, and plumbing firms and contractors, such as facilitating partnerships between industry and the trade allies currently in the program. Additionally, KCP&L should continue strategizing how to better align its marketing cycle with new construction sector project timelines, as noted by the program manager.

Block Bidding

The Block Bidding program's pilot year in PY2016 provided a winning bid and valuable insight into the needed characteristics of a successful auction. The research planned for 2017, as participation builds, will focus on identifying the effectiveness of the program's ability to overcome the market imperfections noted in Question 1.

- Navigant recommends remaining in communication with customers on the appropriate amount of notification time needed for their participation. Block Bidding participants tend to have larger projects with a high capital investment and long lead times. As such, it is difficult for these customers to react quickly to offerings. In PY2017, KCP&L lowered the incentive caps for Custom to \$100,000 and Standard to \$400,000, which may increase the participation for Block Bidding. KCP&L may consider a mid-year review to see how effective this change is on Block Bidding and adjust the caps accordingly.

Now in its second year, the Block Bidding program can begin to address some of the challenges encountered in the past years. Continuing to fine-tune the eligibility requirements will ensure greater, more successful participation.

- KCP&L should continue its customized, one-on-one outreach efforts targeting new Block Bidding customers, but should also apply this individualized approach to current large customers using other rebate programs to understand how they can better utilize the Block Bidding program.
- As outlined in Question 1, KCP&L discovered that one of the biggest drivers of participation is a proper incentive cap on the Standard and Custom programs. KCP&L can use the PY2017 cap adjustment as an opportunity to better understand this interaction and further adjust the cap as needed to balance Block Bidding participation with Standard and Custom participation. While the Block Bidding program is more cost effective in terms of \$/kWh, the right balance must be struck so customers still feel they are getting enough value out of the program.
- KCP&L recognizes the need to sell the program value to large customers that previously opted out of KCP&L's rebate programs. Other, more mature markets possess this large customer buy-in and can serve to guide KCP&L as they recruit back these previously underserved customers.

SEM

The program needs more time to complete training and other activities before Navigant can appropriately answer this question.

- The processes and approaches are consistent with other programs evaluated by Navigant. However, because savings have yet to be reported, the evaluation team is waiting to collect more data before providing input on this issue. This will be the focus for PY2017 research.

Three of the seven participants interviewed felt the rebates received do not offset the Energy Efficiency rider making it difficult for the large customers to cost-justify participating in KCP&L's Business Energy Efficiency programs.

Small Business Lighting

Overall, the SBL program is running smooth and as intended.

- Both the participant and trade ally surveys indicated high satisfaction with the SBL program. The program offers higher rebates than the Business EER – Standard program for the same lighting measures, which helps small business customers overcome the barrier of the cost of efficient lighting.

Overall, the SBL program ran successfully but exhausted all funding before the end of the cycle. Moving forward, the implementer and KCP&L could consider changes to future programs so that they can last the entire cycle.

- Ending a program mid cycle even if it is due to over-participation can be disruptive to customers and trade allies. It may also be preferable for planning purposes if the program lasts the entire cycle. Navigant provides recommendations below on potential ways to address this issue moving forward:
 - Increase the 3-year program budget
 - Decrease the incentive levels

Demand Response Incentive

KCP&L has identified recruitment of customers with smaller demand savings potential as an area for improvement. In addition, KCP&L is reworking the EPD calculation.

- Navigant understands KCP&L is working on a solution to utilize smaller loads.
- As noted above, there is an opportunity to update the EPD calculation so that the updated value will better represent customer peak demands.

KCP&L has implemented targeted marketing to recruit new customers. In addition, KCP&L has refined curtailment plans and expectations (i.e., the EPD values and FPLs) with current customers.

