BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

In the Matter of the Application of Evergy Kansas Metro, Inc., Evergy Kansas South, Inc. and Evergy Kansas Central, Inc. for Approvalof its Demand-Side Management Portfolio Pursuant to the Energy Efficiency Investment Act (KEEIA), K.S.A. 66-1283.	))))))	Docket No. 22-EKME-254-TAR

DIRECT TESTIMONY OF
ALICE NAPOLEON

ON BEHALF OF
THE CITIZENS' UTILITY RATEPAYER BOARD

June 17, 2022

****Redacted Version****

Table of Contents

1. INTRODUCTION AND QUALIFICATIONS 1

2. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS 4
   2.1. Summary of Conclusions 4
   2.2. Summary of Recommendations 6

3. OVERVIEW OF EVERGY'S PROPOSAL 8

4. ASSESSMENT OF EVERGY'S PROPOSAL BASED ON KCC CRITERIA 16
   4.1. Overview of Requirements 16
   4.2. Assessment of Evergy's Proposal Relative to KCC criteria 22

5. ASSESSMENT OF EVERGY'S PROPOSAL BASED ON BEST PRACTICES 355
   5.1. Missing Programs 355
   5.2. Design Improvements to Proposed programs 366
   5.3. Throughput Disincentive 422
   5.4. Earnings Opportunity 444

1. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name, title, and employer.

A. My name is Alice Napoleon. I am a Principal Associate at Synapse Energy Economics, Inc. ("Synapse Energy Economics" or "Synapse") located at 485 Massachusetts Avenue, Suite 3, Cambridge, MA 02139.

Q. Please describe Synapse Energy Economics.

A. Synapse Energy Economics is a research and consulting firm specializing in electricity and gas industry regulation, planning, and analysis. Our work covers a range of issues, including economic and technical assessments of demand-side and supply-side energy resources, energy efficiency policies and programs, integrated resource planning, electricity market modeling and assessment, renewable resource technologies and policies, and climate change strategies. Synapse works for a wide range of clients, including state attorneys generals, offices of consumer advocates, trade associations, public utility commissions, environmental advocates, the U.S. Environmental Protection Agency, U.S. Department of Energy, U.S. Department of Justice, the Federal Trade Commission, and the National Association of Regulatory Utility Commissioners. Synapse has over 30 professional staff with extensive experience in the electricity industry.

Q. Please summarize your professional and educational experience.

A. Since joining Synapse in 2005, I have provided economic and policy analysis of electric and natural gas systems and emissions regulations, with a focus on energy efficiency policies and programs, on behalf of a diverse set of clients throughout the United States and in Canada. On the national level, I led a team that developed tools that help utilities

integrate the U.S. Department of Energy's Superior Energy Performance and 50001 Ready strategic energy management platforms into their energy efficiency portfolios. I co-authored seminal works regarding designing performance incentive mechanisms and assessing the benefits of clean energy resources.

At the state level, I was co-author of reports and comments on the role of energy efficiency in New York State in meeting its Reforming the Energy Vision ("REV") objectives, as well as a white paper on natural gas regulatory reforms needed for New York to meet its decarbonization targets. In Colorado, Maryland, and South Carolina, I facilitated and provided expert analysis on program costs and benefits for demand-side resource policy working groups. Since 2009, I have provided extensive and ongoing expert analysis and support for the State of New Jersey regarding its state- and utility-administered energy efficiency and combined heat and power programs. I have also provided expert advice on demand-side management programs in Nova Scotia regarding a range of issues including incentive-setting methodologies, cost-benefit analysis, incentive setting, avoided costs, and locational demand-side management.

Before joining Synapse, I worked at Resource Insight, Inc., where I supported investigations of electric, gas, steam, and water resource issues, primarily in the context of reviews by state utility regulatory commissions.

I hold a Master's in Public Administration from the University of Massachusetts at Amherst and a Bachelor's in Economics from Rutgers University. My resume is attached as Exhibit AN-1.

Q. On whose behalf are you testifying in this case?

A. I am testifying on behalf of the Citizens' Utility Ratepayer Board ("CURB").

Q. Have you previously testified before a state or provincial commission?

A. Yes. I have testified before the California Public Utilities Commission, the Nova Scotia Utility and Review Board, the New York Public Service Commission, the New Brunswick Energy and Utilities Board, the Pennsylvania Public Utility Commission, and the Public Service Commission of South Carolina.

Q. Have you testified before the Kansas Corporation Commission?

A. No.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to review and assess the 2023-2026 Demand-Side Management ("DSM") Portfolio and updated Energy Efficiency Rider ("EER") filed by Evergy Kansas Metro, Inc. ("Evergy Kansas Metro"), and Evergy Kansas Central, Inc. and Evergy Kansas South, Inc. (referred to together as "Evergy Kansas Central") (collectively referred to herein as "Evergy" or the "Company") pursuant to the Kansas Energy Efficiency Investment Act ("KEEIA").

Q. Are you sponsoring any exhibits with your testimony?

A. Yes. I am sponsoring the following exhibit:

- Resume of Alice Napoleon: Exhibit AN-1

2. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

2.1. Summary of Conclusions

Q. Please summarize your conclusions.

A. My conclusions are summarized as follows:

- Evergy's first-year savings as a percent of sales **[redacted]**[1] This represents a **[redacted]** Based on the Integrated Resource Plan ("IRP") potential study, **[redacted]**[2] Although it appears that this DSM Plan **[redacted]** Evergy provided only a rough estimate of energy efficiency potential. Given the approximate nature of this estimate, I approach these results with care.
- Evergy's proposed residential DSM budgets are generally about half of the business sector budgets.[3] The Cost of Saved Energy for Evergy's proposed programs is **[redacted]**[4]

[1] Evergy Kansas 2023-2026 Demand-Side Management Portfolio Filing, Dec. 17, 2021, Appendix A; Evergy's response to CURB-3, Attachment QCURB-3_CONF_KEEIA EE DR Riders Calculator V11_(v23 programs) - KS Central workpaper.

[2] Evergy Kansas Metro and Evergy Kansas Central. KEEIA 2023-2026 Demand-Side Management Portfolio Filing; Evergy's response to KCC-1, attachment Q1_Business Portfolio Savings-Table 8; Evergy's response to CURB-4, attachment QCURB 4_CONF_2021 Evergy Kansas Central IRP.pdf.

[3] Evergy Kansas 2023-2026 Demand-Side Management Portfolio Filing, Dec. 17, 2021, Appendix A.

[4] Evergy Kansas 2023-2026 Demand-Side Management Portfolio Filing, Dec. 17, 2021, Appendix A; Patrick Knight, Bruce Biewald, and Kenji Takahashi. "The cost of energy efficiency programs: Estimates from utility reported datasets", revised October 17, 2021. (In press).

- Based on Evergy's modeling, the residential broad scale programs, as well as the total portfolio, are cost effective under each of the benefit cost tests except the Ratepayer Impact Measure ("RIM") test. [5,6] The business programs as a whole are cost effective under benefit-cost analysis ("BCA") except in the Participant Cost Test ("PCT"). Individual programs mostly pass cost-effectiveness tests, with the exception of some programs not passing the RIM[7] and one program not passing the Utility Cost Test ("UCT").[8,9]
- Evergy did not include a residential new construction program within its portfolio, which leaves potential opportunities on the table.
- Some aspects of Evergy's proposed programs do not align with best practices.
    - Different hard-to-reach groups (including low-income and rural customers, and renters) face different barriers, yet Evergy is not specifically setting goals for each.
    - For the mid-stream offering, Evergy has not developed expected savings or participation rates.
    - School kits programs, like the offering proposed by Evergy, can have high free ridership and low actualized savings.
    - Evergy proposes the Pilot Incubator program for generating ideas, identifying potential new programs or offerings or improvements to existing programs and

[5] In addition to the RIM test, the other four tests include the societal cost test, the total resource cost test, the utility cost test, and the participant cost test.
[6] The KCC emphasizes the results of the Total Resource Cost (TRC) and the RIM test. See Section 4 of this testimony.
[7] Programs that are subject to cost-effectiveness requirements that do not pass the RIM in Kansas Metro include Hard-to-Reach Businesses, Home Demand Response, and Whole Home Efficiency. Likewise, for the Kansas Central area, Home Demand Response does not pass the RIM.
[8] Evergy Kansas 2023-2026 Demand-Side Management Portfolio Filing, Refiled Workpapers, 2023-2026 DSM Portfolio Filing, Appendix A.
[9] The Home Demand Response program does not pass the UCT in either service territory.

offerings, and testing concepts but does not propose a specific framework for considering, approving, and assessing research and development initiatives, projects, and pilots.

- Evergy's proposed throughput disincentive ("TD") mechanism, and lost revenue mechanisms in general, could be problematic and challenging, resulting in contentious proceedings and substantial increases in rates over time. In addition, the mechanism may be inadequate to fully address the throughput incentive.

