MISSOURI PUBLIC SERVICE COMMISSION

STAFF

REBUTTAL REPORT

KANSAS CITY POWER & LIGHT COMPANY
&
KCP&L GREATER MISSOURI OPERATIONS COMPANY

CASE NOS. EO-2019-0132 and EO-2019-0133

Jefferson City, Missouri
August 19, 2019

** Denotes Confidential Information **

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I. Executive Summary

On November 29, 2018, Kansas City Power & Light Company ("KCPL") and KCP&L Greater Missouri Operations Company ("GMO") (collectively "the Companies or KCPL/GMO") filed *Application[s] to Approve DSIM Filing, Request for Variances and Motion to Adopt Procedural Schedule and MEEIA Cycle 3 2019-2022 Filing* ("Application"), in Case Nos. EO-2019-0132 and EO-2019-0133, with the Missouri Public Service Commission ("Commission").

KCPL and GMO have proposed separate demand-side portfolios that contain the same programs[1] and program design but differ in proposed energy and demand savings targets and budgets. For purposes of Staff's Rebuttal Report ("Report"), discussions using "KCPL/GMO" will refer to planning and operations of KCPL and GMO as if the KCPL and GMO were one combined utility.[2]

On February 15, 2019, the Companies, the Missouri Public Service Commission Staff ("Staff"), the Office of the Public Counsel ("OPC"), the Missouri Department of Economic Development – Division of Energy ("DE"), and Renew Missouri Advocates d/b/a Renew Missouri ("Renew MO") (collectively, "Signatories") filed a Stipulation and Agreement to continue the KCPL and GMO Missouri Energy Efficiency Investment Act ("MEEIA") Cycle 2 programs with certain modifications ("Cycle 2 Continuation Agreement") while the Signatories continued settlement discussions for KCPL and GMO MEEIA Cycle 3. On February 20, 2019, the Companies filed a *Motion for Extension of time to File 2019 Annual Integrated Resource Plan Updates* until August 31, 2019. The Commission approved the Cycle 2 Continuation Agreement on February 27, 2019. On April 23, 2019, the Companies and Staff filed a *Joint Notice*, notifying the Commission that they had agreed on the total avoided cost of capacity

[1] The only exception is that KCPL has proposed an Income Eligible Home Energy Report.

[2] KCPL/GMO in this Report is analogous to joint KCP&L/KCP&L-GMO in Appendix 8.11 of the Application.

prices to be used for program screening and cost effectiveness testing for the Companies' MEEIA Cycle 3. On July 24, 2019, the Signatories, including the National Housing Trust ("NHT"), filed a *Joint Motion to Re-Establish Procedural Schedule and Grant Variance from Requirement to File 2019 Integrated Resource Plan Annual Update* ("Procedural Schedule Joint Motion"), noting that while the parties had been conducting good faith negotiations to resolve the MEEIA Cycle 3 issues, negotiations were not successful. The Procedural Schedule Joint Motion indicated it was appropriate to re-establish the procedural schedule "to resolve all issues related to the [Companies'] MEEIA [Cycle] 3 programs as filed on November 29, 2018, including avoided costs." Further, the Procedural Schedule Joint Motion indicates that given the current uncertainty with KCPL and GMO MEEIA Cycle 2 and Cycle 3 programs, the Companies and Staff agree that it would be appropriate to grant the necessary variances such that the KCPL and GMO would file their next IRP Annual Updates in March 2020 in lieu of the 2019 IRP Annual Updates on August 31, 2019. Therefore, Staff's Report addresses the Companies' MEEIA Cycle 3 Application as filed.

While Staff completed its analysis based on the Application as filed in November 2018, this approach presents additional complications further supporting Staff's ultimate recommendation that the Commission reject the Companies MEEIA Cycle 3 Application. For instance, in the Application implementation of most programs was proposed to cover the period April 1, 2019, through March 31, 2022. On July 12, 2019, Staff submitted Data Request ("DR") No. 0135 asking the Companies to "describe in detail all known changes from the MEEIA [C]ycle 3 [Application] that was filed 11/29/18 to now, including but not limited to, proposed program design, proposed program budgets, and proposed savings targets". On July 29, 2019, the Companies responded, "To date the Company has not made any filings to update or change programs, budgets or savings targets from the 11/29/18 filing." Further, no filings or updates have been provided since the July 29 response.

With a November 2018 filing date and an April 1, 2019, start date, Staff completed its analysis assuming a 3-year cycle with dollars discounted to 2019. However, with the revised procedural schedule, programs might, at best, begin December 1, 2019. Ideally, KCPL/GMO would have submitted an updated Application to address any changes in avoided costs, the capacity balance sheet, the "benefits to all customers" analyses and the cost-effectiveness of

programs. However, that would likely result in a lapse in programs, which arguably is an undesirable outcome absent Commission rejection or modification to the Application. Therefore, Staff made its best attempt to provide a complete and accurate as possible review of the Application. Should the Commission determine it is appropriate to approve KCPL/GMO's MEEIA Cycle 3, Staff recommends that the Commission only approve a MEEIA Cycle 3 that starts as soon as practicable and ends December 31, 2021. This will allow MEEIA Cycle 3 to track with KCPL/GMO's triennial IRP filings, allowing the Commission to be fully informed for consideration of any MEEIA Cycle 4.

In their respective applications as filed in November 2018, KCPL and GMO seek approval of various demand-side programs, program budgets, annual energy and demand savings targets, a Technical Resource Manual ("TRM"), a plan for evaluation, measurement and verification ("EM&V") of annual energy and demand savings, and a Demand-Side Programs Investment Mechanism ("DSIM"). KCPL and GMO propose a MEEIA Cycle 3 Plan ("MEEIA Cycle 3" or "MEEIA Cycle 3 2019-2022") with recovery of program costs, throughput disincentive ("TD") and earnings opportunity ("EO") similar to the recovery mechanism approved for their MEEIA Cycle 2 plan.[3] Most of the programs were proposed to cover the period April 1, 2019, through March 31, 2022, but the Income-Eligible Multi-Family ("IEMF") program was proposed to run through March 31, 2025.[4] KCPL/GMO also requests variances from various Commission rules.

The Companies propose to invest $96.3 million to achieve 185.9 MW of capacity reduction and 343.7 GWh of first year annual energy savings.[5] The Companies anticipate the portfolio will generate $152 million in net present value of net benefits for customers.[6]

As will be discussed more fully throughout this Report, the Application identifies the following elements to MEEIA Cycle 3: 1) recovery of program costs and offset of the throughput

[3] See Case Nos. EO-2015-0240 and EO-2015-0241.

[4] The current implementation and end dates for the Companies MEEIA Cycle 3 are unknown.

[5] Page 13 of MEEIA Cycle 3.

[6] Page 19 of MEEIA Cycle 3 indicates successful implementation of DSM programs could bring gross benefits from energy and capacity over anticipated program life on a net present value basis of approximately $118.4 million for KCPL and $130.7 million for GMO (or approximately $250 million for KCPL/GMO). Benefits less program costs, or net benefits, would be $74 million for KCPL and $78 million for GMO (or approximately $152 million for KCPL/GMO).

disincentive at the same time energy efficiency investments are made; and 2) an opportunity to earn an incentive amount based primarily upon demand savings and energy savings which are measured and verified through EM&V.

In this Report, Staff not only reviews the Application as filed in November 2018, but also provides an analysis of the Application under MEEIA, Commission rules and prior Commission orders.

MEEIA states, "It shall be the policy of the state to value demand-side investments equal to traditional investments in supply and delivery infrastructure and allow recovery of all reasonable and prudent costs of delivering cost-effective demand-side programs."[7]

MEEIA also states, "[r]ecovery for such programs shall not be permitted unless the programs…are beneficial to all customers in the customer class in which the programs are proposed, regardless of whether the programs are utilized by all customers."[8]

In response to these two key policy directives, Staff provides an analysis of KCPL, GMO and KCPL/GMO avoided costs and avoided cost benefits; the cost-effectiveness of the various proposed Cycle 3 programs, energy and demand savings targets, customer participation; and the various financial components, including program costs, TD and EO. Staff also discusses issues with the design of the proposed demand-side programs and makes recommendations related to those programs. For instance, it is Staff's understanding that KCPL/GMO has or is working on at least three tools that provide similar information to the customer about their usage and ways the customer can reduce or shift their energy use. It is not clear to Staff which of the tools are recovered in base rates and which, other than the Home Energy Report, may be recovered through MEEIA. Additionally, KCPL/GMO has not indicated how the utilization of information from Automated Meter Infrastructure meters will benefit the evaluation of savings from these tools as well as other measures.

Staff acknowledges there are inherent public policy reasons to support continuation of MEEIA; however, Staff's analysis of the Application demonstrates that KCPL/GMO's MEEIA Cycle 3 does not meet the MEEIA statutory requirements, specifically that: 1) programs provide benefits to all customers in the customer class, regardless of participation; and 2) electric utilities

[7] Section 393.1075.3, RSMo.

[8] Section 393.1075.4, RSMo.

value demand-side investments equal to traditional investments in supply and delivery infrastructure in delivering cost-effective demand-side programs. In addition, some of KCPL/GMO's own analysis shows that certain programs are not cost-effective. Staff, therefore, recommends the Commission reject the Application.

Staff suggests the Commission could indicate it is open to further review of the Application if it were restructured to address Staff's concerns and to meet the statutory requirements. This may be accomplished if KCPL/GMO submitted a new Application that focuses on low-income programs, education programs not including Home Energy Reports, and restructured demand response programs.

Should the Commission determine it is appropriate to approve the proposed MEEIA Cycle 3 Application as filed in November, 2018, Staff recommends the Commission modify the Application to incorporate the additional recommendations and conditions contained in Section IV of this Report.

Staff Expert/Witness: Natelle Dietrich

II. Staff Analysis

A. Customer Perspective

i. Customer Experience

KCPL/GMO has not demonstrated that proposed demand-side programs are beneficial to all of its customers or even preferred by its customers. Staff attempted to understand what customers experience as both participants and non-participants. Staff requested a sample of surveys conducted by KCPL/GMO evaluators in hopes that by looking at the types of questions and responses from various customer surveys, Staff could better understand and determine what motivates customers to participate in energy efficiency programs. In response to Staff DR Nos. 0093, 0094, 0040 (0133), and 0041 (0133), KCPL/GMO indicated "data provided is considered CONFIDENTIAL as it contains marketing analysis, market specific, or customer information relating to services offered in competition with others, and information concerning trade secrets, as well as private, technical, financial and business information. Disclosure of this data could adversely affect customers' propriety information and operations, and the Company's ability to effectively implement and administer energy efficiency programs." Staff followed up

with KCPL/GMO and requested that a sample of surveys be requested from the evaluators. KCPL/GMO indicated a request was made and they would provide a sample; however, this information was not provided to Staff. The summary information included in the EM&V reports referenced in the Staff Data Request responses did not ask questions about customer preferences or about any programs in which customers may be interested in participating in the future.

KCPL/GMO provided Appendix 8.8 titled Customer Research as an attachment to the MEEIA Cycle 3 2019-2022 filing. An internal group within KCPL/GMO conducted the research in this section. According to Appendix 8.4[9] "newly developed customer journey mapping techniques that documents each programs' processes, customer engagement points, and key performance indicators, as well as documents the experience from the customer's viewpoint" were conducted. This mapping was used as part of the EM&V for Cycle 2 programs. On December 21, 2018, Staff requested the customer journey maps in its DR Nos. 0102 and 0049 for KCPL and GMO, respectively. Staff received these maps on January 14, 2019. The customer journey maps identified challenges for both trade allies and customers. In Staff's opinion, these journey maps are helpful in identifying areas where customer confusion may exist on how programs work and on rebate details. Recommendations were made by the KCPL/GMO research group, which include process improvements and improved marketing and information to customers. Staff recommends KCPL/GMO utilize the customer feedback received from the mapping techniques to improve program implementation and marketing.

KCPL/GMO indicated in its filing it is considering "Fast Feedback Surveys" going forward, to survey participating customers on a consistent, rolling basis immediately after they participate. [10] By conducting these surveys on an ongoing basis, KCPL/GMO claims to receive more timely and accurate feedback and says it can use this information to guide program operations and potential adjustments. Fast feedback surveys evaluate topics such as customer satisfaction with the program, the quality of information provided, baseline assumptions and the impact of rebates on customer decision making, including free ridership.[11]

[9] MEEIA Cycle 3 2019-2022 filing Appendix 8.4 – EM&V Plan and Timeline, p. 1.
[10] MEEIA Cycle 3 2019-2022 filing Appendix 8.4 – EM&V Plan and Timeline, p. 1.
[11] MEEIA Cycle 3 2019-2022 filing Appendix 8.4 – EM&V Plan and Timeline, p. 1.

According to Appendix 8.4,[12] KCPL/GMO commits to working with the EM&V contractor and stakeholders to identify opportunities to conduct innovative, targeted research to enhance evaluation and improve overall portfolio and specific program designs and processes. This may include utilizing the EM&V contractor to identify "opportunities to improve tracking of data, energy modeling and secondary research of other applicable evaluation or studies completed."[13] It may also include "conducting supplemental research to identify best performance by comparable utilities. The EM&V contractor's research may include identifying best performing program or portfolios, along with providing its experience and understanding of best practices obtained from other portfolio evaluation if/as available."[14] KCPL/GMO further commits to conduct additional research as requested. "Requests for additional research throughout the program year can be identified and made by the KCP&L, the stakeholder group and/or the EM&V contractor. Reallocation of some funds from standard verification work may be necessary to support this effort."[15]

KCPL/GMO provided in Appendix 8.2[16] many of the barriers for participation, which include but are not limited to: customer knowledge on benefits of efficient products, quickly changing technologies, customer understanding, perceived high initial costs, limited contractor knowledge or experience in energy efficiency, product replacement only on failure, and lack of financial incentive. Similar information can be found in Appendix 8.8.

In responses to Staff DR Nos. 0095 and 0042 for KCPL and GMO, respectively, KCPL/GMO indicated that the DSM Potential Study is the foundation and guidepost to savings and spend values. Other sources help shape the portfolio and are considered in the ultimate program portfolio. Current programs' EM&V of participants and current program participation results help identify and validate what attributes of existing programs are working and which programs should be continued or abandoned. Industry subject matter experts and consultants provide insight into trends in technology and offerings across the country. Implementation contractors and DSM service providers provide insight into what program attributes are

[12] MEEIA Cycle 3 2019-2022 Filing Appendix 8.4 – EM&V Plan and Timeline, pp. 1 - 2.
[13] MEEIA Cycle 3 2019-2022 Filing Appendix 8.4 – EM&V Plan and Timeline, p. 2.
[14] MEEIA Cycle 3 2019-2022 Filing Appendix 8.4 – EM&V Plan and Timeline, p. 2.
[15] MEEIA Cycle 3 2019-2022 Filing Appendix 8.4 – EM&V Plan and Timeline, p. 2.
[16] MEEIA Cycle 3 2019-2022 Filing Appendix 8.2 – Detailed Program Descriptions.

reasonable and feasible to execute and drive participation. Supplemental customer feedback regarding potential customer offerings is used to refine attributes, price points, and marketing messages. Although Staff agrees these criteria should all be considered, Staff recommends that KCPL/GMO continue working with the evaluators and program implementers to collect additional data on customer participation and preferences through survey results or focus groups to help determine what customers want and in what programs they may be willing to participate. KCPL/GMO should analyze and track survey information and work with the evaluators and implementers to continually improve survey instruments. KCPL/GMO should continue educating customers of all income levels on what programs are available to them. Program effectiveness will benefit from research that captures customer preferences and experiences.

KCPL/GMO indicated in their filing[17] they would be using more technology-enabled solutions to engage with customers. In responses to Staff DR Nos. 0084 and 0038 for KCPL and GMO, respectively, KCPL/GMO stated, "The implementation of new technologies and data resources (referenced on page 28) will allow the Company to improve and advance our outreach, education, and marketing capabilities to provide more personalized communication and marketing and help reach customers at the right time, with the right product." Staff recommends KCPL/GMO continue to incorporate and improve its outreach, education, and marketing capabilities to reach ***all*** customers.

ii. Data Collection and Technology-Enabled Solutions

Staff recommends KCPL/GMO continue working with the evaluators and implementers to collect information on customer preferences, desired programs, or measures and barriers that may keep customers from participating in programs. Appendix 8.8[18] includes some research conducted internally; however, the majority of sample sizes were small[19] for the researched programs. Data collected through program evaluation should include income level, rental versus owner status, multifamily versus single family, and zip code. Demographic information can help with program design and marketing and outreach strategies.

[17] MEEIA Cycle 3 2019-2022 Filing, p. 28.

[18] MEEIA Cycle 3 2019-2022 Filing, Appendix 8.8 Customer Research.

[19] Sample size one to eight surveyed with the majority sample size of three.

Data should also be collected on participants and non-participants. The research in Appendix 8.8[20] was conducted on program participants only. Additional data collection would enable KCPL/GMO to assess which programs are beneficial to different segments of customers and especially to customers that may be experiencing high energy burdens.[21] "The median energy burden is 3.3% for all U.S. households, 3.1% for metropolitan households, and 4.4% for rural households."[22] Tracking this data and including this information in future applications would be helpful to determine which programs most customers would prefer and would help determine customer eligibility for programs. The data collection and tracking would help with marketing and development of programs designed to benefit all customers and potentially increase participation in all segments. Staff recommends KCPL/GMO continue to incorporate and improve its outreach, education, and marketing capabilities to reach ***all*** customers.

iii. Economic Impact from Job Creation

KCPL/GMO anticipates there would be approximately 14 full-time employees ("FTEs") to implement and deliver DSM programs in Missouri service territories.[23] In responses to Staff DR Nos. 0085 and 0039 for KCPL and GMO, respectively, KCPL/GMO asserts that a job in Missouri as a function of the MEEIA programs creates value to customers because it is a local job. Further the more money spent locally will have both direct and indirect impact. KCPL/GMO provided, as an attachment in response to Staff DR Nos. 0085 and 0039 for KCPL and GMO, respectively, an American Council for an Energy-Efficient Economy ("ACEEE") fact sheet that includes an analysis on how energy efficiency creates jobs. According to the analysis performed by ACEEE, KCPL/GMO concluded, "These positions in Missouri are a positive impact to the state economy and therefore impact both participants and non-participants equally." ACEEE states, ". . . energy efficiency generates energy bill savings over the life of the investment, which

[20] MEEIA Cycle 3 2019-2022 Filing, Appendix 8.8 Customer Research.

[21] As defined by Energy Efficiency For All and American Council for an Energy Efficient Economy, energy burden is the percentage of gross household income spent on energy bills. Ariel Drehobl and Lauren Ross, Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities, April 2016, p. 7.

[22] Lauren Ross, Ariel Drehobl, and Briand Stickles, The High Cost of Energy in Rural America: Household Energy Burdens and Opportunities for Energy Efficiency, Energy Efficiency for All and American Council for an Energy Efficient Economy, July 2018, p. 15.

[23] MEEIA Cycle 3 2019-2022 Filing, p. 25.

frees up funds to support more jobs in the economy by shifting jobs in the energy generation and distribution industries . . . to jobs in all other industries."[24]

iv. Societal Benefits and Attitudes toward Energy Efficiency Programs

In general, customers appear to want energy efficiency programs. Research indicates there are benefits attributed to energy efficiency. Societal benefits include improved health and safety, investment in the local economy, and local job creation. Participant benefits include reduced risk of utility rate increases and reduced costs associated with arrearages and shutoffs. "Energy efficiency not only impacts energy affordability through lower bills but can also lead to improvements in household health. Energy efficiency upgrades in homes can reduce triggers of respiratory illnesses, such as mold exposure to cold air or sudden temperature changes, air pollution, and pollen (Mayo Clinic 2018)."[25] Although Staff is not an expert on all benefits associated with energy efficiency programs, and non-energy benefits are difficult to quantify, studies recognize there are societal benefits to energy efficiency.

According to ACEEE, ". . . participants are likely to benefit most from energy efficiency programs. They receive the immediate benefits of bill reductions, improved comfort, higher home or business value, and others."[26] Participants must also invest time and take full advantage of financial incentives or technical assistance and they must incur the often costly out-of-pocket expenses.[27] "Energy efficiency's multiple benefits are large and varied. Efficiency program stakeholders almost always concede that multiple benefits exist, but problems remain with detection, measurement, and documentation of those benefits."[28] There are opportunities for additional data development regarding benefits and participation.

[24] Data Response Attachment 0085 (0132) and 0039 (0133), American Council for an Energy-Efficient Economy.

[25] Lauren Ross, Ariel Drehobl, and Briand Stickles, The High Cost of Energy in Rural America: Household Energy Burdens and Opportunities for Energy Efficiency, Energy Efficiency for All and American Council for an Energy Efficient Economy, July 2018, p. 10.

[26] Brendon Baatz, Everyone Benefits: Practices and Recommendations for Utility System Benefits of Energy Efficiency, American Council for an Energy Efficient Economy, June 2015, p. 1.

[27] Brendon Baatz, Everyone Benefits: Practices and Recommendations for Utility System Benefits of Energy Efficiency, American Council for an Energy Efficient Economy, June 2015, p. 1.

[28] Christopher Russell, Brendon Baatz, Rachel Cluett and Jennifer Amann, Recognizing the Value of Energy Efficiency's Multiple Benefits, American Council for an Energy Efficient Economy, December 2015, p. 41.

While most customers recognize the benefits to investing in energy efficiency, their willingness and ability to pay for benefits varies. According to a survey conducted by Greentech Media,[29] a large percentage of consumers expressed interest in some type of smart-grid[30] offering; however, actual participation rates are low. In all the segments that were surveyed, one in five customers participated in at least one utility program and thirteen percent have used at least one smart-grid enabled product. The highest participation occurred in online billing and payment (40 percent), energy-use comparison tools (9 percent), and smart thermostats (9 percent). The survey results reveal the biggest obstacle in trying to increase participation is that technologies can be complex and expensive. Further, a large portion of those who may wish to participate are unable to do so without additional disposable income to afford the upfront investment. "Millennials represent one of the biggest opportunities for electricity-sector stakeholders."[31] The survey found the cost to participate in energy efficiency for a large number of millennials, in addition to many being renters, can be large barriers in adopting energy efficiency. Customer education and the ability to offer attractive programs may be more easily accomplished if more in-depth surveys are conducted and data is collected to determine what customers want and in what programs they are willing to participate. There is an opportunity for industry stakeholders to educate consumers and provide incentives that help encourage participation.

Customer satisfaction may improve with energy efficiency offerings. "Survey data suggests that energy efficiency programs contribute significantly toward customer satisfaction. The desire to improve customer satisfaction can motivate utilities to offer or expand energy

[29] Julia Pyper, Survey: What Electricity Customers Really Want, Greentech Media, https://www.greentechmedia.com/articles/read/survey-what-electricity-customers-really-want#gs krzU9mU, June 09, 2017, pp. 3-4.

[30] https://www.techopedia.com/definition/692/smart-grid, January 22, 2019. A smart grid is an electricity network based on digital technology that is used to supply electricity to consumers via two-way digital communication. This system allows for monitoring, analysis, control and communication within the supply chain to help improve efficiency, reduce energy consumption and cost, and maximize the transparency and reliability of the energy supply chain. The smart grid was introduced with the aim of overcoming the weaknesses of conventional electrical grids by using smart net meters.

[31] Julia Pyper, Survey: What Electricity Customers Really Want, Greentech Media, https://www.greentechmedia.com/articles/read/survey-what-electricity-customers-really-want#gs krzU9mU, June 09, 2017, pp. 3-4.

efficiency programs. Utilities can expand energy efficiency programs to increase customer satisfaction."[32]

> Customers who understand that they have access to tools to help them manage their overall bills would logically be more satisfied than customers who don't know how or where to find help. In a time of increased upward pressure on utility rates, giving people assistance in managing bill through energy efficiency should be an important motivation to regulators and utilities. [33]

Utilities should increase customer awareness of existing energy efficiency programs. Increasing customer awareness and helping customers feel like they have more control over their utility bills would help to increase customer satisfaction.