- As mentioned in the PY2016 EM&V report, KCP&L recruited smaller customers in PY2017. In addition, KCP&L is updating the EPD and FPL calculation for existing customers for PY2018. CLEAResult will use interval data during potential peak hours during weekdays to identify a more accurate EPD value. During PY2017, KCP&L also redefined contracted CL for many existing customers through thorough onsite visits.
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<p>Whole House Efficiency</p>	<p>Based on the participant survey, one of the most common suggested improvements was simply advertising the WHE program more so that more customers could benefit from it. This reflects the overall high level of program satisfaction. Some participants specifically mentioned television and radio advertising as an effective way to reach other customers like them.</p> <ul style="list-style-type: none"> • Some Energy Savings Kit participants indicated lower satisfaction with the quality of information provided in the home energy assessment report, particularly regarding measure costs and cost-effectiveness. • Some Heating and Cooling Rebate participants expressed minor dissatisfaction with the time it took to receive the rebate, which may be abated with more upfront communication about when to expect the rebate check and who it will be coming from (the program or the trade ally). • Participants in the Insulation and Air Sealing Rebate expressed confusion about the steps necessary to participate and would benefit from a more detailed explanation of what to expect throughout the program process. 	<p>Based on the participant survey, one of the most common suggested improvements was advertising the WHE program more so that more customers could benefit from it. This reflects the overall high level of program satisfaction. Some participants specifically mentioned television and radio advertising as an effective way to reach other customers like them.</p> <ul style="list-style-type: none"> • The program explored strategies in PY2017 to increase customer participation in more than one program tier. Increased marketing, in-store promotions, and increased collaboration with trade allies have all led to higher participation and savings. The program encouraged Tier 3 trade allies to promote Tier 2 building shell measures to their customers toward the end of PY2017. The program's largest trade ally company began implementing that initiative and it is expected to expand in PY2018, potentially increasing participation in Tier 2.
<p>Home Lighting Rebate</p>	<p>The program has made a great deal of progress on addressing the primary imperfections of price, availability, and customer knowledge of efficient lighting. However, consumers continue to purchase light bulbs based on price and wattage, and in-home use suggests they buy ENERGY STAR and non-ENERGY STAR bulbs in nearly equal proportions. One-quarter of respondents remain unfamiliar with LEDs.</p>	<p>Navigant verified that the GMO HLR program has achieved 90% of reported savings and 75% of its MEEIA Cycle 2 net savings targets cumulatively over PY2016 and PY2017.</p> <ul style="list-style-type: none"> • Given strong realization rates and progress toward net savings goals, the HLR program has shown great success in increasing consumer acceptance and implementation of ENERGY STAR qualified LED bulbs.

<p>Home Energy Report</p>	<p>Most treatment customers read or look at the report, and many talk about the report with others. However, there may be an opportunity to engage the 29% of customers who either did not recall the report or did not look at the report.</p> <ul style="list-style-type: none"> • 29% of CET respondents either did not recall receiving the report or did not read the report. • However, 94% of CET respondents who recall receiving a home energy report state that they read or looked at the report. • Of respondents who recall the reports, 79% like the reports and 61% talk to other people about the reports. 	<p>Most treatment customers read or look at the report, and many talk about the report with others. However, there may be an opportunity to engage the 29% of customers who either did not recall the report or did not look at the report.</p> <ul style="list-style-type: none"> • Of CET respondents, 29% either did not recall receiving the report or did not read the report. • Of CET respondents who recall the reports, 72% like the reports and 61% talk to other people about the reports. • Based on responses to the evaluation survey, customers are most likely to recall the neighbor comparison (92%) and then energy-savings tip (62%) but give higher ratings to the tips (7.1 on a 10-point scale) compared to the neighbor comparison (6.2).
<p>Residential and Business Programmable Thermostat</p>	<p>KCP&L surpassed enrollment goals for PY2016 and has developed a plan to improve installation rates for DIY customers. Cost-effectiveness should continue to be monitored as the program develops to ensure it remains on target.</p> <ul style="list-style-type: none"> • In PY2017, the utility plans to increase reminders to DIY customers who delay installing their thermostat. 	<p>KCP&L is close to reaching enrollment goals for Cycle 2; thus, it is redirecting efforts from enrollment to continuing thermostat activation and designing a process to handle thermostat participants that move out of their home.</p>
<p>Income-Eligible Multifamily</p>	<p>Multifamily is a difficult segment to target in most jurisdictions.</p> <ul style="list-style-type: none"> • Tenants are often not allowed to make significant alterations, and property owners and landlords have little incentive to increase efficiency because they usually do not pay—directly or indirectly—for utilities. • Recommendations to overcome this challenge are presented in the following section. 	<p>As noted in PY2016, multifamily is a difficult segment to target in most jurisdictions. However, the program has taken steps to overcome these difficulties, including new outreach/targeting strategies and the addition of the custom program path during PY2016; these steps have opened up energy efficiency opportunities for customers interested in end uses beyond the standard measures offered in the IEMF program.</p> <ul style="list-style-type: none"> • The first custom measures installed in the IEMF program occurred during PY2017 and included refrigerator replacements. • Program staff report that they would like to prioritize the custom program path during PY2018 to drive greater participation in custom measures.