- Action-oriented metrics for the Earnings Opportunity ("EO") provide no incentive for effective use of funds on Hard-to-Reach ("HTR") programs (including offerings for low income customers). Also, Evergy's proposed performance incentive level—18 percent of net benefits—is too high. Evergy has not provided sufficient information to justify that the performance target is reasonable, considering the nascence of the portfolio and incentive levels used in other states.

2.2. Summary of Recommendations

Q. Please summarize your recommendations.

A. I recommend the following:

- Approve the proposed filing with the following modifications:
  - Evergy should consider changes to its incentive formulas for the Whole Business Efficiency Program to provide a better return to participants for their investment of funds and time to implement energy efficiency.

- The Commission should direct Evergy to develop offerings for residential new construction.
- The Commission should direct Evergy to track multifamily customers as a subset of the hard-to-reach sector, to shed light on the unique barriers faced by this customer group.
- The Commission should direct Evergy to develop a more robust plan for setting up midstream offerings with distributors and retailers within its territory.
- The design of the school kits offering should be based on similar programs in other jurisdictions that have experienced high realization rates, and Evergy should take an iterative approach that combines periodic assessments and adjustments to the offering design (or terminating the program, if appropriate) in response to survey results well before the conclusion of the program period.
- The Commission should not approve the Pilot Incubator Program at this time. If the Commission decides to approve the Pilot Incubator Program in this program period, it should require Evergy to develop a framework, as described in the body of this testimony, as a condition of approving the proposed budget for the Pilot Incubator Program.
- The TD mechanism should be replaced with a decoupling mechanism. Ideally, the TD mechanism should be designed in a separate docket.
- Performance incentives should be tied to measurable results wherever possible. In addition, the percentage of net benefits should be between 5 and 15 percent to be in line with other states. Specifically, I recommend an earnings

opportunity of 5 percent, until a record of program performance and more robust information about DSM potential has been developed.

- The KCC should consider the value of having a separate, additional layer of evaluation on top of the third-party evaluation. KCC Staff or another regulatory body could retain the services of an evaluator to review the results of the evaluation proposed by and managed by Evergy.

3. OVERVIEW OF EVERGY'S PROPOSAL

Q. Please describe Evergy's proposal.

A. On December 17, 2021, Evergy filed an application seeking approval for its Demand-Side Management Program Portfolio and Recovery Mechanism.[10] This application includes projected energy savings, costs, and benefits for nine proposed programs. As described in the 2023–2026 Demand-Side Management Portfolio Filing included with Evergy's Application, these programs consist of four residential programs, four business programs, and the pilot incubator program.[11]

Q. **Please describe Evergy's proposal for the residential programs.**

A. Evergy states that its residential portfolio is designed "to engage all customers, while focusing on the most vulnerable customers by offering higher value rebates and/or free

[10] Application of Evergy Kansas Metro, Inc., Evergy Kansas South, Inc. and Evergy Kansas Central, Inc. for Approval of Demand-Side Management Program Portfolio and Recovery Mechanism. Dec. 17, 2021. Docket No. 22-EKME-254-TAR.

[11] Evergy Kansas Metro and Evergy Kansas Central. KEEIA 2023–2026 Demand-Side Management Portfolio Filing, December 17, 2021, p. 7. Hereafter called "2023-2026 DSM Portfolio Filing."

services."[12] Furthermore, it states, "these programs are designed with the ultimate goal of transforming the market for energy efficiency in Kansas, providing high quality education and outreach and creating economic growth for Kansas businesses."[13] Table 1 provides an overview of Evergy's proposed programs for the residential customer segment.

Table 1. Proposed Residential DSM programs[14]

Residential Programs		**Description**
Broad Scale Programs	Whole Home Efficiency Program	This program provides rebates, discounts, and on-bill financing for HVAC and building envelope measures in single and multifamily residences. It will also provide no cost energy assessments and discounted energy savings kits.
	Home Demand Response Program	The HDR program will help customers reduce their energy use during peak demand periods. It will also provide opportunities for customers to receive free thermostats and water hear controllers.
Public Benefit Programs	Hard-to-Reach Homes Program	This program provides enhanced incentives, no-cost home upgrades, and no-cost energy assessments and savings kits for low-income and rural customers.
	Home Energy Education Program	This program focuses on helping rural and low-income customers use energy more efficiently through marketing, outreach, and education.

The proposed residential programs include two programs to support residential customers, a program to support to low-income and rural customers, and a general residential education program. The proposed programs provide a variety of benefits including energy savings and demand savings.

[12] 2023-2026 DSM Portfolio Filing, p. 27.
[13] Id.
[14] Id. at p. 27-36.

Q. What has Evergy proposed for DSM programs for business customers?

A. The business programs proposed by Evergy are summarized in Table 2.

Table 2. Proposed Business DSM Programs [15],[16]

Commercial Program		About
Broad Scale Programs	Whole Business Efficiency Program	This program provides both variable and fixed incentives to help customers install efficient equipment and building envelope improvements.
	Business Demand Response Program	This program will help customers decrease their energy usage during periods of peak demand. Potential customers can sign up or be recruited by Evergy.
	Hard-To-Reach Business Program	This program offers enhanced incentives to small businesses and non-profits.
Public Benefit Programs	Business Energy Education Program	This program provides tools, resources, and guidance for businesses looking to save money on energy. It will include a focus on small businesses.

According to Evergy, these programs are designed to address the following challenges:

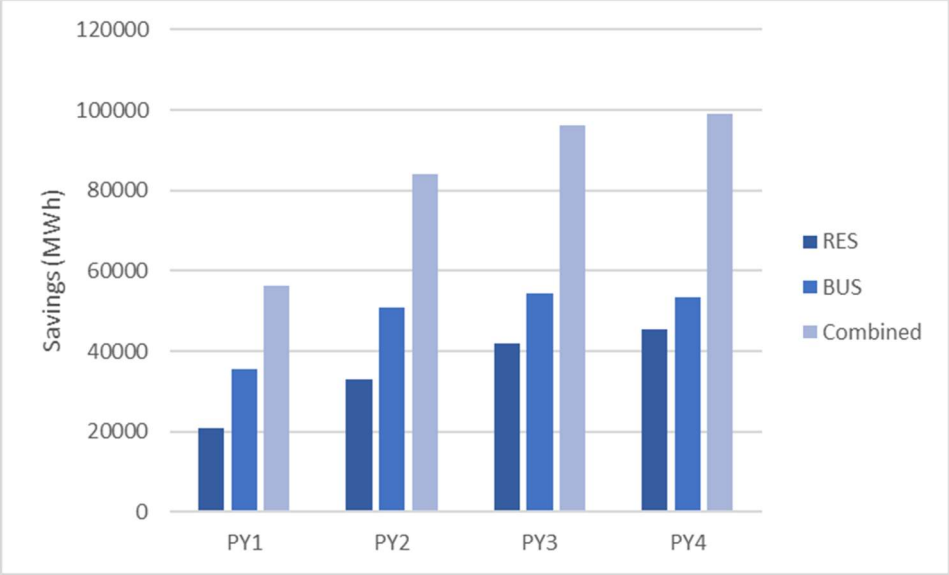
1. "Lack of top-of-mind prominence for customers who are often busy managing core elements of their business
2. Lack of awareness about energy efficient equipment options and available financing when purchasing decisions are made
3. Disinclination to replace equipment prior to failure
4. Primary focus on purchase price (or "first costs") rather than lifecycle costs."[17]

[15] Id. at p. 37-42.
[16] In its filing, Evergy notes that Hard-To-Reach Residential Programs are included within the definition of Public Benefit given KEEIA legislation definition. Evergy does not include Hard-To-Reach Business Programs within Public Benefit based on its focus on small business and nonprofits (2023-2026 DSM Portfolio Filing, p. 37).
[17] Id.

Q. Please describe Evergy's projected savings for the programs.

A. Figure 1 portrays how savings increase over the time period, overall and by sector, as presented in the application. Over the period of the plan, residential savings increase more than business savings, resulting in more similar savings levels by sector by plan year 4.

Figure 1: EE Energy Savings by Sector and Combined, Both Utilities[18]



As savings increase, the energy efficiency savings as a proportion of sales increase as well. Figure **2** depicts how the first-year savings as a percent of sales **[redacted]**

[redacted]**

[18] 2023-2026 DSM Portfolio Filing, Appendix A.