Staff Expert/Witness: Tammy Huber

B. Avoided Costs (Section 393.1075.3 – value demand-side investments equal to traditional investments in supply and delivery infrastructure)

i. Definition of Avoided Cost

By definition, an "avoided cost" presumes that absent another investment, a cost would actually be incurred by the utility. KCPL's and GMO's proposed MEEIA Cycle 3 portfolios are based upon the assumption that avoided costs will provide customer savings through a decrease in the revenue required to provide safe, reliable and efficient electric service at just and reasonable prices. The avoided cost assumptions drive the benefits for all of the cost-effectiveness tests for all of the programs that have been proposed in the Application. KCPL's and GMO's basis for these decreases to their respective revenue requirements contain several fundamental flaws that attempt to artificially attribute avoided capacity cost savings for all demand-side measures even when there will not be actual avoided capacity cost savings for

[32] Katrina Pielli, Larry Mansueti, Joe Bryson, Impacts of Energy Efficiency Programs on Customer Satisfaction, Technical Brief State & Local Energy Efficiency Action Network, https://www4.eere.energy.gov/seeaction/system/files/documents/ratepayer_efficiency_customersatisfaction.pdf, October 2011, p. 1.

[33] Katrina Pielli, Larry Mansueti, Joe Bryson, Impacts of Energy Efficiency Programs on Customer Satisfaction, Technical Brief State & Local Energy Efficiency Action Network, https://www4.eere.energy.gov/seeaction/system/files/documents/ratepayer_efficiency_customersatisfaction.pdf, October 2011, p. 2.

many years. KCPL and GMO did not apply avoided costs correctly in their Applications. According to 4 CSR 20.092 (1)(C) avoided costs are defined as:

> (C) Avoided costs or avoided utility costs means the **cost savings obtained by substituting demand-side programs for existing and new supply-side resources**. Avoided costs include avoided utility costs resulting from demand side programs' **energy savings and demand savings associated with generation, transmission, and distribution facilities including avoided probable environmental compliance costs**. The utility shall use the integrated resource plan and risk analysis used in its most recently adopted preferred resource plan to calculate its avoided costs; [Emphasis added.]

This rule[34] hinges on the presumption that absent demand-side programs the utility would have to invest in a new supply-side resource or continue to invest in existing supply-side resources in order to adequately serve customer needs. Thus, it is presumed the utility is able to avoid costs, through MEEIA, that would have to be incurred absent demand-side investments, which could provide value as a reduction in the revenue requirement. Staff first informed the Commission that KCPL did not comply with this rule in its Staff Report on KCPL's 2018 integrated resource plan triennial compliance filing ("2018 IRP").[35] As discussed in more detail in this Report's Section II.C.i. - 2018 IRP Deficiencies and Concerns, Staff's Deficiency 2[36] and Concern B[37] for KCPL's 2018 IRP were not addressed by KCPL in the Application and, therefore, remain unresolved.

In the Application, KCPL and GMO provide the following statement of good cause regarding their variance request for 4 CSR 240-20.092(1)(C):

> While we have always interpreted this rule to mean the methodology for calculating avoided costs and therefore shared benefits would be consistent with the most recently filed IRP at the time of the MEEIA

[34] 4 CSR 20.092 (1)(C).

[35] EO-2018-0268 for KCPL.

[36] Deficiency 2: KCPL's use of $** ___ ** per kW year (2015 dollars) drastically overstates KCPL's avoided capacity cost of generation, transmission, and distribution facilities, adjusted to reflect reliability reserve margins and capacity losses on the transmission and distribution systems, because Plan KAAHA (No DSM) includes no new supply-side resources during the entire 20-years of the planning horizon in violation of rule 4 CSR 240-20.092(1)(C).

[37] "Concern B: Because KCPL's demand-side programs do not defer any non-renewable supply-side resources during the 20-year planning horizon, it is expected that there will be little, if any, benefits for customers who do not participate in the programs, resulting in programs which may be in violation of Sections 393.1075.3 and .4, RSMO."

> filing, out of an abundance of caution, this variance is being requested. Good cause exists for the request as it adds another layer of uncertainty that further discourages our company from its ability to support the state policy to value demand-side sources and supply resources equivalently.

Because Staff's Deficiency 2 and Concern B in KCPL's 2018 IRP remain unresolved, Staff supports a variance from only the following portion of the rule:

> The utility shall use the integrated resource plan and risk analysis used in its most recently adopted preferred resource plan to calculate its avoided costs.

Staff recommends rejection of the variance request from the remaining requirements of 4 CSR 240-20.092(1)(C) for all the reasons provided in this section of this Report. Merely granting a variance of a Commission rule does not alleviate the statutory requirements that are at the root of Staff's concerns. Consequently, granting such a variance could result in approval of programs that are not actually cost-effective because the avoided costs would never actually be realized by customers. Such programs would be in direct conflict with Section 393.1075.3 RSMo and Section 393.1075.4 RSMo. In contrast, Staff views the variance requested by KCPL and GMO to delay their respective IRP annual updates to be an appropriate request given the disagreement between Staff and KCPL/GMO regarding avoided cost methodology. The avoided cost inputs heavily influence the outcome of the modeling analysis that will be performed in the annual update as well as the benefits to customers regardless of participation and cost-effectiveness of programs. Until the Commission determines the appropriate avoided cost methodology, the IRP modeling analysis is unlikely to provide reliable results.

As discussed in further detail in Report Section II.B.ii. - Southwest Power Pool ("SPP") Resource Adequacy Requirements, KCPL and GMO fulfill SPP's resource adequacy requirements using the aggregated generation capacity of the two companies.[38,39] For this reason, Staff has analyzed the proposed KCPL and GMO MEEIA Cycle 3 portfolios based on an

[38] Section 3.2(6) of Attachment AA to SPP Open Access Transmission Tariff.

[39] Since SPP allows KCPL and GMO to aggregate their generation assets to meet the KCPL/GMO projected peak load requirements, KCPL/GMO currently meet the SPP resource adequacy requirements as one entity. If KCPL/GMO's combined capacity position exceeds the resource adequacy requirements, then neither KCPL nor GMO customers can realize an avoided capacity cost.

aggregated capacity position. Due to this aggregation of assets, absent any MEEIA Cycle 3 demand-side programs, KCPL/GMO does not need to invest in additional supply-side resources until 2033[40] and 2036[41] on a combined basis. In 2033, the estimated peak demand savings from measures installed as a result of the proposed KCPL/GMO MEEIA Cycle 3 is only 9 MW on a combined basis. By 2036, the KCPL/GMO estimated peak demand impact resulting from the proposed KCPL/GMO MEEIA Cycle 3 is only 2 MW. According to the joint plan results provided in Appendix 8.11 of the filing, KCPL/GMO will need to invest in those same supply-side resources in 2033 and 2036 regardless of the implementation of the proposed MEEIA Cycle 3 portfolios. Therefore, no supply-side investments are avoided by KCPL/GMO through implementation of MEEIA Cycle 3. At this point in time, customers incurring program costs, earnings opportunity and throughout disincentive related to MEEIA Cycle 3 is unnecessary for KCPL/GMO to provide safe and adequate service, especially given the need to invest in one combustion turbine ("CT") in 2033 and another in 2036 regardless of whether or not the MEEIA Cycle 3 programs are implemented. The currently proposed MEEIA Cycle 3 portfolios include substantial customer investment in demand-side resources with no effect on necessary supply-side resource investments. If, in the future, the companies are required by SPP to meet the resource adequacy requirements separately, KCPL would not need to invest in additional supply-side resources during the 20-year IRP planning horizon and GMO would need to invest in additional supply-side resources upon completion of the 5-year bilateral contract with KCPL (see Report Section II.B.ii. - SPP Resource Adequacy Requirements).

The rule[42] establishes three fundamental avoided utility costs that may result from demand-side programs' energy and demand savings: 1) avoided energy and demand savings associated with supply-side investment, 2) avoided investment in transmission and distribution facilities, and 3) avoided probable environmental costs. KCPL/GMO produced data sets for avoided energy costs and avoided capacity[43] costs in the most recent triennial compliance filings in Case Nos. EO-2018-0268 and EO-2018-0269. Except for avoided energy costs savings,

[40] 207 MW Combustion Turbine.

[41] 207 MW Combustion Turbine.

[42] 4 CSR 20.092 (1)(C).

[43] The avoided capacity costs include transmission interconnection expenses.

KCPL/GMO has overstated and inappropriately applied avoided costs as benefits attributable to demand-side resources. Staff explains why KCPL/GMO's proposed avoided capacity costs should not be monetized benefits in Report Section II.B.iii. - Avoided Capacity Cost.

ii. SPP Resource Adequacy Requirements

KCPL/GMO fulfills SPP's resource adequacy requirements using the aggregated generation capacity of the two companies. Section 3.2(6) of attachment AA to the SPP Open Access Transmission Tariff states that:

> A Market Participant may aggregate the forecasted Peak Demand of multiple LREs[44] whose load assets are served by a common set of Designated Resources or a Firm Power transaction between the LREs. In such case, the Market Participant shall be considered the LRE for the aggregated demand and, for purposes of compliance with this Attachment AA, the Market Participant's forecasted Peak Demand shall be used to calculate a single Resource Adequacy Requirement for the aggregated load assets.[45]

KCPL and GMO currently meet the SPP resource adequacy requirements on a combined basis and plan to do so on a going-forward basis.[46] According to the response to Staff DR No. 0103:

> For the 2018 SPP Resource Adequacy Reporting requirements, KCPL & GMO began to report their information on a combined basis. Prior to that time, the utilities filed separate reporting and met the requirements on stand-alone basis.[47] However, the two utilities still meet the reserve margin requirements on a stand-alone basis in their planning processes. GMO generally plans to meet its capacity shortfalls via purchases from the market place or via capacity additions in a least cost manner. GMO has entered into a five-year firm capacity purchase from KCPL following a competitive bidding process to meet most of its projected needs at the time the contract was negotiated. If additional capacity is needed, it is expected that the GMO will procure additional capacity as needed.

On June 5, 2018, KCPL and GMO agreed on a ** _____ _____ . ** At this time, it does not appear that the KCPL-contracted

[44] Load Responsible Entity.

[45] Response to Staff DR No. 0052.

[46] Response to Staff DR No. 0053.

[47] Response to Staff DR No. 0103.

capacity is necessary to meet the GMO capacity shortfall given the SPP treatment of the combined generating assets and load projections of KCPL/GMO. According to KCPL/GMO, ** _____ _____ _____ **[48]

SPP is not requiring GMO to meet the resource adequacy requirement on a stand-alone basis. If SPP were to require GMO to meet the resource adequacy requirement on a stand-alone basis, then an avoided capacity cost would be appropriate for evaluation of GMO demand-side portfolios. However, that is not the case in this instance.

iii. Avoided Capacity Cost

An avoided capacity cost attributed to the proposed demand-side portfolio assumes that absent a demand-side programs, a supply-side capacity cost would actually be incurred by the utility. KCPL/GMO contends that there is an avoided capacity cost associated with each kW saved by MEEIA Programs. However, a capacity cost cannot be avoided if an investment is not necessary. While it is possible for a utility to realize avoided capacity costs whenever it needs capacity to meet its customers' needs or to meet RTO resource planning requirements, KCPL/GMO has no current capacity needs for the combined utility. KCPL/GMO only projects to have capacity needs beginning in 2032 which would need to be met through investment in a combustion turbine ("CT") in 2033 and another CT in 2036[49,50] regardless of implementation of MEEIA Cycle 3; therefore, KCPL/GMO will not avoid an investment in supply-side resources during the 20-year planning horizon as a result of its proposed MEEIA Cycle 3 on a combined basis.

KCPL/GMO's current capacity position exceeds the needs of its combined customers and the resource adequacy requirements of SPP. Therefore, KCPL/GMO should have assumed an avoided capacity cost equal to zero for demand savings associated with demand-side resources associated with MEEIA Cycle 3 portfolios in all years in which KCPL/GMO have capacity in excess of the SPP resource adequacy requirements.

[48] Response to Staff DR No. 0130. Staff has not addressed the prudency of this transfer of revenue in this case but may address it in future cases.

[49] Or continuous implementation of subsequent MEEIA Cycles.

[50] See Table 1 below.

The first year that KCPL/GMO will have a projected capacity need to meet SPP requirements is in year 2032 when KCPL/GMO needs 15.5 MW to address the SPP resource adequacy requirement. The KCPL/GMO MEEIA Cycle 3 projected peak demand savings in 2032 is 14.8 MW; however, even when assuming the IRP and MEEIA projections are completely accurate, which is highly unlikely, KCPL/GMO would still be required to make additional capacity purchases in 2032. Since KCPL/GMO will need to invest in a new supply-side resource in 2033 regardless of the MEEIA Cycle 3 programs being implemented, MEEIA Cycle 3 will not yield any benefits to customers from avoided capacity costs with the exception of minimal potential avoided capacity purchases in 2032.

For an overall cost, over the next 3 years, of over $97 million, KCPL/GMO customers could potentially realize a ***minimal*** avoided capacity cost equal to the market value of capacity for 14.8 MW ***in 2032***. Recent responses to GMO's request for proposals for capacity contracts indicated that short term capacity purchase prices range from ** _____ _____ **[51] which would be much less expensive than the proposed MEEIA programs especially considering the net present value of the cost to purchase capacity in 2032. If the market for capacity remains stable, the cost to purchase 15.5 MW of capacity to meet SPP resource adequacy requirements in 2032 could be as low as ** _____.[52]**

Table 1 below is an excerpt from Staff's workpaper that demonstrates the capacity position of KCPL/GMO in years 2031-2037. KCPL/GMO exceeds the resource adequacy requirements of SPP in 2019-2031 and 2033-2037 with the addition of the necessary supply-side resources.

Table 1 - ** _____ [53]

**

[51] Response to Staff DR No. 0002 in Case No. EO-2019-0133.

[52] ** _____ **

[53] Table based on response to Staff DR No. 0061.

Contrary to the rule requirement,[54] KCPL/GMO is not substituting demand-side programs for existing and new supply side resources to meet its current capacity needs. Rather, KCPL/GMO proposes to add demand-side resources without the potential to defer a supply-side resource, and ignores how a lack of need or actual avoided costs impacts the earning opportunity, benefits customers regardless of participation, and affects the overall cost effectiveness of the portfolio.

To determine the cost-effectiveness of the proposed programs in the KCPL/GMO application, KCPL/GMO assumed an avoided capacity cost equal to the levelized cost to build a new generation asset[55], which is often referred to as the cost of new entry ("CONE"). This methodology was first introduced by KCPL/GMO in Case Nos. EO-2015-0240[56] and EO-2015-0241.[57] Within the MEEIA Cycle 2 filings, KCPL/GMO provided reasoning for using a single value of avoided capacity costs based on CONE for all years. The following excerpt is from page 47 of the KCPL – MEEIA Cycle 2 filing:

> This method most strongly focuses on the long-term value of demand-side resources in the planning process. An example is the "Idaho Power 2011 IRP Appendix C":
>
> > The marginal resource Idaho Power is trying to avoid with DSM efforts for summer on peak hours is the construction of a simple cycle combustion turbine. The estimated levelized capacity cost of building a new SCCT is approximately $94 per kW over a 30-year expected plant life. For demand response or direct load control DSM programs operating during the summer peak, the $94 per kW becomes the cost threshold for program cost-effectiveness.[58]

The 2011 Idaho Power Integrated Resource Plan, relied upon as justification for the KCPL/GMO avoided capacity methodology, is based upon the preferred resource portfolio for Idaho Power, which included a near-term construction of a 300 MW combined cycle and an additional

[54] 4 CSR 240-20.092 (1)(C).

[55] Page 69 of the MEEIA Cycle 3 2019-2022 Filing.

[56] Kansas City Power & Light Company – Missouri MEEIA Cycle 2 2016-2018 Filing.

[57] KCP&L Greater Missouri Operations Company MEEIA Cycle 2 2016-2018 Filing.

[58] Note: the footnote in the original filing cites a web link to the appendix that is no longer active. Staff provides the following as a current link to the same appendix. See Page 67:
http://www.puc.idaho.gov/fileroom/cases/elec/IPC/IPCE1111/20110701APPENDIX%20C%20-%20TECHNICAL%20APPENDIX.PDF.

450 MW of market purchases.[59] In 2011, Idaho Power projected a near-term capacity shortfall even with the assumed reductions in load attributed to DSM.[60] This method of estimating avoided capacity costs at the level of CONE may be appropriate when a utility is short on its capacity balance sheet because each MW saved can reduce the size of a necessary investment. However, the methodology is not appropriate when a company has no capacity shortfall and cannot defer investment in a potential supply-side resource as is the situation demonstrated by the integrated resource analysis provided by KCPL/GMO in Appendix 8.11 of MEEIA Cycle 3 2019-2021. As shown in the tables below,[61] investment in MEEIA Cycle 3 has no effect on necessary supply-side resource investments for KCPL/GMO in the 20-year planning horizon.

Table 2 - KCP&L/KCP&L-GMO Joint Plan Results Without CO2 Restrictions

Rank (L-H)	Plan	NPVRR ($mm)	Delta	Retirements	Additions	DSM level
1	ARP8	$29,225	$0	No New Retirements	None	RAP-
2	ARP9	$29,311	$86	No New Retirements	207 MW CTs 2033,2036	MEEIA 3
3	ARP7	$29,313	$88	No New Retirements	207 MW CTs 2033,2036	MEEIA 2

Table 3 - KCP&L/KCP&L-GMO Joint Plan Results With CO2 Restrictions

Rank (L-H)	Plan	NPVRR ($mm)	Delta	Retirements	Additions	DSM level
1	ARP8	$30,423	$0	No New Retirements	None	RAP-
2	ARP9	$30,524	$100	No New Retirements	207 MW CTs 2033,2036	MEEIA 3
3	ARP7	$30,530	$106	No New Retirements	207 MW CTs 2033,2036	MEEIA 2

Absent an avoided investment in supply-side resources for SPP resource adequacy needs, costs are only potentially avoided in 2032 through the implementation of DSM as proposed by KCPL/GMO MEEIA Cycle 3. However, costs are incurred by all customers[62] through the DSIM for each MW reduction attributed to DSM without the potential to offset those costs through an avoided investment in supply-side resources. Therefore, KCPL/GMO should have assumed an

[59] Page 6 of Idaho Power 2011 Integrated Resource Plan.
http://www.puc.idaho.gov/fileroom/cases/elec/IPC/IPCE1111/20110630IRP%202011.PDF.

[60] Pages 22 through 65 of Idaho Power Integrated Resource Plan – Appendix C.
http://www.puc.idaho.gov/fileroom/cases/elec/IPC/IPCE1111/20110701APPENDIX%20C%20-%20TECHNICAL%20APPENDIX.PDF.

[61] Provided by KCPL/GMO on page 4 of Appendix 8.11 of the MEEIA Cycle 3 2019-2021 filing.

[62] With the exception of those customers that have the ability to opt out.

avoided capacity cost equal to zero dollars in years 2019 through 2031, the estimated market cost of capacity to serve the capacity deficit in 2032, and zero dollars from that point on for the MEEIA Cycle 3 program evaluation.

There are several reasons that the language within 4 CSR 240-22.010 (2)(A) is vital to appropriate long-term planning. First and foremost, the statutory requirement as written in Section 393.1075.3, states:

> 3. It shall be the policy of the state to **value demand-side investments equal to traditional investments in supply and delivery infrastructure** and allow recovery of all reasonable and prudent costs of delivering cost-effective demand-side programs. In support of this policy, the commission shall:
>
> (1) Provide timely cost recovery for utilities;
>
> (2) Ensure that utility financial incentives are aligned with helping customers use energy more efficiently and in a manner that sustains or enhances utility customers' incentives to use energy more efficiently; and
>
> (3) Provide timely earnings opportunities associated with cost-effective measurable and verifiable efficiency savings.
>
> [Emphasis added.]

Rule 4 CSR 240-20.092(1)(C) explicitly states that only those savings that are attributed to "substituting demand-side programs for existing and new supply-side resources" can be attributed as avoided costs. Costs associated with the capacity of generating units included in the KCPL and GMO portfolio are being accounted for and recovered in the current rates of KCPL and GMO.

As part of its Application, KCPL/GMO did not provide analysis that demonstrates the savings from substituting demand-side programs for existing and new supply-side resources. Instead, KCPL/GMO relied upon analysis that grossly overstates what the potential savings could be, which violates the fundamental objective of long-term resource planning as required by 4 CSR Chapter 22 by not analyzing demand-side resources, renewable energy, and supply-side resources on an equivalent basis. KCPL and GMO did not evaluate demand-side resources equal to supply-side resources as required by 393.1075.3 RSMo and 4 CSR 240-22.010 (2)(A). The fundamental objective of this rule requires the utility to:

> (A) Consider and analyze demand-side resources, renewable energy, and supply-side resources **on an equivalent basis**, subject to compliance with all legal mandates that may affect the selection of utility electric energy resources, in the resource planning process;
> [Emphasis added.]

By their own account, KCPL and GMO have not valued demand-side investments equal to traditional investments in supply and delivery infrastructure. In response to a Staff Data Request,[63] KCPL stated, "KCP&L did not model Alternative Resource Plans (ARPs) that delayed implementation of DSM resources. The capacity position (reserve balance) wasn't a factor in modeling the ten DSM options utilized in the fourteen ARPs."[64] Meanwhile, KCPL and GMO constrained supply-resources in the integrated analysis based upon their respective stand-alone capacity positions in relation to the SPP reserve margin as evidenced by the data request response below.

> If the reserve balance doesn't result in dropping below the [SPP] 12% reserve margin minimum, neither a PPA or other supply-side resource (i.e., CT's) are added.[65]

Demand-side investments are not being treated on an equivalent basis to traditional supply-side investments. In the Application, KCPL/GMO has indicated it will not invest in supply-side resources unless it has a capacity need relative to the SPP reserve margin requirements; yet, KCPL/GMO proposes demand-side portfolios at a point in time when the combined utility does not need any capacity to meet the needs of customers or SPP resource adequacy requirements for more than 13 years. Additionally, as described in more detail in Section II.D.i. of this Report, KCPL/GMO is requesting an earnings opportunity that greatly exceeds its most recently approved return on investment. However, there are differences in the "investments" receiving a return for supply side resources and MEEIA. For supply side resources, shareholders exist as a source of capital for the utility, in exchange for a future return on that capital investment, so the utility can make investments without contemporaneous recovery from customers. Through the proposed MEEIA programs, KCPL and GMO are proposing to recover the program costs,

[63] Response to Staff DR No. 0003.

[64] Given SPP treatment of KCPL/GMO for resource adequacy requirements, the statement should be applied to both KCPL and GMO.

[65] Response to Staff DR No. 0002.

throughput disincentive, and earnings opportunities contemporaneously from their respective customers, without any upfront capital required from shareholders. KCPL/GMO will need to invest the same amount of supply-side resources in 2033 for SPP resource adequacy requirements, whether it implements MEEIA Cycle 3 or not. Investment in demand-side resources regardless of SPP resource adequacy needs while appropriately constraining supply-side resource implementation based upon SPP resource adequacy needs conflicts with state policy to value demand-side investments equal to traditional investments in supply and delivery infrastructure.[66]

MEEIA Cycle 3 requires large known and verifiable costs in 2019 – 2021 but depends on highly variable and very uncertain purported benefits in later years to justify the programs and those associated costs. While Staff is not suggesting KCPL/GMO embark on speculative generation business activities, generally speaking, if a company built a supply-side resource in excess of need and the resulting investment was ultimately cost-effective, all customers would potentially benefit from the increased off-system sales revenues through lower base factor rates and the sharing mechanism of the Fuel Adjustment Clause ("FAC"). However, the same rationale does not follow through to the proposed demand-side programs. Implementing demand-side resources well in excess of need leads to a reduction in participant cost while increasing non-participant costs. Creating a detriment to non-participants is in direct conflict of the statutory requirement further discussed in Section II.C. of this Report regarding benefits to all customers.