Figure 2: First Year Savings As a Percent of Sales by Utility[19]

Nationwide, reported savings as a percent of sales averaged about 0.70 percent in 2019, according to the American Council for an Energy Efficient Economy ("ACEEE").[20,21] Similarly, Kansas' neighboring states ** ** of savings as a percent of sales in 2019 relative to Evergy's projection for the proposed portfolio. While Oklahoma achieved savings of 0.45 percent of sales, Missouri achieved 0.63 percent, and Colorado achieved 0.95 percent.[22]

Based on the IRP potential study, Evergy expects to achieve ** ** percent of incremental energy efficiency potential in ** * and ** ** of

[19] 2023-2026 DSM Portfolio Filing, Appendix A, and Evergy's response to CURB-3 (CONF_KEEIA EE DR Riders Calculator V11_(v23 programs))

[20] Berg et al. December 2020. *The 2020 State Energy Efficiency Scorecard.* American Council for an Energy Efficient Economy. Available at: https://www.aceee.org/sites/default/files/pdfs/u2011.pdf.

[21] An authority on energy efficiency, ACEEE collects and analyzes data on market trends, energy efficiency potential, and program performance throughout the country and distills and disseminates information on best practices on program design, implementation, and policy to promote efficient energy use.

[22] Berg et al. December 2020. *The 2020 State Energy Efficiency Scorecard.* American Council for an Energy Efficient Economy. Available at: https://www.aceee.org/sites/default/files/pdfs/u2011.pdf.

incremental potential in ** **. Figure 3 portrays how Evergy ** ** energy savings potential over the four-year period. However, this potential may not be an accurate display of energy efficiency potential in Kansas. Efficiency potential not achieved in previous years may remain achievable in future years. In 2023, for example, Evergy's proposed plan achieves 57,070 MWh of energy savings compared to ** [redacted] .** A ** ** study would be beneficial in determining a more accurate picture of the potential.

Figure 3: Annual Energy Efficiency Savings vs. Incremental Potential[23]

[23] Response to CURB-4 (CONF_2021 Evergy Kansas Central IRP.pdf), Response to KCC-1 (Business Portfolio Savings-Table 8), and Application of Evergy Kansas Metro, Inc., Evergy Kansas South, Inc. and Evergy Kansas Central, Inc. for Approval of Demand-Side Management Program Portfolio and Recovery Mechanism. (Table 5, p. 28).

Q. Please describe Evergy's proposed budgets.

A. The cost of the programs is depicted in Figure 4.

Figure 4: Program Budget, EE Programs Only, Both Utilities[24]

Proposed residential DSM budgets are generally about half of the business sector budgets. This is not commonly seen in other states, as Residential savings typically cost more than Business savings. In response to CURB-56, Evergy noted that the business programs have a higher upfront cost, due to factors such as a longer "start-up phase," while residential programs are quicker to implement.[25]

Q. How do the costs of Evergy's programs compare to costs experienced in other jurisdictions?

A. The Cost of Saved Energy ("COSE") is calculated by dividing the cost of implementing the energy efficiency program ($) by the amount of energy saved from the program (kWh).

[24] 2023-2026 DSM Portfolio Filing, Appendix A.
[25] Evergy's response to CURB-56.

This provides a cost in $/kWh which can be compared across jurisdictions. Synapse calculated the first-year COSE as part of its analysis in Figure 5 by dividing the full cost of the program by the amount of energy saved in the first year of implementation. Over the 4-year period, the programs have a combined first-year COSE of **[redacted].** Figure 5 depicts how the combined cost across sectors decreases from **[redacted]** As noted previously, the business programs are more costly than the residential programs. Also, the cost of the residential programs declines more over time **[redacted]**

Figure 5: First year COSE by Sector, EE Programs Only, Both Utilities[26]

[redacted]

The vast majority of energy efficiency measures have a lifetime longer than one year, so just looking at the first-year COSE does not provide a complete picture of cost. The lifetime

[26] 2023-2026 DSM Portfolio Filing, Appendix A.

COSE considers the savings over the entire lifetime of the measure. Because energy efficient products and programs generally save energy long after the initial investment, the lifetime COSE is also generally much lower than a first-year COSE.

The first-year COSE for Evergy's proposed programs are ** [redacted] .** Based on data reported to the U.S. Energy Information Administration from 2010-2019, Synapse found that first-year cost of saved energy of U.S. energy efficiency programs range from $0.020 to $0.033 per kWh saved, with a weighted average cost of $0.024 per kWh saved (2019 U.S. $).[27]

4. ASSESSMENT OF EVERGY'S PROPOSAL BASED ON KCC CRITERIA

4.1. Overview of Requirements

Q. Please describe the criteria for consideration of energy efficiency programs under the KEEIA.

A. Passed in 2014, KEEIA allows Kansas public utilities to implement energy efficiency programs and cost recovery mechanisms to reduce the consumption of electricity or natural gas by utility customers, if such programs and mechanisms are approved by the Kansas Corporation Commission ("KCC" or "Commission").[28] KEEIA was established to support the statewide goal of implementing cost-effective demand-side programs in Kansas.[29] Similarly, KEEIA supports the statewide policy which seeks "to value demand-side

[27] Patrick Knight, Bruce Biewald, and Kenji Takahashi. The cost of energy efficiency programs: Estimates from utility reported datasets, Volume 239, Part E (2022), available at https://doi.org/10.1016/j.energy.2021.122448.
[28] Energy Efficiency Investment Act; Senate Sub for HB 2484 (2014).
[29] 2023-2026 DSM Portfolio Filing, p. 7.

program investments equal to traditional investments in supply and delivery infrastructure."[30]

Under KEEIA, the KCC is required to determine the appropriate test for evaluating the cost-effectiveness of demand-side programs. Programs targeted to low-income customers or general education campaigns do not need to meet a cost-effectiveness test, if the KCC determines that they are in the public interest and supported by a reasonable budget within the context of the overall energy efficiency budget.[31]

Q. What cost-effectiveness tests does the Commission consider for approval of DSM Plans?

A. In its order in Docket No. 16-KCPE-446-TAR (Docket 16-446), the Commission determined that it would consider four California Standard Practice Manual standard tests, including the PCT, the RIM Test, the UCT or PAC Test, and the TRC Test, but that it would place emphasis on the RIM Test and the TRC Test.[32]

The Commission's order in Docket 16-466 goes in a different direction from the KCC's previous position on the SCT. In Docket No. 08-GIMX-442-GIV (Docket 08-442), the KCC stated that the SCT was appropriate to consider despite difficulties with quantifying the value of externalities, such as indirect societal costs from environmental pollution. In the 2008 docket, the KCC determined that reasonable estimates of anticipated costs associated with carbon regulation may be considered in benefit-cost analysis, because it

[30] 2023-2026 DSM Portfolio Filing, p. 7.
[31] K.S.A. 66-1283(c)(1)(D), 2014.
[32] KCC 2017. Final Order in Docket No. 16-KCPE-446-TAR.

appeared likely that carbon regulation would be implemented at the federal level.[33] Danielle Goldberg discusses considerations for cost-effectiveness testing going forward in her testimony.

Q. At what level are cost-effectiveness tests applied?

A. In Docket 08-442, the KCC stated that assessment at the program level allowed the KCC flexibility to consider the expected cost-effectiveness of both the energy efficiency program portfolio and the individual programs.[34] The Order in Docket 16-446 took a program-level approach, ultimately declining to approve individual programs that failed to pass either the TRC or the RIM tests.[35]

Q. Has the KCC provided other guidance on what should be included in energy efficiency program proposals?

A. Yes. In Docket No. 08-442, the KCC established a requirement that energy efficiency applications should include an evaluation, measurement, and verification ("EM&V") plan. In the same docket, the KCC determined that until a Kansas-specific database for estimating the energy and demand savings from DSM programs is created, the California Database for Energy Efficiency Resources ("DEER") should be used for a program's first two years until the first EM&V review. The KCC found that the maximum useful life would be assumed to be 20 years.[36]

[33] KCC 2008. Order Setting Energy Efficiency Policy Goals, Determining a Benefit-Cost Test Framework, and Engaging a Collaborative Process to Develop Benefit-Cost Test Technical Matters and an Evaluation, Measurement, and Verification Scheme. Docket 08-GIMX-442-GIV.
[34] KCC 2009. Order Following Collaborative on Benefit-Cost Testing and Evaluation, Measurement and Verification, Docket No. 08-GIMX-442-GIV.
[35] KCC 2017. Final Order in Docket No. 16-KCPE-446-TAR.
[36] KCC 2009. Order Following Collaborative on Benefit-Cost Testing and Evaluation, Measurement and Verification, Docket No. 08-GIMX-442-GIV.