KCPL and GMO have requested that the Commission allow each company to recover all their respective program costs, additional earnings opportunities,[67] and an assumed amount of revenue that could have been received[68] for implementing demand-side measures, regardless of cost effectiveness of the programs, absent any capacity need for KCPL/GMO in the short term and without supply-side deferral over the 20-year planning horizon. The table on page 7 of

[66] Section 393.1075.3 RSMo.

[67] These earnings opportunities are not lost earnings opportunities substantiated by calculations to comply with 4 CSR 240-2.092(4)(C)4.

[68] By KCPL's and GMO's calculations.

UPDATED Appendix 8.11 illustrates that MEEIA Cycle 3 is expected to result in $0 lost earnings opportunity for KCPL/GMO.[69]

In conclusion, the approach taken by KCPL/GMO in its treatment of demand-side investments and supply-side investments conflicts with the statutory requirement to value demand-side investments equal to traditional investments in supply and delivery infrastructure.

iv. Transmission and Distribution Avoided Cost

KCPL/GMO included transmission interconnection costs of an assumed generation asset within the calculation of the levelized fixed charge rate associated with the avoided capacity cost utilized to evaluate the demand-side portfolios. For the same reasons discussed in Report Section II.B.iii. - Avoided Capacity Cost, the inclusion of these interconnection costs as an avoided transmission cost is inappropriate based upon the KCPL/GMO capacity position in relation to the SPP resource adequacy requirements.

As a member of SPP, KCPL/GMO could avoid some SPP member costs. To the best of Staff's knowledge, the fees that could be avoidable through demand reductions are limited to SPP Schedule 11 fees, SPP Schedule 12 fees, and SPP administrative fees. However, KCPL/GMO has not designed the proposed programs to minimize SPP fees. In general, KCPL/GMO has designed the programs to potentially reduce overall peak load in MWs, but has not targeted the programs to reduce system peak during monthly zonal peaks, which drives the SPP fees. Due to the uncertainty of the MEEIA Cycle 3 programs actually reducing transmission costs over the IRP planning horizon[70] and the minimal potential for benefits when compared to program costs, Staff has not included any avoided transmission costs in its analysis of the KCPL/GMO Cycle 3 programs. Staff's quantification of potential Regional Transmission Organization ("RTO") fees that might be avoided from MEEIA Cycle 3 program implementation is included in Confidential Schedule JLr-1.[71]

KCPL/GMO did not include an avoided distribution cost component in its evaluation of cost-effectiveness of the proposed demand-side portfolios. Staff agrees with excluding this

[69] Page 7 of Updated Appendix 8.11 filed by KCPL/GMO in this docket on December 17, 2018.

[70] 2019 through 2038.

[71] Staff notes that savings are based upon the KCPL and GMO estimates for measure installations and that the savings from Residential Demand Response programs are overstated for the reasons explained in further detail in Section II.D.iv. of this report.

avoided cost because KCPL/GMO has not designed the demand-side programs in a manner that will "target" and defer specific investments in the transmission and distribution systems.

> Because KCPL's capacity reserve position is sufficiently adequate to meet SPP reserve obligations, supply-side capacity resource investments are not needed and therefore not affected by demand response events. At the MEEIA Cycle 3 level, demand response events do not affect transmission or and distribution system investments.[72]

** _____
_____
_____
_____ **[73] Distribution investments can be affected by targeted demand-side investment, and depending on the location, the avoided investment could be substantial. However, KCPL/GMO has not designed the proposed demand-side portfolios in a manner that would affect those investments and, therefore, it is appropriate to exclude avoided distribution costs when evaluating the MEEIA Cycle 3 portfolios. Furthermore, KCPL/GMO did not utilize the demand response programs approved in MEEIA Cycle 2 to affect distribution investments.[74] Without placing an emphasis on location as a consideration in the design of the demand-side portfolio, KCPL and GMO run the risk of causing more congestion on their respective transmission and distribution systems, which would result in added costs to their respective customers.

> It is possible that [business demand response (BDR)] program event could either increase or decrease congestion on the distribution system and the transmission system. Likewise, it is also possible that a BDR program event could increase or decrease the congestion component of a [locational marginal price (LMP)]. KCP&L has not conducted any analysis to determine whether or not such increases or decreases in congestion have occurred.[75]

KCPL/GMO does not appear to have designed the proposed portfolios in a way that will actually defer transmission and distribution system upgrades or, at least, minimize the upgrades necessary

[72] Response to Staff DR No. 0040.
[73] Response to Staff DR Nos. 0144 and 0145.
[74] Response to Staff DR No. 0039.
[75] Response to Staff DR No. 0038.

through targeted implementation. Furthermore, KCPL/GMO failed to conduct analysis to determine the effects of programs that do not account for location.

v. Potential Revenue through Capacity Sales

Staff recognizes that when a utility is long on capacity there are ways to derive potential revenues through bilateral contracts. Unlike the Midcontinent Independent System Operator ("MISO") of which Ameren Missouri is a member, SPP does not have a transparent capacity market. While sales of capacity may not constitute an avoided capacity cost, there are benefits to all customers resulting from the additional revenue stream that would flow through the respective company's FAC. There is a potential for revenue generated through bilateral contracts with non-affiliate utilities. ** _____ _____ _____[76] _____ _____ _____ ** Even if KCPL/GMO could find an entity to purchase all of the capacity attributed to peak demand savings from MEEIA Cycle 3 programs, the resulting revenue generated through a bilateral contract would likely be drastically less than the assumed value for avoided capacity cost proposed by KCPL/GMO. In short, the value of the capacity would be dependent on the amount of capacity sold to a non-affiliate and the price the non-affiliate agrees to pay for that capacity.

GMO has not responded to any request for proposals ("RFP") in the last 5 years.[77] ** _____ _____ _____ **[78]

vi. Summary of Avoided Cost Section

The inclusion of avoided costs without potential deferral of supply-side resources or targeted avoidance of investments in infrastructure severely inflates the value of demand-side resources and makes programs appear to be cost-effective, based upon savings that do not exist

[76] Response to Staff DR No. 0034.
[77] Response to EO-2019-0133 Staff DR No. 0004.
[78] Response to EO-2019-0133 Staff DR No. 0002.

and will not be realized by customers. KCPL/GMO should have assumed an avoided capacity cost equal to zero dollars in years 2019 through 2031, the estimated market cost of capacity to serve the capacity deficit in 2032, and zero dollars from that point on for the MEEIA Cycle 3 program evaluation.

Staff has assumed zero avoided capacity costs and zero avoided transmission costs for evaluation of the proposed MEEIA programs because the need for capacity for KCPL/GMO only potentially exists in 2032, SPP's current capacity position is currently very long compared to the Load Serving Entities load,[79] and the proposed programs are not guaranteed or designed to minimize SPP fees. Exclusion of these avoided costs results in far fewer programs being cost-effective as further discussed in Report Section II.D.i. - Cost Effectiveness.

Staff Expert/Witness: J Luebbert

C. Programs are not expected to provide benefits to all customers (Section 393.1075.4 – beneficial to all customers)

i. 2018 IRP Deficiencies and Concerns

Staff first identified a number of deficiencies and concerns related to KCPL's planned MEEIA Cycle 3 in its Staff Report regarding KCPL's 2018 IRP.

KCPL and GMO filed their 2018 Chapter 22 triennial compliance filings on April 2, 2018, in Case Nos. EO-2018-0268 and EO-2018-0269, respectively. Staff identified a number of deficiencies and concerns in its Staff Reports filed on August 30, 2018, including Staff Deficiency 2 and Concern B in Case No. EO-2018-0268:

> Deficiency 2: KCPL's use of $** ___ ** per kW year (2015 dollars) drastically overstates KCPL's avoided capacity cost of generation, transmission, and distribution facilities, adjusted to reflect reliability reserve margins and capacity losses on the transmission and distribution systems, because Plan KAAHA (No DSM) includes no new supply-side

[79] The SPP 2018 Resource Adequacy report indicates more than 5 GW of excess capacity in the footprint through 2023. With such a large amount of excess capacity it is likely that prices to procure capacity will remain low and minimizes the likelihood that SPP will drastically increase the Resource Adequacy Requirements.

> resources during the entire 20-years of the planning horizon in violation of rule 4 CSR 240-20.092(1)(C).[80]
>
> Concern B: Because KCPL's demand-side programs do not defer any non-renewable supply-side resources during the 20-year planning horizon, it is expected that there will be little, if any, benefits for customers who do not participate in the programs, resulting in programs which may be in violation of Sections 393.1075.3 and .4, RSMO.

Staff Deficiency 2 and Concern B remained unresolved in the Joint Filing filed on October 26, 2018, in Case No. EO-2018-0268. The November 15, 2018, *Order Regarding Integrated Resource Plans* in Case Nos. EO-2018-0268 and EO-2018-0269 states:

> 1. The Commission approves the remedies to the alleged IRP deficiencies and concerns proposed in the Joint Filing, which were developed by the Signatories pursuant to Commission Rule 4 CSR 240-22.080(9); and
>
> 2. Kansas City Power & Light Company and KCP&L Greater Missouri Operations Company may address any unresolved alleged deficiencies and concerns in its 2019 IRP [annual] update report or future MEEIA applications.

Unfortunately, Staff's Deficiency 2 and Concern B in KCPL's 2018 IRP were not addressed by KCPL in its MEEIA Cycle 3 Application. KCPL/GMO included $** ___ ** per kW year (2019 dollars)[81] as its avoided cost of capacity to calculate annual avoided capacity cost benefits for its MEEIA Cycle 3. This avoided cost of capacity is an updated estimate of the levelized annual CONE for a new natural gas combustion turbine generator used for peak shaving.

4 CSR 240-22.050(5)(A)1 reads in part:

> The utility avoided demand cost shall include the capacity cost of generation, transmission, and distribution facilities, adjusted to reflect reliability reserve margins and capacity losses on the transmission and distribution systems, or the corresponding market-based equivalents of those costs.

[80] 4 CSR 240-20.092(1)(C) Avoided costs or avoided utility costs means the cost savings obtained by substituting demand-side programs for existing and new supply-side resources. Avoided costs include avoided utility costs resulting from demand-side programs' energy savings and demand savings associated with generation, transmission, and distribution facilities including avoided probable environmental compliance costs. The utility shall use the integrated resource plan and risk analysis used in its most recently adopted preferred resource plan to calculate its avoided costs.

[81] Cell C138 of the Utility Input tab of CONF_MEEIA 3 DSMore Blank Batch Template_FILED.XLSB is ** _____ . **

KCPL and GMO are members of SPP. There is no market-based equivalent for capacity costs for KCPL and GMO to use when estimating avoided capacity costs for their MEEIA Cycle 3 programs because SPP has no capacity market.[82]

As a result of the Joint Network Integrated Transmission Service agreement (NITS) approved by SPP,[83] there are expected to be minimal avoided capacity costs as a result of MEEIA Cycle 3 programs for KCPL/GMO (see Section II.B.iii. - Avoided Capacity Cost). When combined together, and in accordance with the NITS, both utilities satisfy the SPP resource adequacy requirements on a combined basis until 2032, and then would need to construct supply-side resources in 2033 and 2036 with or without the proposed MEEIA Cycle 3 programs. Approval of KCPL/GMO's requested variance from 4 CSR 240-20.092(1)(C) to allow the use of $** ___ ** per kW year[84] when valuing avoided capacity cost benefits from the KCPL/GMO MEEIA Cycle 3 programs would not alleviate the statutory requirements that are at the root of Staff's concerns. As discussed in Report Section II.B.iii. - Avoided Capacity Cost, absent potential deferral of supply-side resources KCPL/GMO should have valued avoided capacity cost benefits as zero in years 2019 through 2031, as the estimated market cost of capacity to serve the capacity deficit in 2032, and as zero dollars from that point on for the MEEIA Cycle 3 program evaluation.

ii. MEEIA Cycle 3 Program Expectations

MEEIA Cycle 3 programs are expected to: 1) <u>not</u> defer any supply-side resources, 2) result in $0 lost earnings opportunity for either KCPL or GMO, and 3) result in minimal, if any, avoided capacity cost benefits for customers.

Section 393.1075.4 states:

> 393.1075.4. The commission shall permit electric corporations to implement commission-approved demand-side programs proposed pursuant to this section with a goal of achieving all cost-effective demand-side savings. Recovery for such programs shall not be permitted unless the

[82] Unlike the SPP, the Midcontinent Independent System Operator ("MISO"), of which Ameren Missouri is a member, has a transparent capacity market.

[83] Case Nos. EO-2018-0268 and EO-2018-0269 included no discussion or analysis of SPP's Joint Network Integration Transmission Service agreement, which KCPL and GMO discuss on page 3 of UPDATED Appendix 8.11.

[84] This 2019 avoided capacity cost increases at an assumed 2.5% annual inflation rate for the entirety of the 20-year planning horizon.

> programs are approved by the commission, result in energy or demand savings and **are beneficial to all customers in the customer class in which the programs are proposed, regardless of whether the programs are utilized by all customers** [Emphasis added.]

In its *Report and Order* issued on October 22, 2015, in Case No. EO-2015-0055, the Commission cited the following as one of the reasons for rejection of Ameren Missouri's Cycle 2 proposed plan:

> The Commission would approve a MEEIA plan if non-participating ratepayers would be better off paying to help some ratepayers reduce usage than they would be paying a utility to build a power plant.

The table on page 7 of UPDATED Appendix 8.11[85] provides KCPL's analysis of **Lost Earnings from Postponement of New Supply Side Resources** in compliance with 4 CSR 240-20.094(4)(C)4[86] and includes the estimated lost earning opportunities for KCPL/GMO, KCPL, and GMO resource plans.

Lost Earnings from Postponement of New Supply Side Resources

(Estimated Reductions in $ Millions)

DSM Level	DSM Implementation Time	Retirements	New Load	Joint Earnings	KCPL Earnings	GMO Earnings
MEEIA 3	3 years	No Additional	None	0.0	0.0	26.3
MEEIA 3	3 years	Additional	None	9.5	0.0	26.3
MEEIA 3	3 years	Additional	Yes	11.8	0.0	N/A
RAP -	20 years	No Additional	None	18.1	0.0	41.5
RAP -	20 years	No Additional	Yes	61.3	5.3	N/A
RAP -	20 years	Additional	None	54.8	15.0	39.0
RAP -	20 years	Additional	Yes	66.6	24.7	N/A

N/A: No new load modeled in GMO

[85] Notice of Updated Appendix 8.11, filed December 17, 2018.

[86] 4 CSR 240-20.094(4)(C) Demonstration of cost effectiveness for each demand-side program and for the total of all demand-side programs of the utility. At a minimum, the electric utility shall provide all workpapers, with all models and spreadsheets provided as executable versions in native format with all links and formulas intact, and include: … 4. The impacts from all demand-side programs included in the application on any postponement of new supply-side resources and the early retirement of existing supply side resources, including annual and net present value of any lost utility earnings related thereto.

Because the lost earnings opportunity for KCPL and/or for KCPL/GMO is $0,[87] there are expected to be no avoided capacity cost benefits for KCPL and GMO customers due to deferral of supply-side resources as a result of MEEIA Cycle 3. Non-participants are expected to receive no net benefits from MEEIA Cycle 3 because: 1) avoided energy cost benefits flow to only participants of MEEIA Cycle 3 programs, and 2) there are expected to be no avoided capacity cost benefits for any customers (participants and non-participants) due to deferral of supply-side resources as a result of MEEIA Cycle 3. This is contrary to Section 393.1075.4 and prior Commission orders.

iii. Overall Portfolio Cost Effectiveness

Revising the MEEIA Cycle 3 programs' avoided capacity cost benefits to $0 per kW year results in a MEEIA Cycle 3 that is not cost-effective overall.

The KCPL/GMO MEEIA Cycle 3 filing includes the following at the top of page 19:

> Our analysis shows successful implementation of DSM programs could bring gross benefits from energy and capacity over anticipated program life on a net present value (NPV) basis of approximately $118.4 million for KCP&L MO and $130.7 million for KCP&L GMO. Benefits less program cost are $74 million and $78 million (net benefits) for KCP&L MO and KCP&L GMO, respectively.[88] Based on this analysis these benefits greatly exceed costs and support our preferred plan, demonstrate positive financial benefits for customers and support the spirit and intention of the MEEIA rules.

However, Staff's analysis of KCPL/GMO's DSMore batch file (used to calculate benefits for programs in the Application) finds that KCPL and GMO discounted costs and benefits for MEEIA Cycle 3 measures to the individual program year the measure was installed (either 2019, 2020, 2021, 2022, 2023 or 2024) and <u>not</u> to the first program year of Cycle 3 (2019). Further, when properly including EO costs in the analysis, valuing avoided capacity cost at $0 per kW year, and discounting annual program costs and annual avoided energy and capacity cost benefits to 2019 dollars, Staff's estimate of customer net benefits is vastly different than that of KCPL and GMO.

[87] KCPL, GMO and KCPL/GMO's currently adopted preferred resource plans are represented by the MEEIA 3/No Additional Retirements/No New Load resource plans on the top row of the table.

[88] Staff notes that the "Net Benefits" lines in Figure 1.3 and Figure 1.4 on page 15 of MEEIA Cycle 3 should correctly be "Gross Benefits" or "Total Shared Benefits" consistent with KCPL's response to Staff DR No. 0101.

Company MEEIA Cycle 3 Application Net Benefits
(All Dollars Discounted to Program Year)

		KCPL	GMO	KCPL/GMO
a	**Energy Benefits**	$ 53,949,668	$ 50,856,770	$ 104,806,437
b	**Capacity Benefits**	$ 64,413,483	$ 79,835,912	$ 144,249,394
c = a + b	**Total Benefits**	**$ 118,363,151**	**$ 130,692,681**	**$ 249,055,832**
d	**Program Costs**	$ 43,861,974	$ 52,428,710	$ 96,290,684
e	**EO Costs**	$ -	$ -	$ -
f = d + e	**Total Costs**	**$ 43,861,974**	**$ 52,428,710**	**$ 96,290,684**
g = c - f	**Net Benefits**	**$ 74,501,177**	**$ 78,263,971**	**$ 152,765,148**

Staff Estimate of MEEIA Cycle 3 Net Benefits
(All Dollars Discounted to 2019)

		KCPL	GMO	KCPL/GMO
a	**Energy Benefits**	$ 50,193,704	$ 47,363,800	$ 97,557,504
b	**Capacity Benefits**	$ -	$ -	$ -
c = a + b	**Total Benefits**	**$ 50,193,704**	**$ 47,363,800**	**$ 97,557,504**
d	**Program Costs**	$ 39,759,797	$ 47,809,490	$ 87,569,287
e	**EO Costs**	$ 6,876,835	$ 8,778,997	$ 15,655,832
f = d + e	**Total Costs**	**$ 46,636,632**	**$ 56,588,487**	**$ 103,225,119**
g = c - f	**Net Benefits**	**$ 3,557,072**	**$ (9,224,687)**	**$ (5,667,616)**

In summary, Staff estimates that:

- KCPL's MEEIA Cycle 3 is expected to have a NPV of net benefits of $3.6 million;
- GMO's MEEIA Cycle 3 is expected to have a NPV of net benefits of $(9.2) million, i.e., a net **cost** to all customers of $9.2 million; and
- KCPL/GMO MEEIA Cycle 3 is expected to have a NPV of $(5.7) million, i.e., a net **cost** to all customers of $5.7 million.

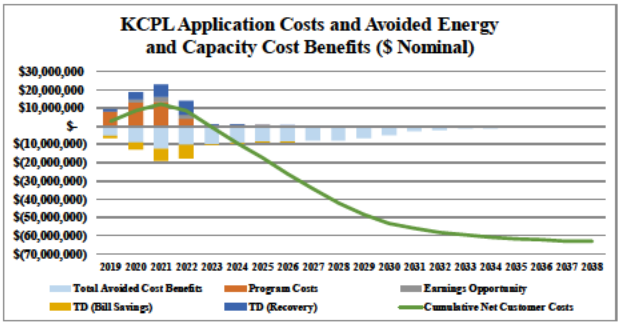
The following three sets of charts illustrate a comparison of customer costs and avoided energy and capacity costs or customer benefits for KCPL, GMO, and KCPL/GMO. The bars represent MEEIA Cycle 3 annual costs (for program costs, earning opportunity and TD recovery) and annual benefits (total avoided cost benefits and TD bill savings). The green line represents cumulative net costs where negative costs are benefits for customers. The only difference in the

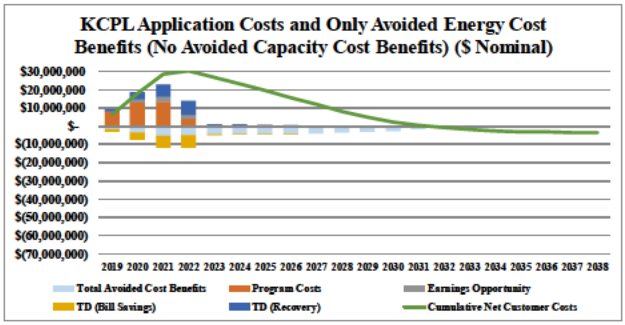
data used for each set of charts is the charts on the left use annual capacity avoided cost benefits of $** ___ ** per kW year (2019 dollars), and the charts to the right use annual capacity avoided cost benefits of $0 per kW year.

The charts and underlying data illustrate that most of the costs of the programs are borne by customers up front during 2019 – 2021 with certainty through the DSIM Rider, consistent with the MEEIA requirement for timely cost recovery. However, ratepayer benefits from avoided utility costs are uncertain, have diminishing value as efficiency measures reach the end of their assumed measure lives,[89] and can only be estimated through EM&V following the completion of each program year.

Program costs, TD, and EO are accounted for in the DSIM Rider and will be collected from customers contemporaneously and with certainty.[90] On the other hand, program benefits are uncertain and difficult to quantify even through best practices utilized by independent EM&V contractors. When benefits do not occur until further into the future, as is the case with MEEIA Cycle 3, they become more and more uncertain.

The following charts highlight KCPL's estimation and Staff's estimation[91] of annual costs, annual avoided costs and cumulative net costs for all KCPL customers (participants and non-participants) as a result of MEEIA Cycle 3 programs:





[89] Measure lives are in Column R of Appendix 8.3 - KCP&L Technical Resource Manual.

[90] TD (Bill Savings) and TD (Recovery) are offsetting amounts each year and do not impact the Cumulative Net Customer Costs.

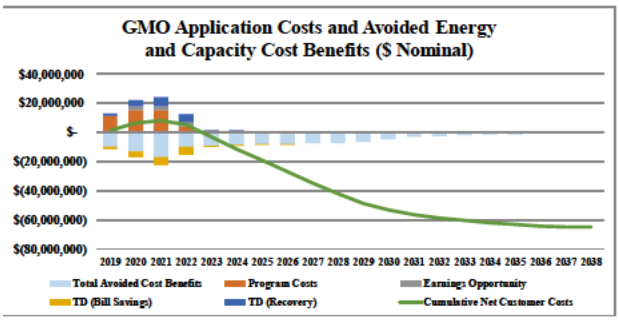
[91] Staff's estimates are the same as KCPL's estimate except that Staff values avoided capacity cost as $0 per kW year while KCPL values avoided capacity cost as $** ___ ** per kW year.

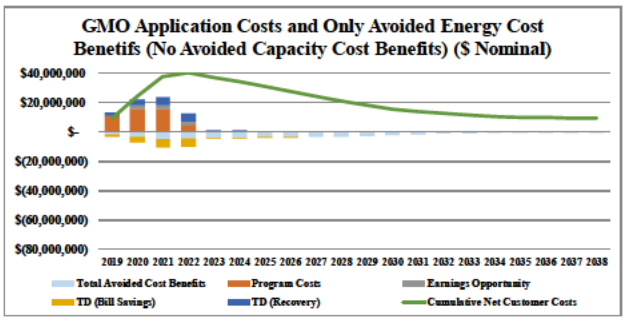
- KCPL MEEIA Cycle 3 with $** ___ ** per kW year avoided capacity cost benefits, which are not based on actual costs that will be avoided by customers, is reported to have a maximum cumulative net customer cost of $12.0 million in 2021, to breakeven in 2023, and to have cumulative net customer savings of $63.2 million in 2038.

- However, using Staff's estimate of $0 per kW year avoided capacity cost, KCPL MEEIA Cycle 3 is expected to have a maximum cumulative net customer cost of $30.5 million in 2022, to breakeven in 2032, and to have cumulative net customer savings of only $3.6 million in 2038.

It makes little sense for KCPL's customers to pay $30.5 million in 2019 – 2022 to break even in 2032 and to receive a cumulative net savings of only $3.6 million after 20 years.

The following charts highlight GMO's estimation and Staff's estimation[92] of annual costs, annual avoided costs, and cumulative net costs for all GMO customers (participants and non-participants) as a result of MEEIA Cycle 3 programs:





- GMO MEEIA Cycle 3 with $** ___ ** per kW year avoided capacity cost benefits is reported to have a maximum cumulative net customer cost of $8.1 million in 2021, to breakeven in 2023, and to have cumulative net customer savings of $65.0 million in 2038.

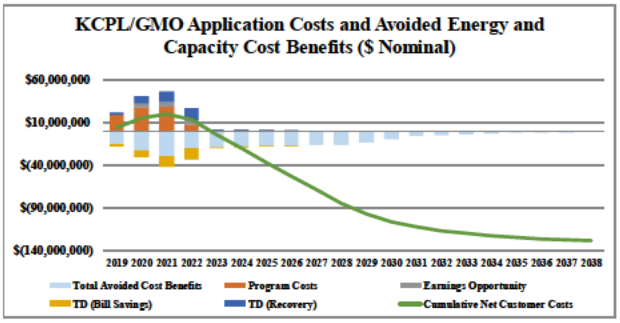
- However, using Staff's estimate of $0 per kW year avoided capacity cost, GMO Cycle 3 is expected to have a maximum cumulative net customer cost of

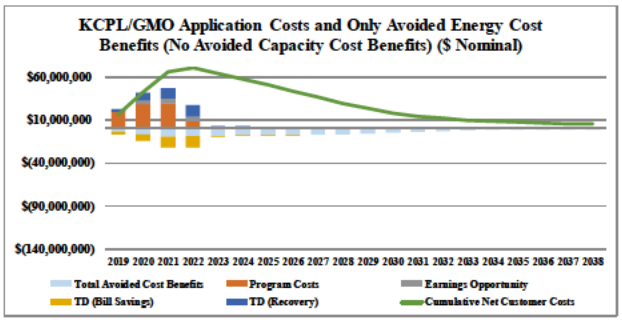
[92] Staff's estimates are the same as GMO's estimate except that Staff values avoided capacity cost as $0 per kW year while GMO values avoided capacity cost as $** ___ ** per kW year.

$40.5 million in 2022, to never breakeven, and to have a cumulative net customer cost of $9.2 million in 2038.

It makes little sense for GMO's customers to pay $40.5 million in 2019 – 2022, to never break even and to have cumulative net **cost** of $9.2 million after 20 years.

The following charts highlight KCPL/GMO's estimation and Staff's estimation[93] of annual costs, annual avoided costs, and cumulative net costs for all KCPL/GMO customers (participants and non-participants) as a result of MEEIA Cycle 3 programs:





- KCPL/GMO MEEIA Cycle 3 with $** ___ ** per kW year avoided capacity cost benefits is reported to have a maximum cumulative net customer cost of $20.1 million in 2021, to breakeven in 2023, and to have cumulative net customer savings of $126.2 million in 2038.

- However, using Staff's estimate of $0 per kW year avoided capacity cost, KCPL/GMO MEEIA Cycle 3 is expected to have a maximum cumulative net customer cost of $71.0 million in 2022, to never breakeven, and to have a cumulative net customer cost of $5.7 million in 2038.

It makes little sense for KCPL/GMO customers to pay $71.0 million in 2019 – 2022, to never break even and to have cumulative net **cost** of $5.7 million after 20 years.

[93] Staff's estimates are the same as KCPL/GMO's estimate except that Staff values avoided capacity cost as $0 per kW year while KCPL/GMO values avoided capacity cost as $** ___ ** per kW year.

iv. Lower Utility Revenue Requirement May Not Result in Benefits for All Customers

A reduction in revenue requirement does not always mean there are expected to be benefits for all customers.

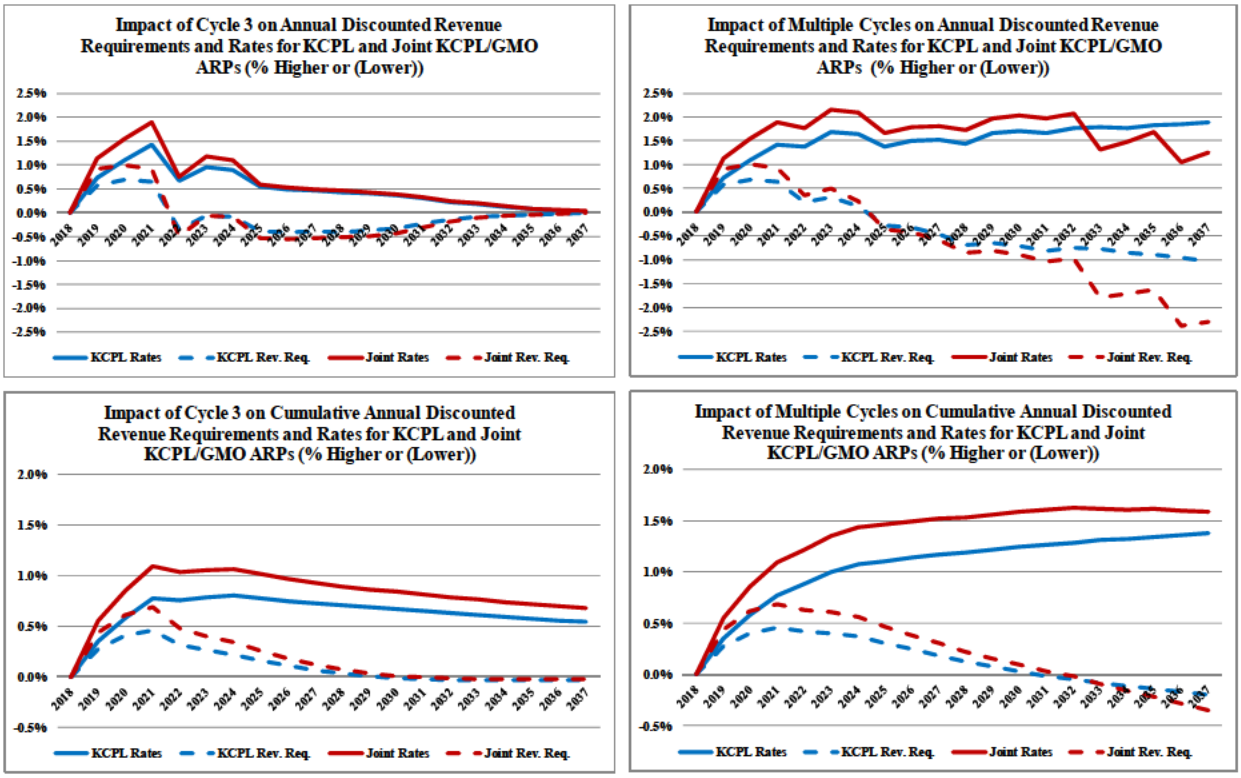
KCPL/GMO proposes that MEEIA programs provide benefits for all customers because the 20-year net present value of revenue requirements ("NPVRR") are lower as a result of their MEEIA programs.[94] However, Staff analysis of KCPL and KCPL/GMO MEEIA Cycle 3[95] integrated resource analyses determined that there is expected to be very minor improvements to cumulative discounted annual revenue requirements (0.03% and 0.02%, respectively) and a much larger increase in cumulative discount annual rates (0.54% and 0.67%, respectively). These results suggest that it is very likely that only program participants will receive net benefits from MEEIA Cycle 3. Customers that have the financial ability to participate meaningfully in MEEIA Cycle 3 programs are able to reduce their energy use substantially, have lower bills and pay less of the DSIM charge. Those customers that do not participate meaningfully in MEEIA Cycle 3 programs pay higher rates for the same energy usage and pay the DSIM charge with no benefit of deferred supply-side investments. *See left-most charts below*.

Similarly, KCPL and KCPL/GMO's multiple MEEIA cycles[96] integrated resource analyses determined that there is expected to be very minor improvements to cumulative discounted annual revenue requirements (0.19% and 0.35%, respectively) and a much larger increase in cumulative discount annual rates (1.37% and 1.58%, respectively). These results suggest that it is very likely that only program participants will receive net benefits from multiple MEEIA cycles. *See right-most charts below*.

[94] Application's Section 5.1 Missouri DSM Policy and KCP&L Resource Selection Process.

[95] Only MEEIA Cycle 3, and no other MEEIA cycles after the completion of MEEIA Cycle 3, is included in the MEEIA 3 20-year integrated resource analysis.

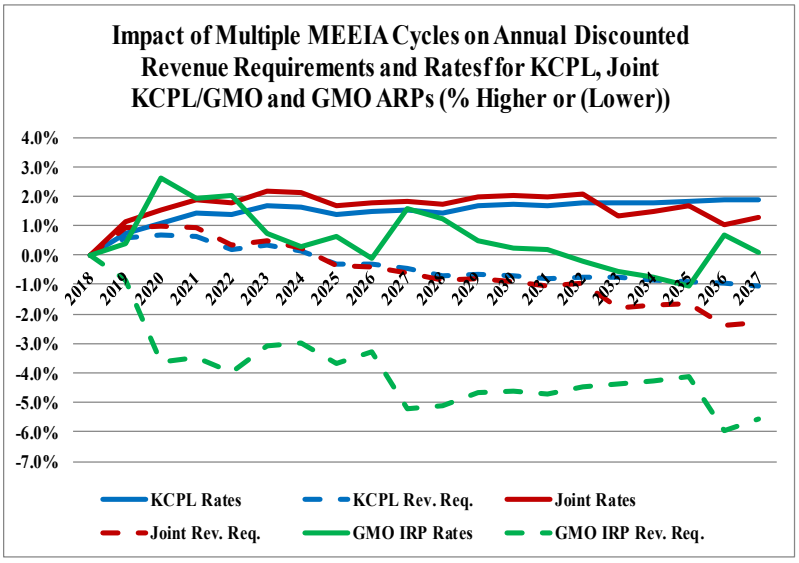
[96] A series of MEEIA cycles over the entire 20-year planning horizon such that there are always active MEEIA programs for 20 years.

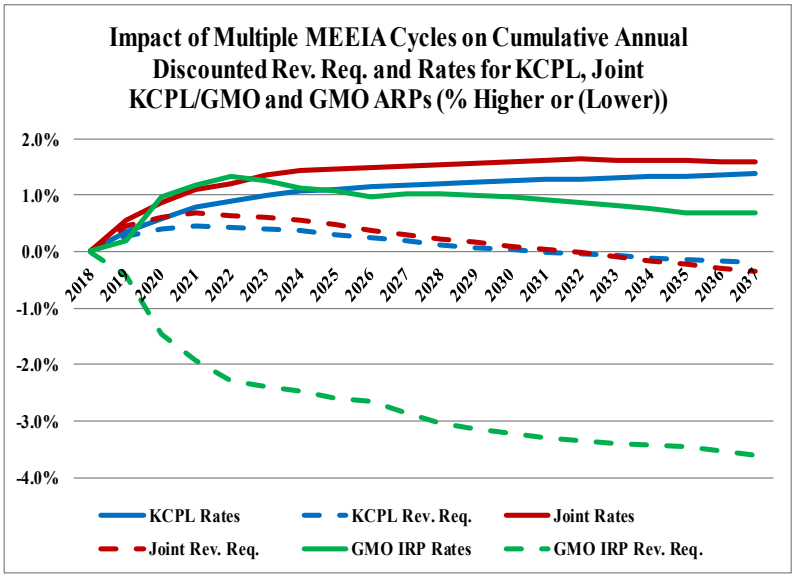


Finally, Staff analysis of GMO's multiple MEEIA cycles integrated resource analyses for GMO's 2018 IRP determined that there are expected to be significant improvements to cumulative discounted annual revenue requirements (lower by 3.61% in 2038) - due primarily to the deferral of 828 MW of GMO supply-side resources[97] - and only a modest increase in cumulative discounted annual rates (higher by 0.68% in 2038). These results suggest that if GMO were a standalone utility and there were no joint NITS, it is very likely that GMO customers (participants and non-participants) will receive net benefits from deferral of supply-side resources due to multiple GMO MEEIA cycles.[98] *See green lines in charts below.*

[97] GMO's current capacity shortfall as a standalone utility is similar to that of Idaho Power discussed in this Report's Section II.B.iii. - Avoided Capacity Cost.

[98] Staff's analysis is for GMO as a standalone utility in Case No. EO-2018-0269. Case No. EO-2018-0269 made no reference to or provided analysis of SPP's Joint Network Integration Transmission Service agreement, which KCPL and GMO discussed on pages 3 of UPDATED Appendix 8.11.





In summary,

- GMO - as a standalone utility and no joint NITS - represents a utility that can expect to provide benefits to all customers (participants and non-participants) through its MEEIA programs as a cost-effective alternative to investing in new supply-side resources; and

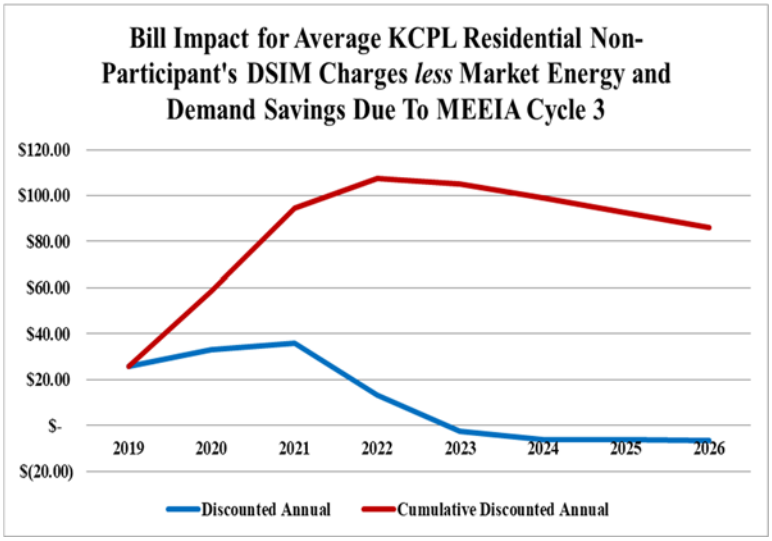
- Neither KCPL nor KCPL/GMO are expected to defer investments in new supply-side resources as a result of MEEIA programs. The small favorable NPVRRs for the

> KCPL and KCPL/GMO MEEIA resource plans are not due to the deferral of any supply-side resources but rather are primarily due to: 1) a decrease in purchased power from SPP and corresponding increase in the volume of off-system sales ("OSS") and 2) decrease in utility peak demand in the SPP market which result in market energy and demand benefits made possible through energy and demand savings from the MEEIA programs.

However, the expected market energy and demand benefits due to the MEEIA Cycle 3 programs are not expected to result in overall net benefits for customers who pay the MEEIA charge and do not participate in MEEIA Cycle 3 programs.

To the extent that energy and demand savings from MEEIA Cycle 3 programs result in market energy and demand benefits, 95% of these market energy and demand benefits flow back to all customers (participants and non-participants) through the KCPL and GMO Rider FACs and will offset some, but not all, of the MEEIA Cycle 3 DSIM charges.

Staff's analysis of KCPL's response to Staff DR No. 0019 resulted in the following chart and conclusions:[99]



- At the end of 2026 (seven years after the start of MEEIA Cycle 3), the average KCPL residential non-participant customer will have paid $88 more in DSIM charges than it

[99] Staff did not send a data request to GMO similar to its DR No. 0019 it sent to KCPL. However, if Staff had sent a similar data request to GMO, Staff would expect a similar chart and similar conclusions for GMO.

receives in market energy and demand benefits as a result of 95% of MEEIA Cycle 3 benefits flowing back through the KCPL FAC; and

- While the MEEIA Cycle 3 DSIM charges will stop after 2026 and some market energy will continue for the life of the MEEIA Cycle 3 measures and demand benefits may exist in 2032, it is not expected that the average KCPL residential non-participant would receive a cumulative net benefit due to the market energy and demand benefits and the DSIM charges expected as a result of MEEIA Cycle 3.

In summary, Staff's analyses demonstrate that there may be benefits to all GMO customers (participants and non-participants) if GMO was a stand-alone utility. But, because of the joint NITS, and KCLP/GMO's treatment in SPP, the Companies' Application needs to be reviewed as a combined proposal. When analyzed from this perspective, MEEIA Cycle 3 does not comply with the requirement of Section 393.1075.4, RSMo, to provide benefits to all customers, even those that do not participate.

Staff Expert/Witness: John A. Rogers

D. Demand Side Programs

i. Cost-Effectiveness

KCPL's Application includes five Residential programs, six Business programs, and two Low-income programs, and GMO's Application includes five Residential programs, six Business programs and one Low Income program. KCPL/GMO have proposed a Research & Pilot budget of approximately $1M for KCPL and GMO each. The total proposed budget for all programs, excluding throughput disincentive and earnings opportunity, is approximately $43.9M for KCPL and $52.4M for GMO over a 3-year period.[100]

As proposed, MEEIA Cycle 3 programs do not contribute to supply-side investment deferral for over 20 years. There are no avoided distribution costs associated with KCPL's and GMO's Applications, and no avoided capacity costs for over 20 years, as further discussed in Report Section II.B.iii. - Avoided Capacity Cost.

Rule 4 CSR 240-20.094(4)(I) states:

[100] KCPL/GMO propose the Income Eligible Multi-Family programs for a 6-year period.

> The commission shall consider the TRC test a preferred cost-effectiveness test. For demand-side programs and program plans that have a TRC test ratio greater than one (1), the commission shall approve demand-side programs or program plans, budgets, and demand and energy savings targets for each demand-side program it approves, provided it finds that the utility has met the filing and submission requirements of this rule and the demand-side programs—…

According to Staff's analysis, by including only avoided energy cost benefits and zero avoided capacity cost benefits in evaluating the cost-effectiveness of MEEIA Cycle 3 Residential and Business programs, the Total Resource Cost ("TRC") tests decrease significantly as shown in the following Tables:

Table 4

KCPL Residential			
	Using KCPL's avoided costs	Using Staff's updated avoided costs	% Change
Energy Savings Products	2.20	1.78	-19%
Heating, Cooling & Weatherization	2.37	0.56	-76%
Home Energy Report	0.96	0.66	-31%
Income Eligible Home Energy Report	0.98	0.67	-32%
Income Eligible Multi-Family	0.67	0.43	-36%
Residential Demand Response	2.20	0.09	-96%
Online Home Energy Audit	0.00	0.00	
Portfolio	1.92	0.58	-70%
KCPL Business			
	Using KCPL's avoided costs	Using Staff's updated avoided costs	% Change
Business Standard	1.37	0.90	-34%
Business Custom	2.20	1.46	-34%
Business Process Efficiency	1.33	1.26	-5%
Demand Response Incentive	6.69	0.00	-100%
Business Smart Thermostat	1.70	0.07	-96%
Online Business Energy Audit	0.00	0.00	
Portfolio	1.70	1.01	-41%

Table 5

GMO Residential			
	Using GMO's avoided costs	Using Staff's updated avoided costs	% Change
Energy Savings Products	2.17	1.77	-18%
Heating, Cooling & Weatherization	2.29	0.55	-76%
Home Energy Report	1.16	0.80	-31%
Income Eligible Multi-Family	0.59	0.38	-36%
Residential Demand Response	2.13	0.09	-96%
Online Home Energy Audit	0.00	0.00	
Portfolio	1.92	0.57	-70%
GMO Business			
	Using GMO's avoided costs	Using Staff's updated avoided costs	% Change
Business Standard	1.30	0.84	-35%
Business Custom	2.21	1.47	-33%
Business Process Efficiency	1.34	1.27	-5%
Demand Response Incentive	6.61	0.00	-100%
Business Smart Thermostat	1.58	0.07	-96%
Online Business Energy Audit	0.00	0.00	
Portfolio	1.70	0.83	-51%

As shown in Table 4 and 5, excluding the low-income and audit programs, the only programs with TRC test results greater than 1.00, when only avoided energy cost benefits are used in the calculation of the TRC tests, are:

- KCPL Residential Energy Savings Products, TRC = 1.78;
- KCPL Business Custom, TRC = 1.46;
- KCPL Business Process Efficiency, TRC = 1.26;
- GMO Residential Energy Savings Products, TRC = 1.77;
- GMO Business Custom, TRC = 1.47; and
- GMO Process Efficiency, TRC = 1.27.

Further, the Residential portfolio TRC for KCPL drops below 1.00 and both the Residential and Business portfolios for GMO drop below 1.00, demonstrating that the Residential portfolio for KCPL and the Residential and Business portfolios for GMO are not expected to be beneficial to all customers. It should also be noted that the Business portfolio for KCPL is 1.01, just slightly above 1.00. A TRC that low, even though it is slightly above 1.00,[101] causes concern for Staff since it leaves no room for movement down and, therefore, could easily end up not being cost-effective during the cycle. Many of the TRC inputs used are based upon KCPL/GMO assumptions for costs, measure counts, and savings estimates, among other uncertain variables. The ultimate evaluation of whether or not a program or portfolio is cost-effective will not occur until retrospective Evaluation, Measurement, & Verification ("EM&V") is conducted and costs have already been incurred and collected from customers through the DSIM.

While Staff recognizes that certain programs remain cost-effective utilizing more appropriate avoided cost benefits,[102] the programs still fail to provide benefits to all customers as discussed in Section II.C. of this Report.

Furthermore, if the Commission approves any of the proposed MEEIA programs, Staff recommends that the Commission only allow recovery of program costs, throughput disincentive costs, and earnings opportunities from programs that are ultimately deemed cost effective by the Commission based upon retrospective evaluation, measurement and verification. RSMo 393.1075.3(3) states that the Commission shall:

> Provide timely earnings opportunities associated with ***cost-effective*** measurable and verifiable efficiency savings. [Emphasis added.]

From a policy perspective, it makes little sense to reward a company for savings associated with programs that are ultimately deemed to not be cost effective.

ii. Measure-Level TRC

Staff also has a concern with the measure-level TRC for certain measures. KCPL/GMO has included in its portfolio of programs certain measures that are not cost-effective. Staff inquired about this issue in Staff DR No. 0063. In program year one, KCPL/GMO offers

[101] This is based on Staff's avoided costs and KCPL/GMO's savings estimates. If KCPL/GMO's savings estimates are not achieved, this number will likely drop below 1.00.

[102] Including only avoided energy cost benefits.

37 measures that are not cost-effective, in program year two that number only drops to 35, and in program year three that number only drops to 33. In response to Staff DR No. 0063, KCPL/GMO provided a list of the measures that are not cost-effective and offered its reasoning for offering those measures. KCPL/GMO's primary reason for including each measure that is not cost-effective is that, based on its modeling assumptions, the program still remains cost-effective. Staff disagrees with KCPL/GMO's reasoning since incentivizing a measure, outside of a low income program, that is not cost-effective is contradictory to "a goal of achieving all cost-effective demand-side savings."[103] This approach also adds to Staff's previously stated concern that a portfolio that is marginally cost-effective based on initial modelling could ultimately end with costs that outweigh benefits.

The most prudently incurred costs are those costs that maximize the benefits to customers through these programs. To the extent that measures that are not cost-effective are included within programs, KCPL and GMO are minimizing potential benefits of the overall portfolio.