Q. What guidance has the KCC provided on its goals with energy efficiency?

A. Per its Order in Docket 08-442, the KCC outlined the following goals:

- Energy efficiency should be considered a resource, along with traditional supply-side resources, to meet present and future demands.
- Energy efficiency programs have the potential to mitigate CO_2 emissions, which is a desirable outcome but must be pursued in the context of assuring efficient and cost-effective utility programming.
- Energy efficiency programs should be used as a resource to moderate bill increases that are likely to be caused as utilities build new generation, implement environmental requirements, and invest in additional transmission assets.
- Energy efficiency programs need to produce cost-effective, firm energy savings. Energy efficiency programs should be used to achieve both energy and demand reductions.
- While recognizing that addressing societal inequities is not its primary mandate, the Commission seeks development of energy efficiency programs for all classes of customers, including low income customers where appropriate.
- Education programs should be implemented to facilitate achieving the maximum benefit from energy efficiency programs. Programs should be implemented which educate consumers about the actual cost of providing energy to their homes and businesses and encourage use of energy in the

most reasonably efficient manner. The Commission is particularly interested in exploring use of the monthly bill, perhaps by inserts, to provide information to consumers to increase their ability to make informed decisions.

- Programs should address efficiency improvements in a comprehensive manner, using sound building science principles. Programs should implement the most cost-effective programs in a logical sequence to maximize the energy savings per dollar spent.
- The Commission seeks energy efficiency programs targeting customers residing in structures most in need of efficiency improvements. (Rental units, Low-income homes)
- The Commission noted the How$mart Rider pilot program developed by Midwest Energy as a program that deals effectively with problems associated with low-income and rental units.
- The Commission believes dynamic pricing[37] is a critical component of energy efficiency programming because of its potential to reduce peak energy demand and, thereby, postpone or avoid the need to build or acquire additional peaking generation capacity.

[37] Dynamic pricing refers to electricity prices that vary across time and location to reflect the costs of providing electricity under specific market and grid operation conditions. (Daniel C Matisoff et al 2020. A review of barriers in implementing dynamic electricity pricing to achieve cost-causality. Environ. Res. Lett. 15 093006)

- The Commission seeks dynamic pricing programs and other rate designs such as time-of-use, critical peak, and seasonal price differentials that send more accurate price signals to customers.[38]

Q. How do you interpret these goals?

A. I see a few key themes in the KCC's goals. These include the following:

1. Energy efficiency should be considered as a resource alongside supply side investments.

2. Energy efficiency programs should be cost-effective.

3. Energy efficiency programs should produce reliable savings.

4. Energy efficiency should be used as a resource to moderate bill impacts.

5. Energy efficiency programs should achieve both energy and demand reductions.

6. Energy efficiency programs should benefit all customers, including those living in structures most in need of efficiency improvements, like renters and low-income customers.

7. Energy efficiency education should provide information to consumers to increase their ability to make informed decisions about energy use and efficiency options.

8. Programs should address efficiency improvements in a comprehensive manner.

9. Programs should include dynamic pricing, which sends more accurate price signals to customers.

[38] The Order Following Collaborative on Benefit-Cost Testing and Evaluation, Measurement and Verification, 08-GIMX-442-GIV, 2009.

10. Secondary to the other considerations above, energy efficiency may avoid CO_2 emissions.

Q. Are these goals still valid, in light of the passage of KEEIA in 2014?

A. I am not a lawyer, so I cannot offer a legal opinion. However, it appears that the goals listed above are still relevant and valid today.

4.2. Assessment of Evergy's Proposal Relative to KCC criteria

Q. Have you assessed Evergy's DSM proposal relative the KCC's goals for energy efficiency?

A. Yes. Below, I address Evergy's proposal in terms of each of the key themes described above.

Energy efficiency should be considered as a resource alongside supply side investments.

Q. Does Evergy consider DSM on a level playing field with supply-side investments?

A. I was not involved in the IRP proceeding, when consideration of different energy resources including DSM took place. However, I have reviewed Evergy's estimate of energy efficiency potential for Kansas used in the IRP. It is clearly only a very rough estimate. For example, Evergy used **[redacted]**[39] Given the rough nature of this estimate, I take these results with a grain of salt. With that caveat, I note that Evergy's plan seeks to tap **[redacted]**, as shown above in Figure 3. I also note that Evergy's DSM portfolio

[39] Evergy's response to CURB-4, Attachment QCURB 4_CONF_2021 Evergy Kansas Central IRP.pdf.

achieves relatively high UCT test results (around 2.0). This UCT score indicates that DSM savings are cost-effective compared to other resource options.

Energy efficiency programs should be cost-effective.

Q. Please describe the cost-effectiveness of the proposed programs.

A. Both the residential and business sector programs include broad scale programs and public benefit programs. The broad scale programs are designed to meet cost-effectiveness goals, while the public benefit programs are not required to meet cost-effectiveness goals.[40] The public benefit programs focus on helping specific customer types who are harder to reach or more vulnerable reduce their energy bills through both education and incentives.

For each of the programs, Evergy has completed a benefit-cost analysis ("BCA") using 5 different cost benefit tests: the societal cost test ("SCT"), the total resource cost test ("TRC"), the ratepayer impact measurement test (RIM), the utility cost test (UCT), and the participant cost test ("PCT"). The results Evergy posits for its BCA for Kansas Metro are shown in Table 3, and the results for Kansas Central are shown in Table 4.

[40] 2023-2026 DSM Portfolio Filing, Corrections to KEEIA Report. p. 33.

Table 3. Benefit Cost Analysis of DSM Programs, Kansas Metro: 2023-2026[41]

Sector	Program Type	Program	UCT	TRC	RIM	SCT	PCT
Business	Broad Scale	Business Demand Response	1.8	4.1	1.8	4.1	n/a
		Whole Business Efficiency	3.3	1.5	1.3	1.9	1.1
		Hard-to-Reach Businesses	1.3	1.3	0.8	1.7	1.8
		Total	3.0	1.6	1.3	2.0	1.2
	Public Benefit	Business Energy Education	0.0	n/a	0.0	n/a	n/a
		Sector Total	2.2	1.6	1.1	2.0	1.4
Residential	Broad Scale	Home Demand Response	0.9	7.1	0.8	7.1	n/a
		Whole Home Efficiency	4.5	3.4	0.7	4.2	5.8
		Total	2.3	3.9	0.7	4.6	7.0
	Public Benefit	Hard-to-Reach Homes	1.2	1.3	0.5	1.7	2.5
		Home Energy Education	0.2	n/a	0.1	n/a	n/a
		Total	n/a	n/a	n/a	n/a	n/a
		Sector Total	1.8	3.0	0.7	3.6	5.6
Portfolio Total			**1.9**	**1.9**	**0.8**	**2.3**	**2.4**

[41] 2023-2026 DSM Portfolio Filing, Appendix A.

Table 4. Benefit Cost Analysis of DSM Programs, Kansas Central: 2023-2026[42]

Sector	Program Type	Program	UCT	TRC	RIM	SCT	PCT
Business	Broad Scale	Business Demand Response	1.2	2.8	1.2	2.8	n/a
		Whole Business Efficiency	3.0	1.7	2.1	2.2	0.7
		Hard-to-Reach Businesses	1.5	1.5	1.2	1.9	1.2
		Total	2.6	1.8	1.9	2.3	0.8
	Public Benefit	Business Energy Education	0.1	n/a	0.1	n/a	n/a
		Sector Total	2.0	1.7	1.5	2.2	1.0
Residential	Broad Scale	Home Demand Response	0.9	8.0	0.9	8.0	n/a
		Whole Home Efficiency	5.5	4.1	1.0	5.1	4.5
		Total	2.6	4.6	1.0	5.5	5.8
	Public Benefit	Hard-to-Reach Homes	1.7	1.9	0.8	2.4	2.5
		Home Energy Education	0.2	n/a	0.1	n/a	n/a
		Total	n/a	n/a	n/a	n/a	n/a
		Residential Sector Total	2.1	3.5	0.9	4.3	4.6
Portfolio Total			**1.9**	**2.1**	**1.2**	**2.6**	**2.0**

Q. Do Evergy's proposed residential DSM programs meet the KCC's cost-effectiveness criteria?

A. Yes, in part. Based on the information provided by the Company, the Whole Home Efficiency program is cost effective for the Kansas Central area by all tests and for the Kansas Metro area for all but the RIM test, with a ratio of 0.7.[43]

The Home Demand Response program is cost effective per the TRC and SCT in both areas. For the Kansas Metro area, the Home Demand Response program has a RIM ratio of 0.8 and a UCT ratio of 0.9. For the Kansas Central area, the Home Demand Response program has a RIM result of 0.9 and a UCT result of 0.9.

[42] 2023-2026 DSM Portfolio Filing, Appendix A.
[43] Id.

Evergy indicates that all other programs—including the Hard-to-Reach Homes and Home Energy Education programs—are exempt from BCA requirements per KEEIA.

Q. Do Evergy's proposed business DSM programs meet the KCC's cost-effectiveness criteria?

A. According to Evergy, the Whole Business Efficiency Program meets the requirements in both service areas, with the exception of the PCT result of 0.7 in the Kansas Central area.

Evergy posits that its Business Demand Response Program is cost effective by all tests in both Kansas service areas.