Because the potential benefits from demand-side programs are uncertain and difficult to quantify and the costs are certain and tangible, each program should be designed to be as cost-effective as possible in order to maximize the probability that actual benefits outweigh the actual costs.

iii. Demand-Side Program Design – Energy Efficiency

Staff has numerous concerns with many aspects of the proposed energy efficiency programs. KCPL and GMO have had energy efficiency programs since 2007, and energy efficiency programs under MEEIA since 2014 and 2013, respectively. Energy efficiency technology has transformed the market and continues to further transform the market. This has led to customers inherently becoming more aware of energy efficiency and ways to save energy, and in turn, save money. Akin to free ridership, Staff is concerned that these naturally occurring energy savings skew the energy and demand savings KCPL and GMO have deemed for the next 3 years for their energy efficiency programs by assuming energy and demand savings that could potentially be saved absent energy efficiency programs. Also of concern to Staff is that KCPL/GMO has yet to finalize several of the proposed demand-side program details.

[103] Section 393.1075.4, RSMo.

Incentive Ranges

Staff has a concern with the incentives and incentive ranges KCPL/GMO uses for the modelling of certain measures. Some of the initial incentives used for modelling in DSMore[104] for certain measures are slightly less, equal to, or even exceed the incremental cost[105] for those measures. Some of the maximum incentives of the incentive ranges for certain measures exceed the incremental cost for those measures. Incentivizing measures at these levels is counterintuitive to optimizing cost-effectiveness and ultimately makes these measures less cost-effective. KCPL/GMO faces no risk of penalty for not achieving the energy and demand savings goals set in its Application. Therefore, it would seem much more logical to set the incentive at a lower level and let the market determine whether it needs to be increased to provide for more participation.

Measure Lives

As further discussed in the Report Section II.B. - Avoided Costs, there are no avoided distribution costs associated with KCPL/GMO's Application. In addition, there are minimal, if any, avoided capacity costs over the 20-year planning horizon that should be attributed to MEEIA Cycle 3 programs because the portfolios do not defer any supply-side investments for KCPL/GMO. Of the energy efficiency measures in MEEIA Cycle 3, KCPL/GMO only offers two measures that have a measure life assumed to be at least 20 years and assumed to achieve energy and demand savings throughout that 20 year measure life. Therefore, all measure lives for all measures being offered by KCPL/GMO will have expired before any new supply-side investment is deferred.

Technical Resource Manual

KCPL/GMO filed a Technical Resource Manual (TRM)[106] with its MEEIA Cycle 3 Application. Staff has reviewed KCPL/GMO's proposed TRM. KCPL/GMO's TRM does not contain links or citations for many of the assumptions necessary to estimate appropriate energy and demand savings for the measures that will be installed if the MEEIA Cycle 3 programs are approved. Some of the assumptions included in the TRM provide no explanation whatsoever for

[104] DSMore is the software KCPL and GMO use to model demand-side programs to determine cost-effectiveness.
[105] In this case, the difference in costs between the baseline measure and a more efficient measure.
[106] MEEIA Cycle 3 2019-2022 filing Appendix8.2 trm meeia cycle 3.xlsm.

the source of the information. The information that does have citations includes citations that are very generic descriptions of the source of the data. For example, some sources simply cite "Navigant research." Without specific citations with document, page numbers, and explanation for why the proposed calculation is appropriate, Staff and other parties cannot fairly judge the accuracy or appropriateness of the estimated savings. If the Commission approves KCPL/GMO MEEIA Cycle 3 Application, Staff recommends that the Commission condition the approval on filing of a complete TRM along with the 2020 IRP annual update that provides an explanation for why each estimation is appropriate and specific citations for each and every assumption utilized to estimate savings from measures.

Evaluation Measurement & Verification

KCPL/GMO filed an EM&V plan with its MEEIA Cycle 3 Application. Staff has reviewed KCPL/GMO's proposed EM&V plan. As a result of Staff's review, at this point in time Staff does not oppose KCPL/GMO's proposed EM&V plan. However, KCPL/GMO has not indicated how the utilization of information from AMI meters will benefit the evaluation of savings from demand-side programs. Staff recommends KCPL/GMO to utilize the AMI data to inform MEEIA Cycle 3 EM&V if the Application is approved as filed or modified by the Commission.

Staff Expert/Witness: Brad J. Fortson

Program Tariff Sheets

Staff reviewed the proposed program tariff sheets, Revised Sheet Nos. 1.72 through Revised Sheet Nos. 1.95 and the proposed KCPL/GMO Demand Side Investment Mechanism tariff sheets, Revised Sheet Nos. 49E through Revised Sheet Nos. 49Z for the Application. In reviewing the proposed tariff sheets, Staff found multiple sheets where the program restrictions and barriers are overly broad and lacking in the kind of detailed description required in program tariff sheets. To exemplify this overarching issue, Staff requested that KCPL/GMO identify language in the Residential Smart Thermostat tariff sheets that would restrict a customer that participated in the corresponding MEEIA Cycle 2 programs from receiving an additional incentivized thermostat. KCPL/GMO stated, "There is no language for this in the MEEIA

Cycle 3 filing. Our intention is to not give a customer another (duplicate) thermostat when that current thermostat is fully operational."[107]

There are also multiple sheets where the customer is advised additional information can be found at www.kcpl.com, which is the KCPL/GMO website. The customer then must navigate their way to the referred information instead of a direct link to the additional information. The official website, www.kcpl.com, is given as the resource to find program application forms and additional information such as: definitions, program specific details (i.e., changes in measures or incentives), and program deadline changes. Staff followed the link multiple times and found it difficult to locate the information referred to within the tariff sheets and, in most instances, was unable to locate the information in a timely manner, if at all.

Regarding all tariff sheets which contain tables with energy and demand savings targets for individual programs, Staff recommends that the heading for the right-most column of the tables, which are now titled "Sum of Annual by Program," be changed to "3-Year Savings Target" and that only the 2021 savings target be included in the "3-Year Savings Target" for all programs which have no persistence, i.e., only a 1-year life.[108]

Further the review revealed the tariff sheets oscillate between two extremes; there is either a discernible void of much needed detail, or the program overview and administration detail is overly intricate and complex where as an average individual, without industrial knowledge, would not have a basic understanding of the tariff. There is overuse of directing to the other parts of the tariff or case related documents instead of the information being in the tariff, which is inappropriate, as it is not realistic for a lay person to be expected to know where such documents may be found. Since MEEIA Cycle 1, there has been a consistent decline in the level of detail of the overall tariff. For example in Sheet Nos. 1.73 and 1.74, not all of the definitions are as robust as needed for the average customer to understand the terms. Another example is on Sheet No. 1.77, Online Business Energy Audit Program, "Program Provisions:" KCPL/GMO simply states, "This energy efficiency program is considered educational. Additional details are available at the Company website, www.kcpl.com", which puts the

[107] Response to Staff DR No. 0124.

[108] Programs with no persistence include Residential Home Energy Reports ("HER"), Residential Demand Response, and Business Demand Response. (As noted in the following Home Energy Report Program section of this Report, Staff has additional, more substantive concerns with the Residential HER program.)

customer at an informational disadvantage because the customer is left to locate information from the site. This level of detail is necessary in the tariff to provide KCPL's and GMO's approved rates and charges and approved rules and regulations so the customer can be informed and educated with how the program should perform and what they can expect. If a conflict or discrepancy should arise, the tariff, not the information on the company website, has the effect of law. This is a constant theme throughout the tariff. For larger business customers, the tariff language is wordy yet does not clearly explain the restrictions and full extent of the programs. Staff is willing to work with KCPL/GMO on the additional details needed throughout the proposed tariff sheets if the Commission ultimately approves MEEIA Cycle 3 programs.

If the Commission approves the Application, Staff recommends the Commission direct KCPL/GMO to modify its tariff sheets to: 1) contain sufficient detail on individual programs' (i.e. description, administration, availability, qualifications and rebate) information along with providing any direct website program links when directing a customer to the KCPL/GMO website for additional program information; 2) update the definitions so they are sufficient to provide customer understanding of the terms on Sheet Nos. 1.73 and 1.74; and 3) include 3-Year Savings Targets which properly account for annual energy and demand savings from program measures which have no persistence. This will keep customers from having to navigate through KCPL/GMO's website to find the programs they are looking for and possibly reduce frustration that may result in customers no longer wanting to participate in programs.

Staff Expert/Witness: Kory J. Boustead

Home Energy Report Program and Income-Eligible Home Energy Report Program

KCPL and GMO are proposing a Home Energy Report ("HER") program as part of their Application. In addition, KCPL is proposing to continue its Income-Eligible Home Energy Report Program ("Income-Eligible HER"). Staff has a concern with continuing to include a Residential HER and an Income-Eligible HER program for a 3-year period since continued naturally occurring energy savings diminishes the need for the HER and Income-Eligible HER programs. There is no persistence in the HER and Income-Eligible HER programs since the savings of the programs have only a one-year estimated life. This implies that customers need to continually receive a HER or Income-Eligible HER report to continue to reduce savings.

In addition, although the HER EM&V[109] for KCPL determined the TRC for the HER program in Program Year 2016 ("PY16") and Program Year 2017 ("PY17") to be cost-effective with a TRC above 1, the HER EM&V for GMO determined the TRC for the HER program in PY16 and PY17 to not be cost-effective with a TRC of 0.79 and 0.84, respectively. In other words, an estimated TRC of 0.84 in PY17 means that residential customers only received $0.84 worth of estimated benefits from the HER program for every $1.00 of HER program costs spent. What is more concerning is the fact that in its own MEEIA Cycle 3 filing, KCPL has calculated the TRC for the HER program to be 0.96. As mentioned above, 4 CSR 240-20.094(4)(I) only allows the Commission to approve programs, excluding low-income and education programs, with a TRC above 1; therefore, the HER program would not qualify for Commission approval.

KCPL/GMO has an Energy Analyzer tool on its website. The Energy Analyzer provides information to the customer about their usage and ways the customer can reduce their energy use. The Energy Analyzer is a sophisticated tool that can be customized to each customer based on the information the customer provides, and is available to all KCPL/GMO Missouri Residential customers.[110] Staff is of the opinion that a link on the customer's bill to the KCPL/GMO Energy Analyzer tool would prove to be more valuable than the HER and Income-Eligible HER programs and at a much lower cost. Staff recommends that the Commission reject the HER and Income-Eligible HER as programs in MEEIA Cycle 3.

Staff Expert/Witness: Brad J. Fortson

Home Energy Reports Savings and Evaluations

Staff has concerns that the evaluation method currently used to determine savings that are directly attributable to a customer receiving a HER report are overstated and do not accurately account for savings from other energy efficiency programs. KCPL and GMO are proposing to continue to use the same method for MEEIA Cycle 3.

[109] KCPL/GMO EM&V uses KCPL/GMO avoided cost in its TRC calculations.

[110] It is Staff's understanding that KCPL/GMO has or is working on at least three similar tools that will likely provide customers with duplicative information. At this point in time it is not clear to Staff which of the tools are recovered in base rates and which, other than the HER, may be recovered through MEEIA. Additionally, KCPL/GMO has not indicated how the utilization of information from AMI meters will benefit the evaluation of savings from these tools as well as other measures.

Staff's independent auditor also raised this concern. The audit report for program year 2017 states:

> 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. [111]

The independent auditor further noted that it would be meeting with Navigant in early 2019 with the expectation to resolve the issue. However, to date, Staff understands that this issue is not yet resolved.

In addition, GMO's current HER report program is divided into four waves based on when the customers started receiving the reports. The first wave started in 2013 and the most recent wave included customers first receiving the report in 2017. Staff is concerned that the evaluation method used to determine savings does not properly control for the change in customer's usage over time. For example, the regression analysis used in the evaluation includes modeling the treatment and control groups usage by comparing the group's current usage to the group's pre-program usage. However, the model only looks at the group's participation in current energy efficiency programs and does not include previous participation that occurred after 2013 but before 2018. Therefore, Staff is concerned that the savings for the earlier waves are overstated.[112]

[111] Page 6 of Evergreen Economics EM&V report for PY2017.

[112] Staff has similar concerns with KCPL, except that KCPL has three waves beginning in 2014.

The independent auditor also states:

> 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.[113]

If the evaluator has sufficient data for customers in the treatment group, those customers are include in the regression analysis used to calculate the savings related to the HER program. The regression does not take into consideration whether or not a customer actually reviewed the report or took any action based on review of the report.

In 2018, the HER program accounted for approximately 25% of the Residential portion of GMO's throughput disincentive compensation.[114] Staff does not recommend continuation of the HER program, but if the Commission should approve the HER program, Staff recommends the Commission condition continuation on KCPL and GMO addressing all of Staff's concerns related to evaluation of the program..

Staff Expert/Witness: Robin Kliethermes

Energy Savings Products

KCPL and GMO are proposing to offer a SMART Home Products measure as part of the Energy Savings Products program. SMART Home Products include devices such as Amazon Alexa and Google Home, among others. KCPL and GMO have proposed annual energy savings of 1,305.85 kWh for SMART Home Products. This level of savings is in excess of an average month of usage for an average Residential customer and does not seem possible unless the smart devices are connected to some sort of smart appliances. Even then it would seem only likely to achieve that level of savings if the smart devices are connected to multiple high energy consuming smart appliances. Absent that, as a stand-alone measure, Amazon Alexa and Google Home could simply be used for playing music or answering random questions. For that reason, Staff suggests KCPL/GMO should not offer these measures as stand-alone measures.

[113] Page 44 of Evergreen Economics EM&V report for PY2017.

[114] The home lighting rebate made up the largest portion of GMO's Residential throughput disincentive compensation at 30%.

Energy Efficient Trees Pilot Program

KCPL/GMO is proposing an Energy Efficient Trees Pilot Program as part of its MEEIA Cycle 3 portfolio. KCPL/GMO plans to partner with Bridging the Gap to administer this program. In response to Staff DR No. 0129, KCPL/GMO stated that the trees being offered in this program are provided at no cost. KCPL/GMO has proposed a budget of approximately $80,000 for this program. It is Staff's understanding that KCPL/GMO would use $33,750 of the budget to purchase the trees and use the remaining $46,250 of the budget to pay Bridging the Gap to give these trees away. Further, KCPL/GMO is assuming energy savings in years 1 – 5 from the trees offered in this program. Also, in response to Staff DR No. 0129, KCPL/GMO reasoned that, "While they may not be providing much shade to the home immediately, they will be providing other benefits such as cooling temperatures through transpiration (releasing moisture in the air) and carbon sequestration." KCPL/GMO proposes to offer trees that will be approximately 2 to 3 feet tall when received by the customer. Even with fast growth, KCPL/GMO appears to overestimate the energy benefits and non-energy benefits in years 1 – 5. Staff is also concerned with how a program such as this would be evaluated. In response to Staff DR No. 0129, KCPL/GMO stated that, "This program and tree measure savings (in filed TRM) has been shared with our current EM&V (Navigant). They stated we are good to proceed, they do not have any other outside perspective of tree savings, and agreed ours was a good starting point as we evaluated this approach to begin." Further, KCPL/GMO is requesting a throughput disincentive and an earnings opportunity for this program. For these reasons, Staff does not support this pilot program.

Residential Heating, Cooling, and Weatherization

KCPL/GMO plans to incentivize new home construction ground-source heat pumps as part of the Residential Heating, Cooling, and Weatherization program.[115] Staff recommends KCPL/GMO review, and revise as necessary, line extension construction allowances to ensure that the relative reduction in energy associated with high efficiency equipment is appropriately reflected.

Staff Expert/Witness: Brad J. Fortson

[115] Response to Staff DR No. 0132.

Strategic Energy Management

KCPL/GMO introduced Business Process Efficiency ("BPE") in MEEIA Cycle 3, including Retro-Commissioning ("RC") and Monitoring Based Commissioning option ("MBC"), Strategic Energy Management ("SEM"), and Express Tune-Up ("ET"). RC and MBC provide incentive offsets for comprehensive system energy optimization studies, allowing participants to identify low and no-cost and long-term improvement strategies. SEM, which was in MEEIA Cycle 2, is a systematic approach to delivering persistent energy savings to organizations by integrating energy management into regular business practices. ET provides customers with a streamlined approach, via participating trade allies, to uncover and improve the operational efficiencies of qualifying measures including but not limited to compressed air systems and roof top units.

Staff recommends that customer eligibility requirements for participation in BPE be clearly stated in the tariff and the evaluation must be improved to be more objective in order to address Staff's concerns as outlined below and for Staff to recommend that the program continues, along with more adequate protections against free-ridership.

According to the National Renewable Energy Laboratory ("NREL"), the definition of free-ridership in the context of energy efficiency regulation is the program savings attributable to free riders (program participants who would have implemented a program measure or practice in the absence of the program).[116] In other words, to properly measure the net energy savings excluding the free-ridership portion, the base line should not just include a customer's past electric consumption but should reflect the usage trend change due to technological developments, which make a customer economically choose energy saving measures without any energy saving programs. For instance, NREL introduced some statistical methods such as randomized controlled trials and quasi-experimental designs.[117]

SEM is the only active MEEIA Cycle 2 program within what is being proposed under the BPE. According to KCPL's response to Staff's DR No. 0082.1(1) in Case No. EO-2019-0132, KCPL said that free-ridership in the KCP&L SEM program pertaining to inflated energy efficiency measures ("EEMs") is prevented by excluding measures from the

[116] https://www.energy.gov/sites/prod/files/2015/01/f19/UMPChapter17-Estimating-Net-Savings.pdf.
[117] Ibid. Chapter 17, pp. 11 - 22.

regression models that were installed and received rebates through the custom, standard, or other process efficiency programs. In addition, any operational impacts (i.e., extended shut downs) or other anomalies detected are also accounted for in the cumulative sum of differences ("CUSUM") regression models for savings calculation. However, these regression models are only able to compare the identical customer's energy consumptions in the base line period and in the treatment period so that CUSUM regression models are not able to remove the free-ridership portion of energy savings due to the market trend change of EEMs.[118]

According to KCPL's response to Staff's DR No. 0082.1(2) in Case No. EO-2019-0132, KCPL insists that free-ridership is prevented through an active dialogue with the end participants to better understand their facilities' operation and any miscellaneous factors (new equipment-load, shut-downs/outages, etc.) that should be accounted for to reflect true net savings derived through participation in the program. This is an important effort but it is not enough to objectively prevent the free-ridership portion of energy savings.

According to KCPL's response to Staff's DR No. 0082.1(3) in Case No. EO-2019-0132, KCPL also insists that KCPL's MEEIA Cycle 3 BPE program will be free from free riders as the program will actively recruit participants for the SEM program that will have cumulative sum regression models run illustrating their current energy consumption compared to the energy reduction achieved through the operation and maintenance and behavioral upgrades implemented; extracting items highlighted in KCPL's responses to Staff's DR No. 0082.1 (1) and (2) in Case No. EO-2019-0132 also reflect net savings derived through their participation in the program. However, this response shows the same limitation of KCPL/GMO's understanding of how to prevent free-ridership. KCPL/GMO only compares a before and after of a customer change in usage change without considering the impacts of market trends that increase naturally occurring EEMs.[119] This shows a potentially limited understanding from KCPL/GMO of free ridership, which makes it unlikely either is fully addressing the scope of the issue.

[118] Because of technology developments, more energy efficient products are introduced in the market with a lower price. At the same time, less energy efficient products are becoming obsolete.

[119] To properly measure free-ridership under market trends changes, the base energy usage must consider not just self-reflected usage of a past period but the control groups' usage changes of a test period. The control groups are non-participants of any energy saving incentive programs such as MEEIA.

In conclusion, because the characteristics of BPE to measure energy savings amounts cannot easily be calculated free from free-ridership problems, KCPL/GMO needs to prepare a more objective method and clearer customer eligibility requirements to minimize free-ridership in the BPE program and to utilize any proper statistical methods to remove the free-ridership energy savings due to the market trend change of EEMs. As proposed, Staff recommends that the Commission reject KCPL/GMO's proposed BPE program. However, Staff recommends that the Commission could approve KCPL/GMO's BPE programs in MEEIA Cycle 3 under the condition KCPL/GMO resolve Staff's concerns about free-ridership.

Staff Experts/Witnesses: Robin Kliethermes and Seoung Joun Won, Ph.D.

Electric Vehicle Charging Pilot Program

KCPL/GMO has requested approval for a Pilot Program for Residential Level 2 electric vehicle (EV) charging stations to determine whether Level 2 charging stations are more efficient than Level 1 charging. The MEEIA program will promote residential Level 2 EV charging stations for the purpose of verifying which level of EV charging is the most efficient and to allow KCPL/GMO to better understand the demand response capabilities of residential and public chargers.[120] There is an immense amount of information available from previously conducted studies from outside sources that verify that Level 2 EV charging is faster and more efficient than Level 1 charging. This pilot program, as proposed, is not necessary for KCPL/GMO to make that determination.

Further, KCPL/GMO's Application only provides the following statement regarding how the EV pilot program will work:

> To incentivize efficient charging solutions at home, we're researching options for an EV home charger program. Charging with a 240-volt Level 2 (L2) home charger is faster and more efficient than a 110-volt Level 1 (L1) outlet…
>
> To better understand demand response capabilities with home and public chargers, possibilities exist to explore the potential for maximizing technology platforms, such as DERMS.

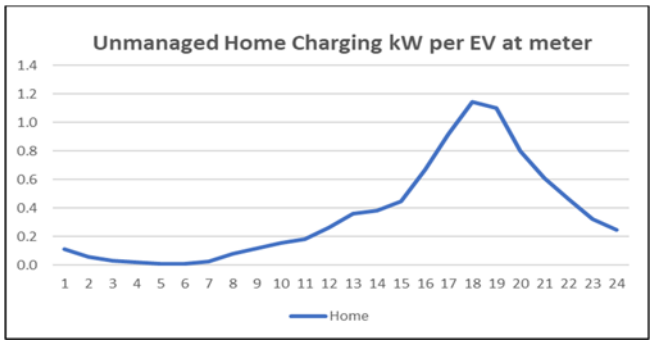
[120] MEEIA Cycle 3 2019-2022 Filing, p. 45.

KCPL's response to Staff DR No. 0100,[121] requesting additional information regarding the funding level of the program, and Level 2 charging equipment specifics is provided below.

> The Company is evaluating a potential MEEIA Cycle 3 program to capture the improved EV charging efficiency and demand management potential of Level 2 home charging over Level 1 charging. We are considering some research expenditure, but no specific program parameters have been developed to date.

The response went on to state:

1. A program budget has not been established.
2. Specific EV charging stations have not yet been identified.
3. Specific EV charging station requirements have not yet been identified.
4. Specific EV charging station parameters have not been established, but the focus would be on chargers that could support EV charging levels up to 7.6 kW.
5. As a specific program design has not yet been formulated, program level energy efficiency and system capacity impacts have not yet been estimated. The following figure illustrates the Company's current estimated system level average load shape for unmanaged home EV charging.



Essentially, KCPL/GMO is unsure how the program will actually be designed and implemented. Additionally, based on the graph above, provided by KCPL, home EV charging is expected to peak at approximately 6:00 pm, which is typically considered a peak time for system usage. KCPL stated in response to Staff DR No. 0100 that Level 2 chargers charge at a higher rate of electricity per hour than a Level 1. Therefore, if the program participants use a Level 2 charger instead of a Level 1 charger at 6:00 pm, they will add more demand to the system then if they used the Level 1 charger.[122]

[121] The response pertains to both cases; EO-2019-0132 and EO-2019-0133.

[122] Using a Level 2 charger will add more demand than using a Level 1 charger, no matter the time of day. However, this increase in demand is further exacerbated during peak times.

In addition, KCPL/GMO's proposed home EV charging pilot does not require the program participant to be on a time-of-use rate or participate in residential demand response.

Based on the information provided by KCPL/GMO, it is difficult to determine that the pilot program as proposed provides any benefits to participants or non-program participants.

Further, as proposed, the pilot program is not without free riders. The owners of EVs are made aware of the availability of Level 2 charging stations at the point of purchase when the vehicle is purchased. EV owners already have a knowledge base that includes the option to purchase a faster charging and more efficient Level 2 EV charging station for their residence. The pilot program would likely ensure the free-ridership of EV owners, who would likely be inclined to purchase a Level 2 charging station for their home for faster charging of their EV. Residential Level 2 EV charging stations are not an appropriate use of ratepayer funds. The EV owners would be likely to purchase a Level 2 charging station without the MEEIA program incentive.

Staff recommends the Commission reject the residential Level 2 charging station pilot program because it is ripe for free-ridership, there is no information provided about how the Level 2 charging stations would be used in a Demand Response program, and there is no expectation that participants or non-participants will receive a benefit from this pilot program.

Staff Expert/Witness: Byron M. Murray

Income-Eligible Programs

KCPL/GMO has requested approval for a continuation of two income-eligible programs: (1) Income-Eligible Multi-Family ("IEMF") program and (2) Income-Eligible Home Energy Report (KCPL only).

The IEMF program is a continuation from the approved MEEIA Cycle 2. KCPL/GMO proposes a six-year cycle rather than the three-year cycle that the Commission approved for MEEIA Cycle 2. The overall proposed program budget will have a combined increase from roughly $3 million long-term investment over a three-year period to a combined program budget of roughly $10 million long-term investment over a six-year period.

The proposed program would provide savings by shifting the focus away from (1) direct installs and audits and (2) in-unit and common area lighting as approved in MEEIA Cycle 2.

MEEIA Cycle 3 would instead focus on (1) audits, (2) a revamped in-unit and common area lighting program, and (3) HVAC and building shells.

KCPL/GMO proposed a few enhancements to the program to support the new program design. The proposed enhancements to the program are:

- Ease of Qualification
- Concierge Service Approach

  No Cost Assistance

  Education/Outreach, Level 1 Audit, Direct Install & HVAC Clean & Checks

  Incentives

  Overview, Application Support and Custom/Prescriptive Rebates
- Connect Store

  Utilize as a "Shop" in new One-Stop-Shop Approach
  Customer/Property Management Meetings/Events and Education
  Location
- Long-Lead Program Continuity: Up to 36-Month rebate lock-in

The Income-Eligible Home Energy Report Program is also a continuation from the approved MEEIA Cycle 2, but for KCPL only. The program is a behavioral energy efficiency and educational program that provides a comparison of the household energy usage information with similar types of customer, or "neighbors". The program operates as an opt-out program, where KCPL selects the customers that will participate in the program and will allow a customer to opt-out if desired.

Staff recommends approval of the Income-Eligible Multi-Family program as it has been proposed in the Application. As for the Income-Eligible Home Energy Report program, Staff recommends discontinuation of the program, as discussed above in Home Energy Report and Income Eligible Home Energy Report.

Staff Expert/Witness: Kory J. Boustead

Flexibility in Programs During Cycle

KCPL/GMO is proposing a new and streamlined approval process for implementing smaller sized pilot programs. On page 73 of the MEEIA Cycle 3 2019-2022 filing, KCPL/GMO

states, "The process reflects a hybrid between the MEEIA rule for pilot programs and the 11-step process, with the 11-steps plus an approval from the Commission for a tariff sheet." In response to Staff DR No. 0072, KCPL/GMO also states that, "…the Company's intent is to create a more collaborative approach with stakeholders around identification, research findings, evaluation and pilot prioritization, but provide a more streamlined approach for selection and development of smaller pilots (less than $500,000 and/or 500 participants)."

Rule 4 CSR 240-20.094(4)(G) details the necessary filing requirements for pilot programs. The filing requirements for pilot programs are very similar to non-pilot programs and are quite extensive. KCPL/GMO appears to be trying to avoid the need to meet all of the filing requirements for smaller pilot programs. Staff is not opposed to a more streamlined approval process for smaller pilot programs, but KCPL/GMO would need to file for a variance from 4 CSR 240-20.094(4)(G) in order to do so.

Staff Expert/Witness: Brad J. Fortson

iv. Demand Response Programs

1. Demand Response Program Design

KCPL/GMO proposed two demand response programs in its Application. The programs are Business Demand Response and Residential and Small Business Demand Response. Both programs are reportedly designed to incentivize participating customers to reduce or shift their respective loads during events that KCPL or GMO calls. There are many flaws in the program design and in the assumptions used to evaluate the programs. First and most importantly, KCPL/GMO utilized inflated avoided cost data to evaluate the cost-effectiveness of these programs. In addition to fundamental flaws[123] that Staff identified in Report Section II.B. - Avoided Costs, there are additional issues with KCPL/GMO's methodology for evaluating the cost-effectiveness of the Demand Response Programs as proposed. These additional flaws include, but are not limited to, evaluation assuming effective lives of measure energy and demand savings equal to 10 years for the Residential and Small Business Demand Response program, evaluation of cost effectiveness, lack of persistence of programs, non-compliance with

[123] Assumption that a cost may be avoided absent any need for investment.

MEEIA statute, and lack of location specific incentives to derive benefits to customers that do not participate in the programs.

One of the major benefits of well-designed demand response programs is the potential to target areas of congestion on the distribution system. If the utility can avoid distribution upgrades through utilization of demand response, there is a potential benefit to all customers including customers that do not participate in the program. This is an example of an actual avoided distribution cost. Demand response programs have the unique ability to target these areas of congestion. If there is an area that is especially congested, an implementer could increase the incentive to customers to drive participation and avoid system upgrade costs. KCPL/GMO has not designed the programs in this manner and therefore cannot avoid costs associated with system upgrades through the implementation of the program. KCPL/GMO has not identified any potential projects that may be avoided through implementation of MEEIA Cycle 3 programs.[124] Additionally, MEEIA Cycle 2 programs did not affect specific distribution upgrades.[125] Therefore, Staff must assume a zero value for avoided distribution costs.

Residential and Small Business Demand Response

All of the evaluations for the Residential and Small Business Demand Response programs proposed by KCPL/GMO assume effective lives of energy and demand savings attributed to smart thermostats equal to 10 years.[126] The 10-year effective life assumption is accounted for in the benefits that are modeled for the programs. These benefits are unrealistic because the programs lack persistence absent continuous monetary incentives. KCPL/GMO Cycle 2 Thermostat Program Agreements only require customers to remain in the program for 3 years to receive ownership of the thermostat.[127] KCPL/GMO has not finalized the MEEIA Cycle 3 Customer Program Participation Agreement, but referred Staff to an example of a MEEIA Cycle 2 Thermostat Program Agreement.[128]

[124] Response to Staff DR No. 0040.
[125] Response to Staff DR No. 0039.
[126] Work papers provided by KCPL and GMO in support of their application.
[127] Response to Staff DR No. 0126.
[128] Ibid.

KCPL/GMO's Application requests the programs be approved for 3 years, but it has assumed benefits attributable to demand response beyond 2021. The demand response programs are reportedly designed in a manner that monetarily incentivizes customers to modify load during periods that KCPL or GMO predict may be near their respective system peak and, therefore, KCPL or GMO could call a demand response event. However, absent continuous incentives to participate in load modification during a peak event, customers are highly unlikely to participate by modifying their load during an event beyond the proposed MEEIA Cycle 3. Additionally, KCPL and GMO have not proposed a mechanism to recover costs associated with demand response beyond 2021. Furthermore, KCPL and GMO Residential Demand Response tariffs do not require any agreement from participating customers to continue to remain enrolled in similar programs in subsequent MEEIA cycles. Therefore, it is inappropriate to include assumed benefits attributable to the demand response programs beyond 2021 because the programs do not provide any persistent energy or demand savings. Inclusion of potential benefits from the Demand Response programs in the years subsequent to the end of the MEEIA cycle artificially inflate the savings that should be attributed to the programs because the avoided costs[129] that KCPL/GMO used to evaluate the programs are projected to be higher in the subsequent years.

KCPL and GMO each offered similar residential demand response programs in their respective MEEIA Cycle 2 portfolios.[130] According to the exemplar tariff sheets filed as Appendix 8.1 with the KCPL and GMO MEEIA Cycle 3 filing, the purpose of the residential Smart Thermostat Program is as follows, "The voluntary Residential Smart Thermostat Program is intended to help reduce system peak load, and thus defer the need for additional capacity." As discussed in much more detail in Report Section II.B. - Avoided Costs, KCPL/GMO does not have a capacity shortfall in the next 10 years and therefore there is little value in system peak load reduction through programs such as the Residential and Small Business Demand Response Programs at this time. By the time KCPL/GMO needs to reduce load for SPP resource adequacy, the thermostats installed as a result of the proposed MEEIA Cycle 3 will be beyond

[129] Avoided energy costs and avoided capacity costs.

[130] Residential Programmable Thermostat Program.

their useful lives, based upon KCPL/GMO measure life assumptions.[131] As discussed earlier in this Report, if there is not substantial deferral of supply-side resources, customers that do not participate in programs realize little, if any, benefits. Furthermore, the likelihood of being able to reduce actual system peak by utilizing such a minimal number of events is very small. However, if the programs were designed in a manner that would allow KCPL/GMO to avoid SPP fees as discussed in much more detail in Report Section II.B.iv. – Transmission and Distribution Avoided Cost, then customers may realize some benefit from the program. Because KCPL/GMO proposed programs are not designed to avoid SPP fees, Staff assumed zero avoided transmission fees from demand response in its analysis of the programs.

If designed properly, there could still be benefits from demand response programs; however, neither KCPL nor GMO removed any MEEIA Cycle 2 customers that repeatedly elected to override the thermostat adjustment.[132] Furthermore, neither KCPL nor GMO reduced the incentive amount paid to any customers that repeatedly elected to override the thermostat adjustment.[133] The KCPL/GMO MEEIA Cycle 2 Thermostat Program Agreement states, "At any time that you desire, you may override this temperature setpoint simply by turning your Nest Learning Thermostat to a different temperature or using the Nest website or mobile application."[134] There was no penalty, removal from the program, or reduction of annual incentive due to overriding the thermostat adjustment. Further KCPL and GMO offered the thermostats in their respective MEEIA Cycle 2 programs free of customer charge. Combined, these facts should provide great pause that the programs are actually designed in a manner that monetarily incentivizes enrolled customers to modify load during periods that KCPL or GMO predict may be near their perspective system peak. Rather customers were incentivized to replace their existing thermostat with a new smart thermostat free of charge, receive an annual incentive regardless of participation, and optionally participate in called events. Since the MEEIA Cycle 3 programs are designed in a similar manner, the programs proposed by

[131] Appendix 8.3 of the MEEIA Cycle 3 2019-2022 filing.
[132] Response to Staff DR No. 0125.
[133] Ibid.
[134] Response to Staff DR No. 0126.

KCPL/GMO in MEEIA Cycle 3 will likely lead to the same result as the MEEIA Cycle 2 programs, with higher costs.

To date GMO has spent ** _____ **[135] for their respective Residential Programmable Thermostat Program in MEEIA Cycle 2. In addition to the costs of the thermostats, KCPL and GMO invested nearly $1.4 million dollars in a Distributed Energy Resource Management System (DERMS)[136] in MEEIA Cycle 2 to "provide additional DR operational capabilities and insight into actual DR performance."[137] KCPL has budgeted $8,300,568 and GMO has budgeted $9,339,397 for their respective MEEIA Cycle 3 Residential Demand Response Programs. Within Appendix 8.7 of the KCPL/GMO MEEIA Cycle 3 Application, KCPL proposes to earn 37% of the total proposed earnings cap through implementation of Residential Demand Response and GMO proposes to earn 32% of the total proposed earnings cap. Given the lack of benefits to all customers, other than an incentive received by the participant regardless of the level of participation, KCPL and GMO have not demonstrated why these programs should continue, let alone expand. It is possible that residential demand response programs such as these could have value in the future through program designs targeted around avoidable distribution system upgrades or decreased monthly peak load coincident with the SPP zonal monthly peak, but KCPL/GMO did not design the program to avoid these types of costs.

In addition to the lack of penalties, reduction in incentives, or removal from program participation, KCPL and GMO rarely called events during MEEIA Cycle 2. For instance, in 2016 KCPL and GMO called eight separate four-hour events, four of which occurred in September when system peaks are unlikely. In 2017, KCPL and GMO called one event lasting three hours in June and two events in July lasting only two hours each. In 2018, KCPL and GMO continued the trend of reduced events by calling one two-hour event in June and another two-hour event in August. At the time of filing this Report, KCPL and GMO have each called two events that each lasted only 2 hours in 2019. The Stipulation and Agreement between KCPL, GMO, and the signatories signed on February 15, 2019 sets a minimum of five events for

[135] Q2 Demand Side Management Advisory Group report.
[136] Response to Staff DR No. 0109.
[137] Response to Staff DR No. 0105.

this program for the 2019 season. Since there were not event-based costs in the KCPL and GMO respective MEEIA Cycle 2 programs, the program costs for the Residential Programmable Thermostat Program for KCPL and GMO would have been the same regardless of whether or not each company called zero events or the maximum number of events allowed under the tariff. KCPL and GMO heavily incentivized adoption of smart thermostats in their respective MEEIA Cycle 2 programs and then failed to call events in subsequent years. When asked for correspondence from their respective customers regarding customers becoming fatigued by the number, frequency, and/or length of curtailment events, KCPL/GMO replied, "At this time, no correspondence from customers has been received."[138] KCPL and GMO missed a great opportunity to explore the potential capabilities and shortfalls of the demand response assets by not calling more events, not targeting events based on location specific parameters, not modifying incentives based on performance, not modifying incentives based on location, not testing the incentive threshold for adoption, and not testing the temperature thresholds for participation during the respective approved MEEIA Cycle 2 programs. ** _____ _____ **[139] dollars for GMO is a large amount of ratepayer dollars being invested in assets that are not being utilized or that do not provide benefits, aside from the bill credits paid to participants, to all customers..

Staff recommends that if the program continues, it should be redesigned in a manner that would lean on the sunk cost of investments made in thermostats and DERMS in MEEIA Cycle 2, provide clear monetary incentives for meaningful participation in areas that will benefit customers as a whole, minimize cost, focus on calling events based on location specific needs, target events that could decrease peak load coincident with the SPP zonal monthly peak, and maximize tangible savings to provide benefits to customers regardless of participation in the program. Staff further recommends that the Commission order KCPL/GMO to only consider the benefits that are realized from Demand Response programs for years in which the customer will receive an incentive for purposes of program evaluation. This approach would allow KCPL and

[138] Response to Staff DR No. 0122.

[139] Calculated by adding the proposed EO cap and 120% as allowed without filing a modification by 4 CSR 240-20.094(5)(A)1.

GMO to utilize the assets that each company has already paid for[140] to understand the capabilities and limits of residential thermostats used in a demand response application for a time and location where substantial benefits could be derived through avoided investment costs. Given the minimal utilization by KCPL and GMO to date, there is likely to be a learning curve for the Companies to understand the potential capabilities of the assets each utility has invested in thus far and propose to continue to invest in through the MEEIA Cycle 3 Application.

Business Demand Response

KCPL/GMO have reportedly modified the Demand Response Incentive ("DRI") offered in MEEIA Cycle 2 and renamed the program Business Demand Response ("BDR") for MEEIA Cycle 3. Many of the issues raised by Staff in the Residential Demand Response programs apply to the design flaws of Business Demand Response. The BDR program is reportedly primarily intended to build potential capacity for use in peak reduction to meet SPP capacity margin requirements.[141] As discussed in Report Section II.B. - Avoided Costs, KCPL/GMO does not have a capacity shortfall and therefore there is little value in system peak load reduction through programs such as the Business Demand Response programs at this time. Alternatively, programs that target stressed areas of the distribution system could produce benefits if the programs could substantially reduce peak in an area to a level that would defer or reduce investment in new infrastructure. Another way to derive value from a business demand response program is to avoid SPP fees by minimizing peak load coincident with SPP zonal monthly peaks. As currently designed, the Business Demand Response program will not achieve benefits associated with avoided distribution system upgrades based on targeted implementation or guaranteed avoided transmission costs through reduced SPP fees. Part of the change from DRI to BDR is the inclusion of an aggregator-style demand response avenue. KCPL/GMO still intends to offer the Business Demand Response program through an implementer. Offering both an aggregator-style and implementer driven program could cause confusion for customers. If KCPL/GMO offers a Business Demand Response program it should utilize the program design structure that is most

[140] There would still need to be some participation incentive payments.

[141] Response to Staff DR No. 0025.

cost-effective. However, no quantitative analysis was conducted by KCPL/GMO regarding the cost-effectiveness of a KCPL/GMO administered vs. an aggregator administered approach.[142]

GMO's Cycle 2 approved budget for DRI[143] is ** _____ ** and KCPL's approved budget is ** _____ **. GMO has budgeted $9,942,946 and KCPL has budgeted $2,859,375 for their respective MEEIA Cycle 3 Business Demand Response programs. In order to realize benefits from the BDR as designed, KCPL/GMO will have to treat the demand reductions as long term resources and maintain the demand reductions through 2032. As shown in Confidential Schedule JLr-2, if KCPL/GMO maintains the demand response programs at the MEEIA Cycle 2 target level of peak reduction, KCPL/GMO would collect, via extension of the KCPL and GMO proposed earnings and the program budgets, ** _____ ** dollars. The maximum avoided capacity cost benefit to customers in 2032 would be the equivalent of the market cost of capacity to serve the capacity required to meet the SPP adequacy requirement in 2032, as shown in Table 6, if the Commission rejected the Application in its entirety except for Demand Response.

Table 6 - ** _____ [144]

**

As stated above, the market cost of capacity to serve this deficit, if capacity costs remain stable, could be as low as ** _____. ** Staff views the calculations in Confidential Schedule JLr-2 as conservative estimates because the budgets for KCPL and GMO Business Demand Response have nearly doubled from Cycle 2 to Cycle 3 while the Cycle 3 targeted demand reduction is nearly identical to the final year of MEEIA Cycle 2.

[142] Response to Staff DR No. 0117.
[143] DRI is the predecessor of the proposed BDR.
[144] Table based on response to Staff DR No. 0061.

By requesting additional earnings opportunities for maintaining the peak demand savings achieved in Cycle 2, KCPL/GMO essentially requests that the Commission grant it a second opportunity to earn a profit for merely maintaining the Cycle 2 level of peak demand savings without providing customers the benefit of deferring a necessary supply-side investment.

It is likely that KCPL/GMO will continue to request an earnings opportunity in each subsequent MEEIA filing simply for maintaining the same level of demand reductions. If the level of demand savings are not maintained at the same level through the year in which KCPL/GMO has a capacity shortfall, KCPL/GMO would have recovered the program costs and earned a profit from customers for implementing the program for as many cycles as the program was run without any benefit to ratepayers. Even while maintaining the same level of demand reductions, KCPL/GMO would still have a capacity shortfall in 2033 to the point that a supply-side resource is a necessary investment, for which KCPL or GMO would be allowed the opportunity to earn a return on that investment. Staff's primary recommendation is that KCPL/GMO should not receive any earnings opportunity attributed to MEEIA Cycle 3. However, if the Commission determines that an earnings opportunity is appropriate, Staff recommends that the Commission only allow KCPL/GMO an opportunity to earn on demand response savings that exceeds the incremental peak demand savings achieved in Cycle 2 and defers or avoids investments in necessary infrastructure as discussed in Section E.ii. Staff further recommends that the Commission only allow KCPL and GMO to receive earnings opportunities for incremental peak demand savings greater than the peak demand savings achieved in Cycle 2 and Cycle 3 in subsequent MEEIA filings if the investment defers or avoids necessary investments in necessary infrastructure.

The DRI program in MEEIA Cycle 2 relied on a heavily weighted up-front payment to sign-up for the program, followed by minimal incentives to actually participate during called events and nearly non-existent "penalties" for non-participation. Staff is unaware of KCPL or GMO removing any customer from the program for failing to perform to the contracted level For example, if a hypothetical customer signed up claiming the ability to reduce 500 kW during called event hours, that customer would receive bill credits totaling ** ____ ** over the season or ** ____ ** per month during the season. If that same customer did not participate in a 4-hour event in a given month, or even used more load than expected, the customer's bill credit

would be reduced by roughly ** ____ . ** The participating customer would net ** ____ ** for the month or ** ____ ** for the season for doing nothing but signing up for the program, i.e., not participating. This type of program design does not incentivize performance of participants and will not benefit any customers in the respective rate classes. Only those that signed up and received bill credits for the program, regardless of those customers' participation in events, received any benefit.

In KCPL's proposed Cycle 3 application, Business Demand Response accounts for more than 25% of the overall proposed program budget, and achieving the peak demand reduction goals results in KCPL being awarded 44% of its requested earnings opportunity. For GMO's proposed MEEIA Cycle 3 application, Business Demand Response accounts for more than 36% of the overall proposed program budget, and achieving the peak demand reduction goals results in GMO being awarded 48% of its requested earnings opportunity. However, the proposed savings are simply a continuation of the demand savings that KCPL and GMO planned to achieve through Cycle 2, without any incremental peak savings attributable to Cycle 3. Given the lack of benefits to all customers, other than an incentive received for participation, KCPL and GMO have not demonstrated why these programs should continue, let alone expand. It is possible that demand response programs such as these could have value in the future through designs targeted to avoid distribution system upgrades or to avoid regional transmission organization fees, but KCPL/GMO did not design the program to achieve these types of cost avoidance. Staff recommends that if the Business Demand Response program continues, it should be redesigned to minimize cost, focus on calling events based on location specific needs, target events that could decrease peak load coincident with the SPP zonal monthly peak, maximize tangible savings to provide benefits to customers regardless of participation in the program, and only allow opt-out participation if the program is clearly designed as a curtailable rate schedule or tariff.

2. Allocation of Business Demand Response Costs

KCPL/GMO has proposed a new allocation of costs associated with the newly designed Business Demand Response Program.

> Program costs associated with Business Demand Response will be allocated to all rate classes based on the proportion of billed kWh sales

> from each of those classes. This allocation methodology addresses the inequity of opt-out customers' eligibility to participate in demand response and supports the concept that all customers benefit from the system demand reduction provided by participants in demand response.[145]

As stated throughout this Report, KCPL/GMO does not have a capacity shortfall during MEEIA Cycle 3, and has not demonstrated benefit to all customers, including those that do not participate in programs. Additionally, KCPL/GMO proposed the Residential Demand Response program only be recovered from the residential class. If the argument made by KCPL/GMO to allocate costs of demand response is valid then it would stand to reason that the costs of the Residential Demand Response program should be allocated to all classes as well. Therefore, it is inappropriate to allocate Business Demand Response to all rate classes.[146]

KCPL/GMO has proposed that the costs of other MEEIA Cycle 3 programs be allocated to each class based on participation. If opt-outs are excluded from participation in Business Demand Response based upon final program design, Staff recommends that the costs from Business Demand Response be allocated to each rate class based upon participation similar to the methodology proposed for the other programs. If opt-outs are allowed to participate in Business Demand Response based upon final program design, Staff recommends that the costs from Business Demand Response related to MEEIA participants be allocated to each non-residential rate class based upon participation, except for Business Demand Response costs associated with opt-out customer participation, which should be allocated to all non-lighting classes based on kWh sales.

3. Evaluation of Programs

KCPL/GMO utilized the Total Resource Cost test to evaluate the cost-effectiveness of all of the proposed demand-side programs. Staff agrees with this approach due to the language contained in Section 393.1075.4 RSMo[147] with one exception, demand response programs. Exclusion of customer payments for demand response enrollment and event payments as a program cost leads to a pass through cost that is not reflected in the TRC. This methodology

[145] Page 54 of KCPL/GMO MEEIA Cycle 3 2019-2022 filing.

[146] Staff is not recommending that costs attributed to Residential Demand Response should be allocated to any class other than the residential class.

[147] The commission shall consider the total resource cost test a preferred cost-effectiveness test.

artificially inflates the cost benefit analysis test result because there is rarely a measure cost associated with these programs. While the pass through of costs associated with incentives for a measure is appropriate and reasonable for programs in which there is an investment necessary for a specific measure, it is inappropriate when there is little, if any, investment necessary to participate in demand response programs. This exclusion results in pass through of program costs regardless of benefits incurred. KCPL/GMO could offer any amount of payment for participation in demand response programs and the program would be cost-effective so long as the benefits exceeded administrative costs. That is not the case for any other program.