Evergy maintains that, with the exception of the RIM result of 0.8 in the Kansas Metro area, the Hard-to-Reach Business Program is cost effective by all tests in both areas.

The education program is exempt from BCA requirements per KEEIA.

Q. Are you concerned with any of the BCA ratios that are below 1.0?

A. I am not concerned with most of the BCA ratios that are below 1.0 for the current portfolio. A new program will experience higher costs associated with start up, and Evergy's projected BCA ratios for non-education, non-hard-to-reach programs are generally close to or above 1.0, the threshold for cost-effectiveness. The TRC ratios for individual programs are generally well above 1.0. For the RIM, the other test emphasized by the KCC, individual program ratios vary, but the portfolio results are close to 1.0. I note that Evergy states that its objective for the RIM test is to have all measures exceed a RIM test ratio of 0.7.[44]

[44] Evergy's response to CURB-23.

However, the 0.7 PCT result for the Whole Business Efficiency Program indicates that it will not be in business customers' financial interest to participate in the program, on average. Commercial and industrial customers generally have many competing uses for their limited cash flow; thus, they require a very low period for recouping their investments—on the order of one to two years. The low PCT result suggests that Evergy should consider changes to its incentive formulas for this program to provide a better return to participants for their investment of funds and time to implement energy efficiency. In her testimony, Danielle Goldberg discusses the considerations for cost-effectiveness testing going forward.

Energy efficiency programs should produce reliable savings.

Q. How does Evergy's portfolio address the reliability of savings?

A. As Evergy notes in its initial filing, the reliability, stability, and security of savings is addressed through EM&V as well as quality assurance processes.[45] Evergy proposes an EM&V framework consisting of a Technical Resource Manual ("TRM") with annual third-party EM&V. The framework consists of evaluation planning and assessment of gross impacts, net-to-gross impacts,[46] process evaluation, and cost-effectiveness.[47] Evergy also plans on annual updates to the TRM.

[45] Corrections to KEEIA Report Filing, p. 45.

[46] Net-to-gross impacts include free ridership and spillover. Free riders are program participants who would have implemented an energy efficiency measure in absence of the utility program. Spillover is reductions in energy consumption and/or demand caused by the presence of an energy efficiency program, beyond the program-related gross savings of the participants and without financial or technical assistance from the program. (Malone, Erin, Wendy Ong, and Max Chang. *State Net-to-Gross Ratios: Research Results and Analysis for Average State Net-to-Gross Ratios Used in Energy Efficiency Savings Estimates*. January 23, 2015. Synapse Energy Economics. Available at https://www.synapse-energy.com/sites/default/files/NTG-Research-14-053.pdf.).

[47] Corrections to KEEIA Report Filing, p. 45-47.

Q. What is your opinion of Evergy's proposed EM&V framework?

A. Evergy's proposed framework includes essential elements of EM&V. However, as discussed in the testimony of Danielle Goldberg, some aspects of the framework lack transparency. These components include cost-effectiveness calculations and the TRM.

Q. What do you recommend?

A. In addition to providing additional information on cost-effectiveness calculations and the TRM, as suggested by Ms. Goldberg, KCC should consider the value of having a separate, additional layer of evaluation on top of the third-party evaluation, as is done in some jurisdictions.[48] KCC Staff, for example, could retain the services of an evaluator to review the results of the evaluation proposed by and managed by Evergy. Doing so would provide additional oversight and assurance to stakeholders and may be particularly helpful in the first few years of Evergy's programs, to provide course-correction and additional transparency into DSM in general.

Energy efficiency should be used as a resource to moderate bill impacts.

Q. Does Evergy provide an indication of the impact of its proposed portfolio on bills?

A. Yes, Evergy provided the results of its bill impact analysis for the proposed DSM portfolio. See Figure 6 and Figure 7, below.

[48] For example, in Nova Scotia, Econoler has provided annual third-party evaluation of the EfficiencyOne programs for numerous years. After Econoler's evaluation is complete, the Nova Scotia Utility and Review Board's consultant, Gil Peach and Associates, reviews and assesses the Econoler study and develops an independent evaluation report with findings and recommendations for refinement of the Econoler impact and process evaluation results and for modifying future evaluations.

Figure 6. Kansas Central – Customer Bill Impact by Sector[49]

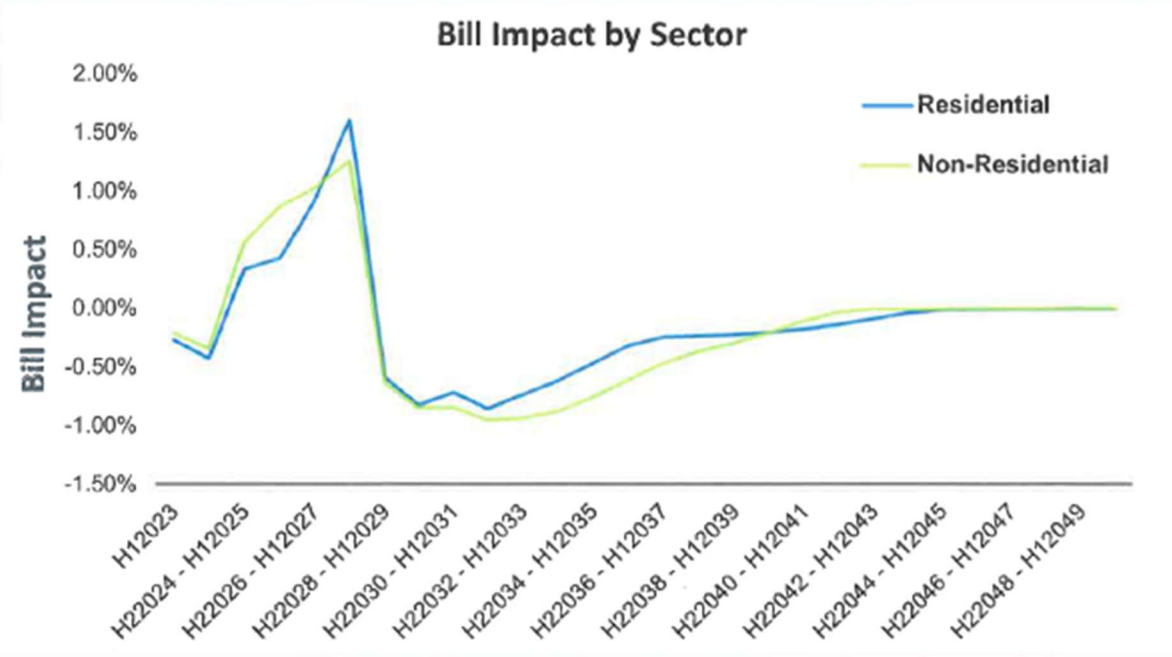
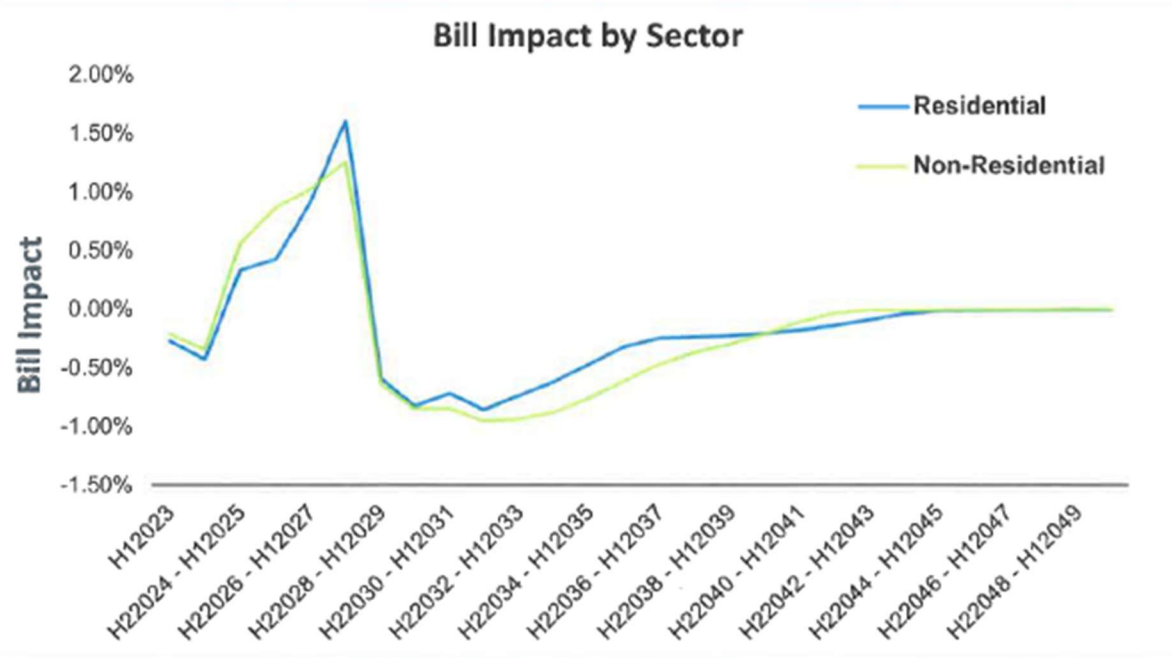


Figure 7. Kansas Metro – Customer Bill Impact by Sector[50]



[49] Revised filing, p. 13.
[50] Revised filing, p. 15.

As shown in these graphs, the cost of the proposed programs for the non-residential sector in both Kansas Central and Kansas Metro peak at around a 1.25 percent bill increase, on average; for the residential sector, the highest level seen in both service areas is projected to be slightly above a 1.5 percent of bill increase. In my opinion, bill impacts in the range of 1-2 percent are generally acceptable. However, it is preferable to consider both the rate and bill impacts to participants and to non-participants, to ensure that no single group is overly impacted by the costs of the programs. In her testimony, Danielle Goldberg describes important elements of a rate and bill impact analysis going forward.

Energy efficiency programs should achieve both energy and demand reductions.

Q. Does the Evergy portfolio include both energy and demand savings?

A. Yes. As shown in Table 1Table 5 and Table 6, below, Evergy indicates that its proposed portfolio would provide both energy and demand savings. The demand response programs account for the majority of demand savings, which increase year over year.

Table 5. Energy and Demand savings by program, sector, and program year for KS Metro (MW and MWh)[51]

KS Metro	Energy Savings (MWh)				Capacity Savings (MW)			
Program	**PY1**	**PY2**	**PY3**	**PY4**	**PY1**	**PY2**	**PY3**	**PY4**
Whole Home Efficiency Program	4,238	6,662	7,801	8,339	1.4	2.2	2.8	3.0
Home Energy Education Program	627	1,576	2,536	3,189	0.1	0.3	0.4	0.6
Home Demand Response Program	227	478	879	1,505	11.9	12.8	17.2	23.6
Hard-To-Reach (HTR) Homes Program	1,041	1,290	1,591	1,505	0.5	0.6	0.8	0.8
Whole Business Efficiency Program	7,153	10,834	11,403	11,051	2.6	3.8	3.7	3.5
Business Energy Education Program	66	166	232	289	0.0	0.0	0.1	0.1
Business Demand Response (BDR) Program	-	-	-	-	3.5	7.9	14.0	23.0
Hard-to-Reach Business Program	2,604	3,052	3,188	3,175	0.6	0.7	0.7	0.7
Total	15,956	24,058	27,630	29,053	20.6	28.3	39.7	55.3

Table 6. Energy and Demand savings by program, sector, and program year for KS Central (MW and MWh)[52]

KS Central	Energy Savings (MWh)				Capacity Savings (MW)			
Program	**PY1**	**PY2**	**PY3**	**PY4**	**PY1**	**PY2**	**PY3**	**PY4**
Whole Home Efficiency Program	9,742	15,445	18,691	20,008	3.6	5.8	7.8	8.3
Home Energy Education Program	1,363	3,438	5,551	7,003	0.2	0.6	1.0	1.2
Home Demand Response Program	589	1,243	2,293	3,936	31.0	33.2	44.8	61.6
Hard-To-Reach (HTR) Homes Program	3,849	4,619	5,700	5,347	1.9	2.4	3.1	3.0
Whole Business Efficiency Program	16,920	25,395	26,375	24,972	6.4	9.3	9.1	8.1
Business Energy Education Program	920	2,313	3,250	4,077	0.2	0.6	0.8	1.1
Business Demand Response (BDR) Program	-	-	-	-	7.1	16.0	28.7	47.2
Hard-to-Reach Business Program	7,734	9,150	9,915	9,960	1.8	2.1	2.2	2.2
Total	41,117	61,603	71,775	75,303	52.2	70.0	97.5	132.7

Energy efficiency programs should benefit all customers, including those living in structures most in need of efficiency improvements, like renters and low-income customers.

Q. Does Evergy's proposed portfolio include programs that address the needs of hard-to-reach customers?

A. Yes. Evergy's proposed portfolio includes the Hard-to-Reach Homes Program, which provides enhanced offerings on heating and cooling, insulation and air sealing, energy efficient products and energy saving kits, and supports weatherization efforts by other entities.[53] Incentive levels are higher to address the higher barriers faced by this customer segment, including income-qualified or otherwise eligible populations (e.g., who reside in a U.S. HUD Qualified Census Tract or live in an affordable housing unit).[54] The portfolio also includes enhanced incentives for hard-to-reach business customers for new construction and retrofits and can include measures such as lighting, lighting controls, and HVAC ("Heating, Ventilation, and Air Conditioning").[55]

Energy efficiency education should provide information to consumers to increase their ability to make informed decisions about energy use and efficiency options.

Q. Does Evergy propose to include education in its portfolio?

A. Yes, the proposed portfolio includes education programs targeted at both residential and business customers. Among other things, the Home Energy Education Program includes online and in-person outreach; using a variety of media can reach a wider audience and reduce costs. This program also includes targeted engagement for rural and low-income

[51] 2023-2026 DSM Portfolio Filing, Appendix A.
[52] *Id.*
[53] *Id.*, at p. 9.
[54] Evergy's response to CURB-37; 2023-2026 DSM Portfolio Filing, Appendix A, p. 10.
[55] 2023-2026 DSM Portfolio Filing, Appendix A, p. 22.

communities, who are difficult to serve with conventional energy efficiency program delivery.[56] Likewise, the proposed Business Energy Education Program targets rural communities. This program also offers different types of outreach and Building Operator Certification courses.[57]

Programs should address efficiency improvements in a comprehensive manner.

Q. Does Evergy propose to include comprehensive energy efficiency offerings in its portfolio?

A. Yes. The proposed portfolio includes the Whole Home Efficiency Program, which provides heating and cooling, insulation and air sealing, energy efficient products, and energy saving kits.[58] On the business side, the proposed portfolio includes the Whole Business Efficiency Program offering incentives for new construction and retrofit projects for a wide range of efficiency measures, including lighting and controls; motors, pumps and variable frequency drives; air compressors; HVAC; and food service and refrigeration.[59]

Programs that include dynamic pricing that send more accurate price signals to customers are desirable.

Q. Does Evergy propose to include dynamic pricing in its portfolio?

A. No. However, dynamic rate designs are typically not handled in energy efficiency proceedings, as there are broader ratemaking questions involved with these pricing structures. The KCC could encourage Evergy to propose such rate designs separately from the DSM Plan.

[56] 2023-2026 DSM Portfolio Filing, Appendix A, p. 4-6.
[57] 2023-2026 DSM Portfolio Filing, Appendix A, p. 15.
[58] 2023-2026 DSM Portfolio Filing, Appendix A, p. 1.
[59] 2023-2026 DSM Portfolio Filing, Appendix A, p. 13.

As a secondary consideration, energy efficiency may avoid CO_2 emissions.

Q. Does Evergy estimate the CO_2 emissions reductions associated with its proposed portfolio?

A. Yes. In response to a request in CURB-51 for health and environmental impacts of its DSM plan, Evergy pointed to its high-level overview of emissions reductions from the proposed programs in terms of an equivalent number of cars taken off the road annually.[60]

Q. Do you have any concerns with the metric that Evergy used for indicating CO_2 emissions reductions?

A. Yes. While comparing CO_2 emissions reductions to cars taken off the road is common in marketing, it is not a clear metric—since the fuel efficiency of vehicles changes over time. A clearer metric would be to present CO_2 equivalent (CO_2e) emissions impacts for all greenhouse gases; this is usually stated in terms of metric tons. Doing so would allow comparison with emissions reductions associated with alternative energy resource choices. Going forward, I recommend that Evergy present avoided CO_2e in its resource decision making, including in IRPs and DSM planning processes.

[60] Evergy's response to CURB-51.

5. ASSESSMENT OF EVERGY'S PROPOSAL BASED ON BEST PRACTICES

5.1. Missing Programs

Q. Are there any programs absent from Evergy's portfolio that you believe are important to a comprehensive energy efficiency portfolio?

A. Yes. In general, Evergy's proposed portfolio covers the most important sectors and end uses, with one exception: residential new construction. In my opinion, the most significant omission is a residential new construction program within its portfolio.

Also, targeted programs can be helpful for addressing the needs of certain sectors and certain end-uses. For example, targeted programs can better serve the needs and challenges faced by customers living in multi-family housing. Evergy does address the multi-family housing sector, although not with a dedicated program.[61]

Q. Why are residential new construction programs important components of energy efficiency portfolios?

A. It is critical that energy efficiency programs take advantage of the opportunities presented by new construction homes. Unlike most existing homes, new homes can be built for optimal compatibility with high-efficiency equipment such as heating and cooling systems, thermostats, or lighting systems. It is much less desirable to retrofit a home later. Additionally, new homes contain equipment that is designed to last, suggesting there is unlikely to be another opportunity to retrofit the home for many years.