The Utility Cost Test ("UCT") provides a better view of whether or not the demand response program is actually cost effective from the utilities' perspective. The UCT relies upon the same benefits and costs as the TRC but excludes the incremental cost to install a measure and includes the costs of enrollment and event payments. Staff is unaware of any other program that could have a UCT that is less than the TRC unless KCPL/GMO were to incentivize a measure beyond the incremental cost. A program that is not cost effective in accordance with the UCT is a burden borne by all customers within the rate class because the costs to administer the program exceed the benefits that are provided to the class as a whole. Said another way, the benefits that are received by a few customers are outweighed by the cost to administer the program. Therefore, utilizing the TRC as the evaluation methodology could ultimately cause a burden to the customer rate class if the UCT is less than 1.0 which is in direct conflict with the Section 393.1075.4. Staff recommends that if demand response programs are approved as part of MEEIA Cycle 3, the Commission require KCPL/GMO to consider the UCT as the primary cost effectiveness test for demand response program evaluation purposes, which is consistent with the evaluation methodology proposed by Ameren Missouri in Case No. EO-2018-0211.

Additionally, KCPL/GMO has not indicated how the utilization of information from AMI meters will benefit the evaluation of savings from demand response programs.

4. Statutory Issues

Although not attorneys, part of Staff's responsibilities as expert witnesses is to evaluate cases through the existing statutory and regulatory framework and apply the requirements found in statutes and rules as appropriate to ensure applications pass regulatory review. As part of this

analysis, the MEEIA Cycle 3 Demand Response programs were reviewed and found not to be compliant with statutory and regulatory obligations.

Section 393.1075.4

The MEEIA Cycle 3 Demand Response programs as proposed do not meet the statutory requirement[148] to provide benefits to all customers regardless of whether the programs are utilized by all customers. If the MEEIA Cycle 3 programs are approved as proposed, participating customers would receive benefits in the form of bill credits. The entirety of the customer class pays the costs of the incentives and the costs to implement the program without realizing any benefits that would come from avoiding supply-side resource investment or avoiding distribution system upgrades. Because there are no avoided capacity costs or avoided distribution costs during the cycle, the Demand Response programs are not cost-effective. Therefore these programs should not be approved as proposed.

Section 393.1075.10

KCPL/GMO's proposed Business Demand Response program would allow opt-out customers to participate in the program, and the costs associated with opt-out customer participation will be recovered through the respective KCPL or GMO DSIM charge. Section 393.1075.10 RSMo states:

> Customers electing not to participate in an electric corporation's demand-side programs under this section shall still be allowed to participate in interruptible or curtailable rate schedules or tariffs offered by the electric corporation.

Staff would not argue that the language referenced above precludes customers who have elected to opt-out from participation in interruptible or curtailable rate schedules or tariffs. However, Staff cannot verify whether or not the proposed program is truly an interruptible or curtailable rate schedule or tariff. According to KCPL/GMO,

> KCP&L/GMO is currently awaiting RFP responses for a Business Demand Response (BDR) Program Administrator from subject matter experts that will be evaluated for specific best practices/creative ideas for effective customer Program participation. Therefore, the specific steps to

[148] Section 393.1075.4 RSMo.

> enforce event performance and the consequences of non-performance have not yet been established.[149]

That DRI program offered large incentives for enrollment and customers could participate in events voluntarily with very little financial impact for subpar event performance. That type of program does not clearly establish itself as an interruptible or curtailable rate schedule or tariff. GMO's current tariff contains a Curtailable Demand Rider which is offered to all customers and recovered outside of the DSIM charge. The penalties associated with subpar event performance of the Curtailable Demand Rider are much greater than what was offered as part of the DRI. The rates at which the customer will be compensated and penalized are included within the tariff sheets describing the rider. The tariff sheets also include various requirements that must be met by the customer to receive any compensation and includes restrictions on participation. For these reasons, the Curtailable Demand Rider more closely resembles a curtailable rate schedule or tariff as identified by Section 393.1075.10 RSMo than the DRI implemented as part of KCPL's and GMO's respective MEEIA Cycle 2 programs. Staff recommends that if the Commission approves the BDR as designed that only those customers that have not opted-out of MEEIA programs be eligible to receive the incentives.

5. Utilization of on-site generation for Demand Response

KCPL/GMO intends to allow customers to utilize on-site generation to meet the requirements of the Business Demand Response program.[150] However, the tariff sheets provided with the Application do not contain enough restriction in regard to the types of generating units that can be utilized or the level of emissions controls. Many customers throughout the state have emergency back-up generators that have been exempted from permitting via 10 CSR 10-6.061 because the sole purpose of the generating unit is for emergency back-up. Participation in BDR could void that exemption and cause the customer to be non-compliant with state and federal regulations. Some stationary generators must meet strict state and federal emissions limits including but not limited to 10 CSR 10-6.390, New Source Performance Standard ("NSPS") IIII, NSPS JJJJ, and Maximum Achievable Control Technology ZZZZ. Staff recommends that, if the

[149] Response to Staff DR No. 0087.
[150] Response to Staff DR No. 0115.

Commission approves a Business Demand Response program, the Commission require KCPL/GMO to only allow generators that are dispatchable and ensure that the customer has verified compliance with all applicable performance and emissions standards. For policy reasons, it makes little sense to allow a generating unit that does not meet these strict emissions standards to be dispatched when the next available unit from the SPP generation stack invariably does meet those standards and would likely generate electricity cheaper than a backup generator.

Staff Expert/Witness: J Luebbert

E. DSIM Charge

i. Rider DSIM

As an introductory matter, while KCPL's and GMO's proposed MEEIA Cycle 3 Demand Side Investment Mechanism Riders are similar to KCPL's and GMO's DSIM Riders approved for MEEIA Cycle 2, KCPL and GMO have not treated the retention of MEEIA Cycle 2 tariffs consistently. Because the MEEIA Cycle 2 long lead projects, reconciliations, and EO calculations will persist beyond the end of MEEIA Cycle 2, it is necessary to retain the MEEIA Cycle 2 tariffs in each of the utilities' tariff books. KCPL has proposed to do so in a reasonable manner, with minor concerns noted below. However, unexplainably, GMO proposes to supplant the Cycle 2 tariff sheets including load shapes and other integral formula components with those applicable to MEEIA Cycle 3. Staff opposes the approach taken in the GMO tariffs, and recommends the MEEIA Cycle 2 tariff sheets remain in the tariff books for both utilities until they are no longer necessary.

Regarding KCPL's and GMO's proposed Cycle 3 tariffs, these sheets generally follow the approach of the Cycle 2 mechanism. However, there are a few differences that cause Staff concern.

First, KCPL and GMO propose to include any remaining unrecovered balances from MEEIA Cycle 1 in the applicability section of the DSIM Rider tariff for MEEIA Cycle 3.[151] The performance incentive for KCPL's and GMO's MEEIA Cycle 1 has been fully amortized

[151] Although, KCPL has recommended as part of its MEEIA Cycle 3 Application to remove the MEEIA Cycle 1 tariff sheets from its tariff book, KCPL still includes references to its MEEIA Cycle 1 in its proposed MEEIA Cycle 3 tariff sheets. Staff is not opposed to removing KCPL's MEEIA Cycle 1 tariff sheets if MEEIA Cycle 1 is fully reconciled as recommended by Staff.

into rates and all that remains is reconciliation between what was billed and the amount due.[152] The two tables below show the reconciliations for MEEIA Cycle 1 Program Costs Reconciliation ("PCR"), Throughput Disincentive Reconciliation ("TDR") and Performance Incentive Reconciliation ("PIR") that are included in the current DSIM rate.[153]

KCPL	Residential	Non-Residential
PCR	0	($7,431)
TDR	($825)	($10,465)
PIR	($14,822)	($4,214)
Total	($15,646)	($22,110)

GMO	Residential	Non-Residential
PCR	$1,610	($4,149)
TDR	$7,537	$8,209
PIR	($12,113)	$22,362
Total	($2,966)	$26,422

Under KCPL's and GMO's proposal, they would continue to treat MEEIA Cycle 1 as a separate calculation and continue to track over and under recoveries in MEEIA Cycle 3. Since it is likely that the kWh forecasted, from which the DSIM rate is developed, will not exactly match the kWh actually billed for a given recovery period, it is not likely that revenues and costs will reconcile exactly to zero, although not impossible. Staff recommends KCPL and GMO include, in their respective tariffs, provisions such that any remaining reconciliations related to recovery and true-up of MEEIA Cycle 1 PCR, TDR and PIR will be incorporated into the initial period MEEIA Cycle 3 PC, TD and Earnings Opportunity to fully reconcile MEEIA Cycle 1, so that additional calculations related to MEEIA Cycle 1 do not have to continue.

Second, for purposes of calculating KCPL's and GMO's TD in MEEIA Cycle 2, all measured savings were reduced based on a net-to-gross ("NTG") factor of 0.85. However, the EO for KCPL and GMO MEEIA Cycle 2 contained a TD NTG adjustment. In other words, the EO would be adjusted to capture differences between the NTG factor of 0.85 and final EM&V results.[154] Alternatively, KCPL/GMO MEEIA Cycle 3 proposes to use measure specific NTG values to calculate the TD instead of the NTG factor of 0.85. KCPL/GMO's proposed values are provided below.

[152] There are also small reconciliations due to collection of program costs and throughput disincentive.
[153] Provided in Case Nos. ER -2019-0165 and ER-2019-0166.
[154] The tariff set a floor of 0.80 and a cap of 1.0.

Business Standard	0.96
Business Standard - Small Business Targeted	0.87
Business Custom	0.92
Business Process Efficiency	0.90
Business Demand Response	1.00
Business Smart Thermostat	1.00
Energy Saving Products	0.84
Heating, Cooling & Weatherization	0.82
Home Energy Report	1.00
Income-Eligible Home Energy Report	1.00
Income-Eligible Multi-Family	1.00
Residential Demand Response	1.00
Research & Pilot	1.00

Additionally, KCPL/GMO's MEEIA Cycle 3 EO contains the following TD NTG adjustment provisions:

> The EO will be adjusted as follows:
>
> > TD Ex Post Gross Adjustment– Annually for each program year, the ex-post gross measures for each program determined through the annual EM&V will be used to recalculate the TD as described above for each of the annual evaluation periods. The difference between the recalculated TD using ex-post gross measures and the TD using the deemed numbers, whether an increase or a decrease, will be adjusted in the EO by applying carrying costs at the AFUDC rate compounded semi-annually.
> >
> > TD NTG Adjustment– Annually for each program year, if the EM&V NTG for each program is greater or less than the initial factor for such program, the difference between TD, the initial NTG and the TD calculated using the EM&V NTG, subject to a NTG cap of 1.00 and a floor of 0.80, will be recovered through the EO, including carrying costs at the AFUDC rate compounded semi-annually.

KCPL/GMO are further proposing that the EO for MEEIA Cycle 3 not be able to be adjusted below zero. However, if EM&V results in a NTG closer to 0.80 for the programs rather than 1.0, then based on the TD NTG adjustment provision mentioned above the EO could potentially go negative in a year.[155] Although it is important to have a reasonably accurate NTG, it is also important to be able to adjust for an EM&V result lower than expected.

Staff recommends that KCPL/GMO use a NTG factor of 0.85 in calculating the MEEIA Cycle 3 TD, which provides a reasonably accurate NTG factor and still provides the ability to adjust for an EM&V result lower than 0.85. However, if the Commission approves KCPL/GMO's proposed NTG, then Staff recommends that the EO be able to be adjusted below zero.

Third, KCPL/GMO's Application does not specify the method in which margin rates for purposes of calculating the TD are to be calculated.[156] Staff recommends that KCPL and GMO use the same margin rates that took effect on December 6, 2018, for the initial MEEIA Cycle 3 period, subject to update in future rate cases.

In addition to the Rider DSIM changes recommended above, Staff further recommends that:[157]

- KCPL/GMO's DSIM riders clearly state that long-lead projects associated with MEEIA Cycle 2 are addressed pursuant to the Stipulations and Agreements filed in Case Nos. EO-2015-0240 and EO-2015-0241.
- KCPL and GMO correct the definitions regarding Program Costs Reconciliation ("PCR"), Throughput Disincentive Reconciliation ("TDR"), Earnings Opportunity Reconciliation ("EOR") and Ordered Adjustment Reconciliation ("OAR") so that the costs to be reconciled are like costs.

[155] As proposed KCPL/GMO's EO may not go negative due to a large TD NTG adjustment; however, Staff recommends rejection of KCPL/GMO's proposed EO matrix.

[156] KCPL's and GMO's response to Staff's request for the margin rate workpapers were that the workpapers were provided as part of the most recent rate case where KCPL and GMO calculated new margin rates. The rate case margin rates took effect on December 6, 2018. While the margin rates provided in KCPL's tariffs filed with the MEEIA Cycle 3 Application do not match the margin rates that took effect on December 6, 2018, the MEEIA application filing was made prior to finalization of margin rates at the conclusion of the rate case. Staff assumes by KCPL's response that the margin rates resulting from KCPL's MEEIA Cycle 3 application will be the same margin rates that took effect on December 6, 2018. GMO's margin rates filed with its MEEIA Cycle 3 Application match GMO's current margin rates that took effect on December 6, 2018.

[157] This is not meant to be an exhaustive list of tariff changes, but addresses Staff's primary concerns.

ii. Rate Case Annualization

kW Demand

KCPL/GMO propose, in the Application, a test period kW demand adjustment of each customer class by adding back the monthly kW demand savings by class, incurred during the test period, from all active MEEIA programs in both Cycle 2 and Cycle 3, excluding programs with a one-year measure life. KCPL/GMO explains that the adjustment to kW demand is determined using the methodology described for kWh energy savings in the DSIM rider.[158]

Staff has concerns about the adjustment to kW demand billing determinants of energy savings in a general rate case. First, it is impossible to reliably estimate spontaneous electric demand of an individual customer for every 15-minute interval, which is the unit that sets billing demand. In addition, it is impossible to calculate aggregate class level peak demand response adjustments based on energy saving measures.

Billing demand is set by a customer's non-coincident peak ("NCP"). A customer's NCP is that customer's maximum 15 minutes of demand at any point during a month. If a customer's NCP is below the rate class minimum, the customer pays as though the customer met the minimum demand. A given customer's NCP can happen at any time. Within a class, each customer's NCP could occur at different times. A cement kiln, a hospital, and a factory should not be expected to have a peak at the same time of day.

There are also differences in how each class charges for billing demand. For example, the residential class has an hourly demand in Net System Input ("NSI") for each hour, but does not have any demand charge or any sort of demand billed to the individual customers. For the non-residential classes, a class hourly demand is the sum of each customer's usage in that hour; where a customer's billing demand may be the highest usage a customer experienced in that billing month, or it may be the highest usage a customer experienced in a prior billing month.

Certain KCPL and GMO non-residential rate schedules require a customer to pay the minimum demand to be served on that rate schedule, even though the customer's metered demand may be less. For example, the minimum demand for a KCPL LGS customer served at secondary voltage is 200 kW. Even if the customer's actual metered kW for that month is less than 200 kW the customer's billing demand will still be 200 kW. In this situation, it is not

[158] Page 14 in MEEIA Cycle 2 Stipulation & Agreement of Case Nos. EO-2015-0240 and EO-2015-0241.

appropriate to adjust this customer's billing demand below the minimum because the tariff does not allow the customer to be billed for a lower demand amount.

Furthermore, according to KCPL's response to Staff DR No. 0081 in Case No. EO-2019-0132, KCPL was not able to provide a year normalized hourly saving load shape ("HSLS") of energy efficient saving measures ("EESM") because the HSLS of EESM is not an input into DSMore. However, it is questionable to estimate peak demand saving without any estimation of HSLS of EESM. In the real world, the peak time of kW demand keeps changing; therefore, one must know the HSLS of EESM to properly adjust kW demand of energy efficient savings. According to the response for Staff DR No. 0099(6), KCPL and GMO do not calculate the coincident peak time for the test period kW demand adjustment. However, Staff cannot calculate a kW demand adjustment of energy efficient savings without the energy savings amount at the time of peak demand of both customer and class.

More interestingly, in KCPL's response to Staff DR No. 0099(9) in Case No. EO-2019-0132, KCPL admits that the kW demand savings can be adjusted in each month of the test year based on the monthly peak demand load shapes without the amount of savings at the peak demand time. However, this is theoretically impossible. Actually, the class level kW demand billing determinant is not just dependent on weather but is in fact more dependent on the electricity usage behavior pattern of each customer in the class. This is the reason Staff does not make a weather normalization adjustment for the kW demand billing determinant in a general rate case.

In summary, based on current available information, proper estimation of the adjustment to kW demand billing determinants for energy efficiency saving is impossible. Furthermore, Staff has never accepted any adjustments of kW demand billing determinants in a general rate case because of the unpredictability of aggregate usage behavior changes. Therefore, Staff recommends that no adjustment to kW demand billing determinants of energy savings are made for a general rate case.

Staff Experts/Witnesses: Robin Kliethermes and Seoung Joun Won, PhD

Saving Hourly Load Shape

KCPL/GMO failed to provide the HSLS of energy efficient savings, which Staff needs for each class to calculate NSI and Class Cost of Service ("CCOS") analysis. Even though calculating the exact amount of kW demand saving for each class is impossible, if KCPL/GMO are able to provide the hourly saving load (365-day x 24-hour data points) of each class or the HSLS of EESM, Staff is able to derive a more reasonable NSI and CCOS analysis.

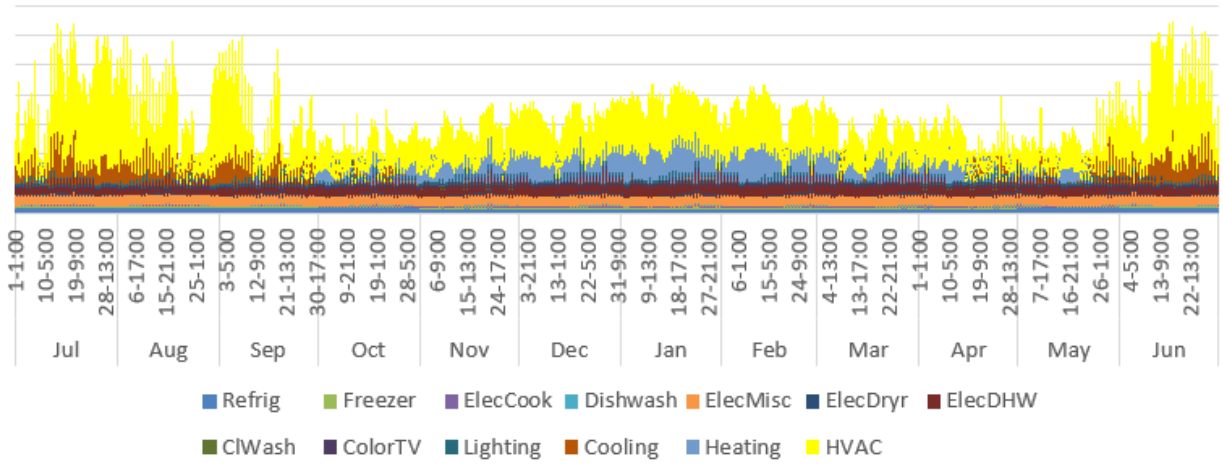
Footnote 7 of the MEEIA Cycle 2 Stipulation & Agreement of Case Nos. EO-2015-0240 and EO-2015-0241 provides as follows:

> Step 1. Begin with kW demand per class provided by Company. Step 2. Compute Monthly kW demand per program in the same manner as used for TD calculation. Step 3. kW demand before application of Energy Efficiency (EE) adjustment. Step 4. Cumulative Annual kW demand per program computed in the same manner as TD calculation as of Rebase Date. Step 5. Monthly Load Shape percentage per program converted to billing month equivalent by using a weighted average calendar month Load Shape percentage based on billing cycle information of the rate case. Step 6. Monthly EE Rebase Adjustment. Step 7. kW demand rebased for EE.

To complete this process, the HSLS of each class is required. For purposes of weather normalization and estimating fuel and purchased power expense, Staff, KCPL and GMO each prepare a model of how much energy is used by each class in each hour. This model is known as NSI. The usage (measured in kWh) that occurs in each hour is also that hour's demand (measured in kW). The S&A excerpt above describes how the kW levels for each of the 8,760 hours in a year should be annualized to reflect the changes caused by MEEIA to the level of energy consumed in each hour. For calculating the peak demand for CCOS, the HSLS is also necessary.

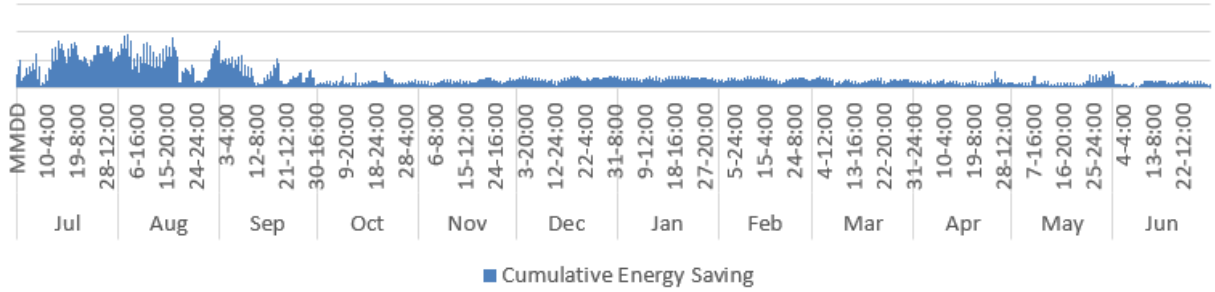
To explain how the HSLS of EESM is used for NSI and CCOS, a real example using Ameren Missouri data from its last general rate case is useful. Ameren Missouri provided the HSLS of EESM for NSI and CCOS in its rate case, Case No. ER-2016-0179. The HSLS of EESM with the 8,760 (356 x 24) hours of the year data points for each measures are presented in Figure 1.

Figure 1 Hourly Saving Load Shape of Energy Efficient Saving Measures



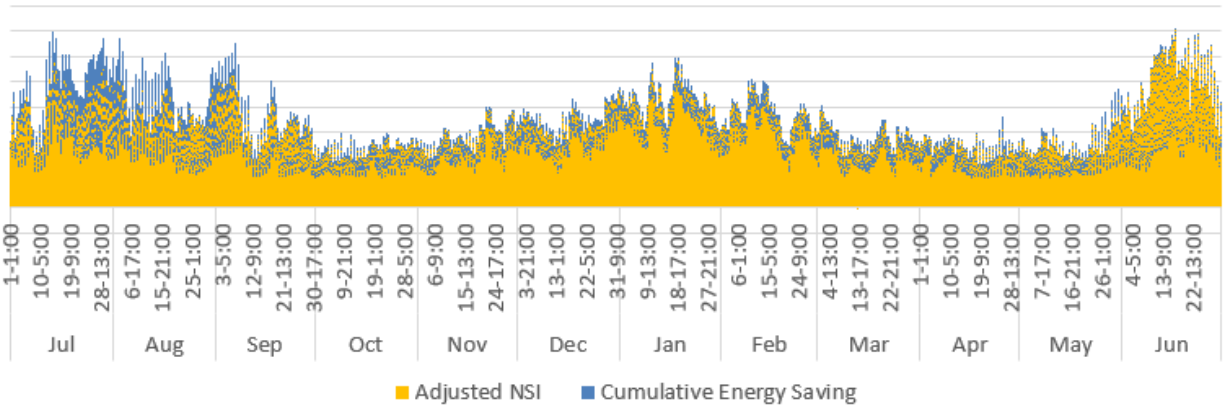
Some saving measures were not implemented at the beginning of the test period. Using the HSLS of EESM, the hourly load shape of unrealized cumulative energy savings for each rate class can be determined. Figure 2 is the HSLS of unrealized cumulative energy efficient savings in the residential class.

Figure 2 Unrealized Cumulative Hourly Energy Saving of Residential Class



After a weather normalization adjustment, the weather normalized hourly load shape is obtained. However, this hourly load includes the unrealized energy savings when energy efficient measures are implemented during the test period. Therefore, a proper hourly load shape should exclude unrealized cumulative energy savings from the weather normalized hourly load. In Figure 3, the orange-colored area represents the adjusted hourly load shape after removing the cumulative energy savings and the blue-colored area represents the cumulative energy savings.