In its response to CURB-47, Evergy stated that it did not include a residential new construction program because it did not screen as cost-effective. I suggest revisiting the

[61] Evergy's response to CURB-38.

program design to see if the program can be modified such that it is cost-effective. For example, Evergy may be able to use education and market development funding to conduct targeted outreach and contractor training to encourage efficiency in new buildings.

In general, new construction programs comprise only a small percentage of total energy efficiency program costs. If Evergy examines cost-effectiveness at the sector- or portfolio-level a new construction program is unlikely to have a noticeable impact on total cost-effectiveness.

5.2. Design Improvements to Proposed programs

Programs Targeting Income Eligible, Rural, and Multifamily Customers

Q. Are there other program design improvements you recommend for Evergy's filing?

A. Yes. I recommend that Evergy break out the targets for income-eligible customers, rural customers, and multifamily customers for the Hard-to-Reach Program. Given the variable but often substantial barriers faced by different hard-to-reach groups, I want to ensure that Evergy is actively engaging with all customer types to achieve its targets within the Hard-to-Reach Program. For example, multifamily buildings are historically underserved due to the prevalence of renters, financial and time constraint barriers for building owners, and marketing hurdles.[62] On page 17 of Evergy's filing, Evergy acknowledges this by stating that "there was a lag of energy efficiency in homes among renters, younger, multi-family, or low-income customer participation." However, there is no indication in the filing that

[62] ACEEE. July 2021. *High Impact Programs Targeting Regional Multifamily Energy Savings Opportunities*. Available at: https://www.aceee.org/sites/default/files/pdfs/multifamily_high_impact_programs_final_7-2-21.pdf.

Evergy has a specific plan to access this pool of potential savings. If multifamily customers were tracked as a subset of the hard-to-reach sector, Evergy would be motivated to better address the unique barriers faced by this customer group.

Midstream Offering

Q. Do you have comments on Evergy's midstream offering?

A. Yes. Evergy's filing briefly mentions the midstream delivery channel in several instances, but without a detailed plan. Because midstream incentives go directly to the distributors and retailers, they encourage stores to keep efficient products in stock at competitive prices. Midstream programs confer several key advantages over rebate-type programs: they require no effort from the customer, they can reach a broader audience, and they encourage high efficiency purchases even in emergency replacement situations. Midstream programs can also help with rapid market transformation by encouraging stores to keep efficient products in stock. In response to CURB-55, Evergy provides helpful details regarding its current experience with external retail channel partners in offering rebates for its Missouri energy efficiency programs as well as plans for outreach and engagement opportunities within KEEIA. However, Evergy has not developed expected savings or participation rates by delivery channel. I suggest that Evergy develop a more robust plan for setting up midstream offerings with distributors and retailers within its territory.

School Kits

Q. Please describe Evergy's school kits offering.

A. Evergy proposes to provide interactive, educational materials and energy efficient kits focused on energy efficiency and sustainability.[63] Evergy has not yet determined the exact contents of the school kits, however they are likely to include items such as LEDs, water reduction measures (faucet aerators, showerheads, etc.), LED night lights, and educational materials about other products and available programs that will decrease home energy usage.[64]

Q. Do you have concerns about this proposed program?

A. Yes. School kits programs can have high free ridership[65] and low actualized savings. For example, Ameren Missouri's School Kits experienced a free ridership rate of 19 percent. Installation rates by measure ranged from 39 to 90 percent, with most measures between 51 and 64 percent.[66] Offerings with free ridership at such a high level and/or actualized savings so low are not likely to be cost effective.

[63] 2023-2026 DSM Portfolio Filing, p. 30.
[64] Evergy's response to CURB-41.
[65] Free riders are program participants who would have implemented an energy efficiency measure in absence of the utility program. (Malone, Erin, Wendy Ong, and Max Chang. *State Net-to-Gross Ratios: Research Results and Analysis for Average State Net-to-Gross Ratios Used in Energy Efficiency Savings Estimates*. January 23, 2015. Synapse Energy Economics. Available at https://www.synapse-energy.com/sites/default/files/NTG-Research-14-053.pdf.).
[66] Cadmus. 2019. *Energy Efficiency Kits Program Impact and Process Evaluation: Program Year 2018*. Available at: https://efis.psc mo.gov/mpsc/commoncomponents/viewdocument.asp?DocId=936232333.

Q. Can free ridership and actualized savings be addressed with program design?

A. To some extent. Program administrators can try different measures or messages to improve actualized savings rates. But since the kits are provided free-of-charge, high free ridership stems from the design of the program and cannot be easily addressed.

Q. Does Evergy anticipate that actualized savings will be an issue?

A. No. Evergy claims that "there is typically a high level of installation of measures with school kits that incorporate education/curriculum programming with the kits."[67] Evergy plans to use surveys during implementation and evaluation measurement and verification to ensure that efficiency measures are installed and being used by the homeowners.

Q. What do you recommend?

A. Evergy should provide educational materials to schools. However, the contents of the kits do not provide benefits to the participant or to ratepayers in general if they are not installed. I recommend designing the school kits offering based on similar programs in other jurisdictions that have experienced high realization rates. As an example of a program with high realization rates, Commonwealth Edison's Kit Program only provides kits to parents who return a form requesting the kit, thereby avoiding sending kits to households that cannot or are unwilling to install the measures.[68] Also, I recommend that Evergy take an iterative approach: conducting periodic assessments and adjusting the offering design (or

[67] Evergy's response to CURB-42.

[68] Opinion Dynamics, *CLC and NGRID Education Kits Program Evaluation: Final Report*. September 7, 2018. p. 16. Available at https://ma-eeac.org/wp-content/uploads/CLC-NGRID-Education-Kits-Evaluation-Report-FINAL-2018-09-07.pdf.

terminating the program if appropriate) in response to survey results well before the conclusion of the program period.

Pilot Incubator Program

Q. What is Evergy proposing with respect to the Pilot Incubator Program?

A. Evergy proposes a program for generating ideas, identifying potential new or improvements to programs or offerings, and testing concepts.[69] For both Kansas utilities, Evergy is budgeting ** [redacted] ** for the four program years for the Pilot Incubator Program. Evergy does not estimate savings or cost effectiveness of this program.[70]

Q. Do you have concerns with this proposal?

A. Yes, I have three concerns.

First, with no projected savings, it is not clear that these investments will provide benefits to ratepayers. Notwithstanding implementation of a program that arises directly from the Pilot Incubator Program, there is no clear methodology for measuring the benefits of the Pilot Incubator Program.

Second, the Pilot Incubator Program could distract the Company from the primary goal, which should be to ramp-up effective and cost-efficient DSM programs. Research and development will be more appropriate once Evergy has more experience with running programs and has identified gaps in understanding.

[69] 2023-2026 DSM Portfolio Filing, p. 43.
[70] 2023-2026 DSM Portfolio Filing, Appendix A, p. 25-26.

Third, Evergy provides no indication of how decisions will be made for this funding. A framework for considering, approving, and assessing research and development initiatives, projects, and pilots should be fleshed out.

Q. What elements should be included in this framework?

A. The framework should lay out the process, including delineation of roles and responsibilities, for considering and approving research and development activities. A framework for research and pilots should specify elements of the study design, including addressing the following:

- What has already been learned from previous research, and how will these past and potentially ongoing learnings relate to the currently proposed research?
- What are the gaps in understanding that the current proposed research proposes to fill?
- What alternative approaches could be used to fill in these knowledge gaps, and why is the proposed approach better than alternatives?
- What metrics and data will be collected, and how will these data enable Evergy to decide whether to recommend rolling-out to a full-scale program or offering?
- What is the logic for the pilot study design?
- Are there are opportunities for learning on other, related issues?

Q. What do you recommend?

A. I recommend that the Commission not approve the Pilot Incubator Program at this time. I encourage Evergy to include the Pilot Incubator Program or a similar program in its next DSM application, once Evergy has more experience with running the KEEIA DSM programs.

If the Commission decides to approve the Pilot Incubator Program in this program period despite our recommendations, it should require Evergy to develop a framework, as described above, as a condition of approving the Pilot Incubator Program.