Figure 3 Annualized Hourly Load Shape



After removing unrealized energy efficiency savings from the weather normalized load for each hour, a more improved hourly load shape for each class can be produced for NSI and CCOS analysis. Therefore, to derive a more reasonable NSI and CCOS analysis, Staff recommends that KCPL and GMO provide the hourly load shapes of energy efficient savings measures for any future KCPL and GMO general rate cases.

Staff Experts/Witnesses: Robin Kliethermes and Seoung Joun Won, PhD

iii. Earnings Opportunity Component

In their Applications, KCPL and GMO are proposing to use the existing EO matrix $/unit values applied in their MEEIA Cycle 2 for MEEIA Cycle 3 as a reasonable precedent for earnings opportunity value. KCPL's and GMO's proposed EO is contained in Appendix 8.7 of the Application and would result in a range[159] of pre-tax EO of $7.9 – 11.3 million for KCPL and $10.1 – 14.4 million for GMO.

As discussed earlier in this Report, KCPL/GMO's capacity requirements for SPP resource adequacy requirements are based on the joint capacity positions of the two companies. Through the KCPL/GMO joint resource planning process, KCPL/GMO MEEIA Cycle 3 alternative resource plan ("ARP"), ARP9, does not defer any new capacity needs identified in

[159] Ranges are from 100% of target for each EO performance metric to a set "cap" amount for each EO performance metric.

KCPL/GMO MEEIA Cycle 2's resource plan ARP7.[160] Since neither KCPL nor GMO have proposed any capacity deferment due to their respective MEEIA Cycle 3, there would be zero avoided capacity costs, and, therefore, there would be zero lost EO.

In an effort to demonstrate the reasonableness of KCPL's and GMO's proposed EO matrix, KCPL and GMO relied upon three alternative valuation methodologies to assess the reasonableness of their proposed EO matrix (Appendix 8.7).

These methodologies are 1) lost utility earnings as a result of supply-side deferrals and retirements, 2) percentage of Net Benefits created, and 3) Net-Present Value of Revenue Requirement of various alternative resource plans. Staff addresses each of these methodologies in the sections that follow. Tables 7 and 8 represents the proposed EO at target levels of performance.[161]

Table 7 - GMO

GMO				CYCLE 3 Cumulative EO $	
Proposed Metric	Unit	$/unit	Cumulative Cap	Target	Cap
HER: criteria will be whether or not program implemented each year	Program Year	$175,000	100%	$525,000	$525,000
Income-Eligible Multi-family: criteria will be average project savings as % of baseline and spend > 85% of budget	Program Year	$66,666.66	130%	$400,000	$520,000
Energy MWh (excluding HER & Multi-Family: criteria will be annualization of each program years installations TBD by EM&V)	MWh	$12.97	130%	$1,839,091	$2,390,818
MW (excluding HER, BUS DR, Bus Smart Thermostats, & Res DR): criteria will be annualization of each program years installations TBD by EM&V	MW	$122,507.02	150%	$2,670,791	$4,006,186
Bus Smart Thermostat & Res DR MW: criteria will be annualization of each program years installations TBD by EM&V	MW	$92,799.91	150%	$3,048,288	$4,572,432
Bus DR MW & R&P: criteria will be annualization of each program years installations TBD by EM&V	MW	$10,000	150%	$1,572,716	$2,359,074
				$10,055,886	**$14,373,510**

[160] On page 8 of UPDATED Appendix 8.11 filed on December 17, 2019, plans ARP7 and ARP9 both require the same generation additions, i.e., 207 MW in 2033 and 207 MW in 2036.

[161] KCPL/GMO's Application as Appendix 8.11, p. 7 of 10.

Table 8 - KCPL

KCPL				CYCLE 3 Cumulative EO $	
Proposed Metric	Unit	$/unit	Cumulative Cap	Target	Cap
HER: criteria will be whether or not program implemented each year	Program Year	$175,000	100%	$345,000	$345,000
Income-Eligible HER: criteria will be whether or not program implemented each year	Program Year	$10,000	100%	$30,000	$30,000
Income-Eligible Multi-family: criteria will be average project savings as % of baseline and spend > 85% of budget	Program Year	$66,666.66	130%	$400,000	$520,000
Energy MWh (excluding HER & Multi-Family: criteria will be annualization of each program years installations TBD by EM&V)	MWh	$12.97	130%	$1,295,302	$1,683,893
MW (excluding HER, BUS DR, Bus Smart Thermostats, & Res DR): criteria will be annualization of each program years installations TBD by EM&V	MW	$122,507.02	150%	$2,526,855	$3,790,283
Bus Smart Thermostat & Res DR MW: criteria will be annualization of each program years installations TBD by EM&V	MW	$92,799.91	150%	$2,854,815	$4,282,223
Bus DR MW & R&P: criteria will be annualization of each program years installations TBD by EM&V	MW	$10,000	150%	$457,550	$686,325
				$7,909,522	**$11,337,724**

On pages 11 – 13 of its October 22, 2015 *Report and Order* in Case No. EO-2015-0055, the Commission provided guidance requiring a foregone supply-side investment for there to be utility earnings opportunities associated with cost-effective measurable and verifiable efficiency savings as a result of MEEIA programs:

> The sole purpose of [an earnings opportunity] under MEEIA is to give the company an earnings opportunity to place shareholders in a financial position comparable to the earnings opportunity they would have had if those shareholders made a future supply-side investment. A successfully implemented performance incentive would accomplish the policy goal of valuing equally supply-side and demand-side investments.
>
> Utility capacity requirements are driven chiefly by the maximum amount of usage in a single hour during the year, known as "peak demand." Even if thousands of kWh were saved, if the summer peak demands are the same with and without a MEEIA Cycle 2, then Ameren

> Missouri would likely require the same capacity. Thus, it would not forego a future supply-side investment opportunity.
>
> In other words, such a performance incentive would compensate Ameren Missouri for foregone earnings opportunities that are not actually foregone. For example, **unless Ameren Missouri's MEEIA portfolio results in energy and demand reductions such that construction of a power plant would be cancelled or materially postponed, the shareholders will not have experienced a foregone supply-side earnings opportunity.**
>
> The kWh-based approach proposed in the Utility Stipulation would assume the same supply-side impact from a kWh saved under a nighttime lighting program as from a kWh saved under an air-conditioner recycling program. The distortions possible under this assumption would result in customers providing Ameren Missouri with a MEEIA earnings opportunity (under the guise of reducing future supply-side investment opportunities) without Ameren Missouri actually reducing any future supply-side investment opportunities.
>
> **This is not a matter of Ameren Missouri's ability to predict the future; this is a matter of building in a double-recovery windfall for Ameren Missouri. That double-recovery comes from ratepayers paying depreciation and return on equity on supply-side investments and then paying again for performance incentives on demand-side programs.**
>
> But, if an electric utility successfully reduces its future capacity requirements by reducing customer electricity usage, it may be able to avoid or postpone installation of additional costly generation. It is those demand savings that actually reduce investments necessary for the utility to meet its peak demand requirements. That, in turn, reduces future revenue requirements paid by customers, as well as future earnings opportunities made available to investors. [Emphasis added.]

Lost Earnings Opportunity

Staff's concern is that KCPL/GMO's Cycle 3 does not postpone any new supply-side resources until sometime after the 20-year planning horizon without the approval of additional approved MEEIA cycles. Approving KCPL's and GMO's EO could allow a double-recovery because there is expected to be no postponement of supply-side resources and no lost earnings opportunity as a result of MEEIA Cycle 3 programs, as proposed.

KCPL and GMO have provided estimates of the lost earnings associated with not building additional supply-side resources for various resource planning assumptions, but as

demonstrated in Table 9 below, with no retirements and no new load on a joint basis, an EO of $0 would be warranted for Cycle 3.

Table 9 - Lost Earning from Postponement of New Supply Side Resources

DSM Level	DSM Implementation Time	Retirements	New Load	Joint Earnings	KCPL Earnings	GMO Earnings
MEEIA 3[162]	**3 Years**	**No Additional**	**None**	**$0**	**$0**	**$26.3**
MEEIA 3	**3 Years**	**Additional**	**None**	**$9.5**	**$0**	**$26.3**
MEEIA 3	**3 Years**	**Additional**	**Yes**	**$11.8**	**$0**	**N/A**
RAP	**20 Years**	**No Additional**	**None**	**$18.1**	**0**	**41.5**
RAP	**20 Years**	**No Additional**	**Yes**	**$61.3**	**$5.3**	**N/A**
RAP	**20 Years**	**Additional**	**None**	**$54.8**	**$15**	**$39.0**
RAP	**20 Years**	**Additional**	**Yes**	**$66.6**	**$24.7**	**N/A**

Percentage of Net Shared Benefits

KCPL and GMO propose to use the percentage of net-shared benefits model from their MEEIA Cycle 1 application as a reasonableness check for their proposed EO in this case. However, a percentage of net-shared benefits model was not used as part of the approved MEEIA Cycle 2.[163] Further, as demonstrated in Report Section II.C.iii. - Overall Portfolio Cost Effectiveness when using $0 per kW year as the avoided cost of capacity to value annual kW savings for the KCPL/GMO MEEIA Cycle 3 programs, the net benefit from the programs is approximately $(5.7) million, i.e., a **net cost** to customers of $5.7 million. Thus, $0 is an appropriate EO for KCPL/GMO Cycle 3.

[162] GMO and KCPL's current adopted preferred resource plan.
[163] Pages 11 – 13 of the Commission's October 22, 2015 *Report and Order* in Case No. EO-2015-0055.

NPVRR

KCPL/GMO also claims to use the NPVRR as a valuation metric to show the reasonableness of its proposed EO. KCPL/GMO proposes that its modeling shows a 20-year NPVRR benefit for MEEIA Cycle 3 of between $2 million for its current adopted preferred resource plan and $35 million based upon additional plant retirements, additional load, and implementation of federal registration CO_2 limits. Staff suggests that only the MEEIA Cycle 3 resource plans with no additional retirements and no additional load should be used to value the EO for MEEIA Cycle 3, because these plans represent the KCPL and GMO current adopted preferred resources plans' implementation of the 3-year MEEIA Cycle 3 being requested in these cases. KCPL/GMO's proposed MEEIA Cycle 3 programs cost alone is $96.1 million, which far outweighs any future customer savings of $2 million.[164] It does not make economic sense for customers to pay $96.1 million for program costs in the near term with the hope of receiving $2 million of total savings over 20 years.

For these reasons, Staff cannot recommend approval of the EO proposed by GMO and KCPL in their applications.

If the Commission finds that an Earnings Opportunity is appropriate for the proposed KCPL and GMO programs, Staff recommends that the Commission reward such earnings opportunities based upon demonstration of tangible avoidance of necessary investments in infrastructure. If such investments are actually avoided, then the projected return on investment ("ROI"), based upon an ROI that the Commission deems appropriate,[165] that KCPL or GMO would have received from such investments in infrastructure upgrades but for the MEEIA programs may be appropriate. Examples of such avoidance may be avoided distribution system upgrades achieved through targeted demand side programs or deferral of a supply-side resource that can be directly attributed to MEEIA Cycle 3 programs. The earnings opportunity matrix provided by KCPL/GMO as appendix 8.7 of MEEIA Cycle 3 is inappropriate because it actively incentivizes investment in programs that are unlikely to defer or avoid investment in infrastructure.

Staff Expert/Witness: Dana E. Eaves

[164] $2 million is derived from the following values in **KCP&L/KCP&L-GMO Joint Plan Results Without CO2 Restrictions** table on page 4 of UPDATED Appendix 8.11: $29,313 million for ARP7 less $29,311 million for ARP9.

[165] If the Commission has not already approved an ROI in the most recent rate case.

III. Request for Waivers

The KCPL/GMO Application requests approval of the following variances from Commission rules:

1. Variances related to the incentive to be implemented and based on prospective analysis rather than achieved performance verified by EM&V, the proposed utilization of a TRM for purposes of calculating TD: 20.092(1)(HH); 20.092(1)(M); 20.092(1)(R); 20.093(2)(I) 20.093(2)(I)3; 20.092(1)(N);
2. Variances related to allowing adjustments to DSIM rates for the TD DSIM utility incentive revenue requirement as well as the DSIM cost recovery: 20.093(4); 20.093(4)(C);
3. Variances related to "revenue requirement" where the TD is excluded from the cost recovery revenue requirement: 20.092(1)(Q); 20.092(1)(UU); 20.092(1)(P); 20.092(1)(R); 0.093(2)(J); 20.092(1)(F);
4. Variances related to allowing flexibility in setting the incentives and changing measures within a program: 14.030; and
5. Variance for 4 CSR 240-20.092(1)(C).

Should MEEIA Cycle 3 be approved by the Commission, Staff recommends the Commission approve only the first four (4) variance requests and only approve the variance request for the following section of 4 CSR 240-20.092(1)(C).

> The utility shall use the integrated resource plan and risk analysis used in its most recently adopted preferred resource plan to calculate its avoided costs.

Staff recommends that the Commission reject the variance request from the remaining requirements of 4 CSR 240-20.092(1)(C).

KCPL and GMO provide the following statement of good cause regarding their variance request for 4 CSR 240-20.092(1)(C):

> While we have always interpreted this rule to mean the methodology for calculating avoided costs and therefore shared benefits would be consistent with the most recently filed IRP at the time of the MEEIA filing, out of an abundance of caution, this variance is being requested. Good cause exists for the request as it adds another layer of uncertainty

> that further discourages our company from its ability to support the state policy to value demand-side sources and supply resources equivalently.

Staff recommends rejection of the variance request from the remaining requirements of 4 CSR 240-20.092(1)(C) for all the reasons provided in Report Section II.B. - Avoided Costs. Merely granting a variance of a Commission rule does not alleviate the statutory requirements that are at the root of Staff's concerns.

Staff Experts/Witnesses: John A. Rogers, J Luebbert for variance request 4 CSR 240-20.092(1)(C)

IV. Staff Summary and Recommendations

As explained throughout this Report, Staff's analysis of the Application demonstrates that KCPL/GMO's MEEIA Cycle 3 does not meet the MEEIA statutory requirements, specifically that:

> 1) programs provide benefits to all customers in the customer class, regardless of participation; and 2) electric utilities value demand-side investments equal to traditional investments in supply and delivery infrastructure in delivering cost-effective demand-side programs. Therefore, Staff recommends the Commission reject the Application.

However, Staff acknowledges there are inherent public policy reasons to support continuation of MEEIA. Therefore, the Commission could indicate it would be open to further review of KCPL/GMO's Application if KCPL/GMO were to restructure its Application to address Staff's concerns by only including low-income programs, education programs except HER, and restructured demand response programs.

If the Commission determines it is appropriate to approve the proposed MEEIA Cycle 3, Staff recommends the Commission modify the Application, subject to certain conditions,[166] as follows:

[166] Modifications are changes that the Commission would determine are appropriate and the conditions stated require action by KCPL/GMO.

Modifications:

- The Commission:
  - Approve the following waivers: 4 CSR 240-20.092(1)(F); 4 CSR 240-20.092(1)(M); 4 CSR 240-20.092(1)(N); 4 CSR 240-20.092(1)(P); 4 CSR 240-20.092(1)(Q); 4 CSR 240-20.092(1)(R); 4 CSR 240-20.092(1)(HH); 4 CSR 240-20.092(1)(UU); 4 CSR 240- 20.093(2)(I); 4 CSR 240-20.093(2)(I)3; 4 CSR 240-0.093(2)(J); 4 CSR 240-20.093(4); 4 CSR 240-20.093(4)(C); and 4 CSR 240-14.030.
  - Determine the appropriate value of avoided capacity cost used to evaluate the programs.
  - Remove the residential Level 2 charging station pilot program.
  - Remove the Home Energy Report program and the Income-Eligible Home Energy Report program.
  - Indicate that no adjustment to kW demand billing determinants of energy savings will be made for a general rate case.
  - Only allow recovery of program costs, throughput disincentive costs, and earnings opportunities from programs that are ultimately verified as cost effective by the Commission based upon retrospective evaluation, measurement and verification.
  - Only allow KCPL/GMO an opportunity to earn on Cycle 3 demand response that exceeds the incremental peak demand savings achieved in Cycle 2 and defers or avoids an investment in necessary infrastructure investments.
  - If it approves the BDR as designed, clarify that only those customers that have not opted-out of MEEIA programs be eligible to participate.
  - Only approve demand response programs that pass the UCT.

Conditions:

KCPL/GMO:

- utilize the customer feedback received from the mapping techniques to improve program implementation and marketing, and continue to update stakeholders on the progress of such analysis.

- modifies its tariff sheets to:
    - contain sufficient detail on individual program information (i.e., description, administration, availability, qualifications and rebates) along with providing any direct website program links when directing a customer to the KCPL/GMO website for additional program information;
    - update the term definitions on Sheet Nos. 1.73 and 1.74 so they are not lacking details and are sufficient to provide customer understanding of the terms;
    - include 3-Year Savings Targets which properly account for annual energy and demand savings from program measures which have no persistence;
    - more clearly state the customer eligibility requirements of BPE, and improve the evaluation of BPE to address free-ridership concerns;
    - include provisions such that any remaining reconciliations related to recovery and true-up of MEEIA Cycle 1 Program Cost Reconciliation, Throughput Disincentive Reconciliation and Performance Incentive Reconciliation will be incorporated into the initial period MEEIA Cycle 3 PC, TD and EO to fully reconcile MEEIA Cycle 1 so that additional calculations related to MEEIA Cycle 1 do not have to continue;
- redesigns the Residential Demand Response program in a manner that would lean on the sunk cost of investments made in thermostats in MEEIA Cycle 2 and DERMS, provide clear monetary incentives for meaningful participation in areas that will benefit customers as a whole, minimize cost, focus on calling events based on location specific needs, target events that could decrease peak load coincident with the SPP zonal monthly peak, and maximize tangible savings to provide benefits to customers regardless of participation in the program;
- redesigns the Business Demand Response program to minimize cost, focus on calling events based on location specific needs, target events that could decrease peak load coincident with the SPP zonal monthly peak, maximize tangible savings to provide

benefits to customers regardless of participation in the program, and only allow opt-out participation if the program is clearly designed as a curtailable rate schedule or tariff;

- allocates the costs from Business Demand Response to each rate class based upon participation similar to the methodology proposed for other programs;
    - The costs from Business Demand Response related to MEEIA participants will be allocated to each non-residential rate class based upon participation, except for Business Demand Response costs associated with opt-out customer participation which should be allocated to all non-lighting classes based on kWh sales, if opt-outs are allowed to participate in Business Demand Response;
- utilizes the UCT as the primary cost effectiveness test for demand response program evaluation purposes;
- only includes, in the cost-effectiveness tests, the Cycle 3 incremental benefits that are realized from Demand Response programs throughout the implementation period of MEEIA Cycle 3;
- only allows generators to participate in BDR that are dispatchable and ensure that the customer has verified compliance with all applicable performance and emissions standards prior to participation in Business Demand Response;
- retains the MEEIA Cycle 2 tariff sheets in the tariff books for both utilities until they are no longer necessary;
- uses a NTG factor of 0.85 in calculating the MEEIA Cycle 3 TD, which provides a reasonably accurate NTG factor and still provides the ability to adjust for an EM&V result lower than 0.85. If the Commission approves KCPL/GMO's proposed NTG, then Staff recommends that the EO be able to be adjusted below zero;
- uses the same margin rates that took effect on December 6, 2018, for the initial MEEIA Cycle 3 period, subject to update in future general rate cases;

- clearly states within the DSIM riders that long-lead projects associated with MEEIA Cycle 2 are addressed pursuant to the Stipulations and Agreements filed in Case Nos. EO-2015-0240 and EO-2015-0241;

- corrects the definitions regarding Program Costs Reconciliation ("PCR"), Throughput Disincentive Reconciliation ("TDR"), Earnings Opportunity Reconciliation ("EOR") and Ordered Adjustment Reconciliation ("OAR") so that the costs to be reconciled are like costs;

- reviews, and revises as necessary, line extension construction allowances to ensure that the relative reduction in energy associated with high efficiency equipment is appropriately reflected;

- provides the hourly load shapes of energy efficient savings measures for any future KCPL and GMO general rate cases;

- continues to work with the evaluators and program implementers to collect additional data on customer participation and preferences for energy efficiency programs;

- files a complete TRM, with the 2020 IRP annual update, that provides an explanation for why each estimation is appropriate and specific citations for each and every assumption utilized to estimate savings from measures; and,

- utilizes the AMI data to inform MEEIA Cycle 3 EM&V if the Application is approved as filed or modified by the Commission.

Staff Expert/Witness: Natelle Dietrich on behalf of all Staff witnesses

Appendix 1 - Staff Credentials

SCHEDULE JL-r1

HAS BEEN DEEMED

CONFIDENTIAL

IN ITS ENTIRETY

SCHEDULE JL-r2

HAS BEEN DEEMED

CONFIDENTIAL

IN ITS ENTIRETY

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Kansas City Power & Light Company's Notice of Intent to File an Application for Authority to Establish a Demand-Side Programs Investment Mechanism	))))	Case No. EO-2019-0132
In the Matter of KCP&L Greater Missouri Operations Company's Notice of Intent to File an Application for Authority to Establish a Demand-Side Programs Investment Mechanism	))))	Case No. EO-2019-0133

AFFIDAVIT OF KORY J. BOUSTEAD

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW KORY J. BOUSTEAD and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Staff's Rebuttal Testimony in Report form*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Kory J Boustead
KORY J. BOUSTEAD

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 16th day of August 2019.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

D Suzie Mankin
Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Kansas City Power & Light Company's Notice of Intent to File an Application for Authority to Establish a Demand-Side Programs Investment Mechanism	))))	Case No. EO-2019-0132
In the Matter of KCP&L Greater Missouri Operations Company's Notice of Intent to File an Application for Authority to Establish a Demand-Side Programs Investment Mechanism	))))	Case No. EO-2019-0133

AFFIDAVIT OF NATELLE DIETRICH

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW NATELLE DIETRICH and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Staff's Rebuttal Testimony in Report form*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Natelle Dietrich
NATELLE DIETRICH

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 16th day of August 2019.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
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D Suzie Mankin
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AFFIDAVIT OF DANA E. EAVES

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW DANA E. EAVES and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff's Rebuttal Testimony in Report form*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Dana E. Eaves
DANA E. EAVES

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 19th day of August 2019.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
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D. Suzie Mankin
Notary Public

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AFFIDAVIT OF BRAD J. FORTSON

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW BRAD J. FORTSON and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff's Rebuttal Testimony in Report form*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Brad J. Fortson

BRAD J. FORTSON

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 16th day of August 2019.

D. SUZIE MANKIN
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D. Suzie Mankin

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

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AFFIDAVIT OF TAMMY HUBER

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW TAMMY HUBER and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Staff's Rebuttal Testimony in Report form*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Tammy Huber
TAMMY HUBER

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 16th day of August 2019.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
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D Suzie Mankin
Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

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AFFIDAVIT OF ROBIN KLIETHERMES

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW ROBIN KLIETHERMES and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Staff's Rebuttal Testimony in Report form*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

ROBIN KLIETHERMES

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 19th day of August 2019.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
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Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

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AFFIDAVIT OF J LUEBBERT

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW J LUEBBERT and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff's Rebuttal Testimony in Report form*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

J Luebbert

J LUEBBERT

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 16th day of August 2019.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
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D Suzie Mankin

Notary Public

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AFFIDAVIT OF BYRON M. MURRAY

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW BYRON M. MURRAY and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff's Rebuttal Testimony in Report form*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

BYRON M. MURRAY

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 19th day of August 2019.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
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Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

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AFFIDAVIT OF JOHN A. ROGERS

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW JOHN A. ROGERS and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff's Rebuttal Testimony in Report form*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

John A Rogers

JOHN A. ROGERS

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 19th day of August 2019.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

D Suzie Mankin

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

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AFFIDAVIT OF SEOUNG JOUN WON, PhD

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW SEOUNG JOUN WON, PhD and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff's Rebuttal Testimony in Report form*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

SEOUNG JOUN WON, PhD

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 16th day of August 2019.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

Notary Public