5.3. Throughput Disincentive

Q. What does Evergy propose for a mechanism to address the reduction in sales due to DSM?

A. Evergy proposes a lost revenue adjustment mechanism, which it calls the Throughput Disincentive ("TD"). With this mechanism, Evergy seeks to be compensated for the estimated loss of base revenue that results from the DSM programs. Evergy proposes to use a TD model to calculate the effect of deemed kWh savings from installation of energy efficiency measures, net of assumed net-to-gross factors in the Company's TRM, on Evergy's kWh sales and revenues. Evergy proposes that TD be computed monthly as the product of net margin revenue values for each class times the total monthly savings for all programs for a given class.[71]

Q. Do you have concerns about Evergy's TD proposal?

A. Yes. Evergy's proposed approach, and lost revenue mechanisms in general, can be problematic and challenging.

First, with a lost revenue adjustment mechanism, EM&V may become overly contentious and controversial. This mechanism relies on accurate estimates of energy savings from DSM to determine TD compensation. As a result, the EM&V process and proceedings to

[71] 2023-2026 DSM Portfolio Filing, Appendix F.

estimate lost revenues can be extremely antagonistic and resource intensive. Combined with the issues related to workpaper transparency discussed in Ms. Goldberg's testimony, Evergy's portfolio may be particularly prone to contentious review of the overall use of DSM. To avoid this, lost revenue adjustment mechanisms may focus on programs with savings that are easy to quantify—but this results in the mechanism failing to fully address the financial disincentive to promote sales. By the same token, such mechanisms may fail to mitigate the utility's financial incentive to discourage implementation of other policies and initiatives that could reduce sales and costs, such as more efficient building energy codes and appliance standards.

Second, it is difficult to isolate the portion of costs that should be recovered using a lost revenue adjustment mechanism, i.e., fixed costs that are embedded in rates. Inaccurate identification of fixed costs may result in a mechanism providing too much compensation, or too little to offset the throughput incentive.

Third, lost revenue adjustment mechanisms should not allow recovery of revenues that can be recovered by alternative means, for example, with sales to other utilities. However, identifying and quantifying offsets to lost revenues may be challenging.

Finally, lost revenue adjustment mechanisms typically result in snowballing increases in rates as more and more DSM and distributed generation resources are implemented.

Q. What do you recommend?

A. I recommend that Evergy shift to a decoupling mechanism. Unlike a lost revenue adjustment mechanism, decoupling typically produces modest positive or negative adjustments to rates. This can help reduce impacts of rate shock for customers, while still facilitating implementation and providing support for these programs. Decoupling provides a better foundation for DSM than lost revenue mechanisms and can better accommodate other market shifts, such as electrification and increases in distributed generation. The design of a decoupling mechanism could occur in a separate investigative docket.

5.4. Earnings Opportunity

Q. Has Evergy proposed to receive performance benefits for its DSM programs?

A. Yes. Evergy proposes two types of earnings opportunities. For the education and hard-to-reach programs, Evergy proposes a financial incentive based on five percent of total spending. For the demand response and efficiency programs (other than hard-to-reach and education programs), Evergy proposes a financial incentive based on 18 percent of net shared benefits created by those programs.[72] Net shared benefits are defined as the UCT net benefits. The calculation of the net savings attributed to the programs during the four-year cycle for the earnings opportunity will be based on EM&V.[73]

Q. Please describe how the compensation will be determined for the education and hard-to-reach earnings opportunity.

A. See Table 7, below.

[72] 2023-2026 DSM Portfolio Filing, Appendix E, p. 3.
[73] 2023-2026 DSM Portfolio Filing, Appendix D, p. 27.

Table 7. Annual Calculation of Earnings Opportunity for Education and Awareness and Hard-to-Reach Customers.[74]

Metric	Programs	EO Criterion and Calculation
Education & Awareness	Home Energy Education Business Energy Education	The performance metric will be based on indicators of customer education during the period, as documented in EM&V. 1. Community Events held quarterly w/ documentation (4 / year) 2. Minimum of 10% eligible customers completing online energy analysis yearly 3. EM&V customer survey of awareness of programs greater than 50% If all three criteria are met, annual EO will equal 25% of the Cycle 1 EO Target. If any criteria are not met, the annual EO will equal $0. Over the 2023-2026 period, this EO is capped at 100 percent of the target spending, i.e., $173,026.
Hard to Reach customer participation	Hard-to-Reach Homes Hard-to-Reach Businesses	Evergy must meet both of the following criteria in order to receive an annual EO equal 25% of the Cycle 1 EO Target: 1. Actual spending for the Hard-to-Reach Home Program, as reported directly out of the Company's accounting system and included in the EM&V report, exceeds 85% of approved annual budget 2. Ratio of participants with small business rate codes in the Hard-to-Reach Business and Whole Business Efficiency to total participants exceeds 20%, as determined by the final EM&V report for the calculation of % of participation If either criterion is not met, the annual EO will equal $0. Over the 2023-2026 period, this EO is capped at 100 percent of the target spending, i.e., $442,081.

[74] 2023-2026 DSM Portfolio Filing, Appendix E Tables.

Q. Please describe how the compensation will be determined for Demand Response and Efficiency programs (Other than Hard-to-Reach and Education Programs).

A. See Table 8, below.

Table 8. Annual Calculation of EO for Demand Response and Efficiency programs (Other than Hard-to-Reach and Education Programs)[75]

Metric	Programs	EO Criterion and Calculation
First-year cumulative incremental EE & DR savings in MWh	Whole Home Efficiency Home Demand Response Whole Business Efficiency Pilot Incubator	Evaluated net MWh for subject programs, as determined by EM&V, times the EO Amount per Target Unit, subject to limitation of the Cycle EO Cap. Over the 2023-2026 period, this EO is capped at 125 percent of target MWh corresponding to a net shared benefit of $1,680,060.
First-year cumulative incremental MW EE savings at system peak	Whole Home Efficiency Whole Business Efficiency Pilot Incubator	Evaluated net MW for subject programs, as determined by EM&V, times the EO Amount per Target Unit, subject to limitation of the Cycle EO Cap. Over the 2023-2026 period, this EO is capped at 125 percent of target MW corresponding to a net shared benefit of $3,024,109.
Annual MW reduction capability from Business and Residential Demand Response	Home Demand Response Business Demand Response	Evaluated net MW for subject programs, as determined by EM&V, times the EO Amount per Target Unit, subject to limitation of the Cycle EO Cap. Over the 2023-2026 period, this EO is capped at 125 percent of target MW corresponding to a net shared benefit of $2,016,073.

Q. What guidance has the KCC provided on performance benefits for utilities pursuing energy efficiency?

A. In Docket No. 08-GIMX-441-GIV (08-441), the KCC determined that it would consider performance benefits for energy efficiency programs that met one or both of the following conditions:

1. Proposals for programs that target low- and fixed-income customers, and renters. The Commission believes these groups are vulnerable, particularly in the face of an economic downturn, and may be unable to undertake energy efficiency measures on their own for various reasons.

2. Proposals that target new and existing residential housing and demonstrate a potential for long-term energy savings utilizing a comprehensive whole house concept, pursuant to Commission policy as expressed in the [Docket 08-442] Order.[76]

The KCC further indicated a preference for a shared savings mechanism form of performance mechanism, rather than rate of return incentives and performance target incentives.[77]

Q. Does Evergy's proposed DSM portfolio address one or both of these conditions?

A. Yes.

Q. Do you have any concerns with Evergy's proposed Earnings Opportunity?

A. Yes. My concerns are as follows:

- Using Evergy's proposed metrics provides little incentive for effective use of funds on the hard-to-reach programs.

[75] 2023-2026 DSM Portfolio Filing, Appendix E Tables.
[76] 08-GIMX-441-GIV, 2008.
[77] 08-GIMX-441-GIV, 2008.

- In light of the magnitude of new DSM programs being added to Evergy's current offerings and the lack of prior implementation study, a performance incentive of 18 percent of net benefits is too high, even when compared to other states that have more experience with DSM implementation.

- Evergy has not provided sufficient information to justify that the performance target is reasonable.

Q. Please describe your first concern with Evergy's proposed Earnings Opportunity.

A. Evergy's proposed metrics for the hard-to-reach programs are based on spending and participation levels in these programs. While participation and spending should be tracked within a broader set of metrics for understanding the programs' performance, they do not directly incentivize achievement of critical goals for the hard-to-reach sector, i.e., bill savings. As a subset of the hard-to-reach population, low-income households generally spend a large portion of household income on energy bills; that is, they have higher energy burdens.[78] In general, reducing energy burdens for this population produces proportionally large benefits, both for these customers and for ratepayers as a whole (e.g., through reductions in arrearages and collection expenses). Energy efficiency programs targeting low-income populations offer these customers a way to manage their bills.

[78] Some policies use an energy burden threshold of six percent of income spent on energy bills to define whether energy is affordable. *See*, e.g., NYC Mayor's Office of Sustainability and the Mayor's Office for Economic Opportunity. Understanding and Alleviating Energy Cost Burden in New York City. August 2019. Available at https://www1 nyc.gov/assets/sustainability/downloads/pdf/publications/EnergyCost.pdf.

Q. Why didn't Evergy propose to tie the EO to energy savings for the hard-to-reach programs?

A. Evergy indicated that because the targeted sectors typically don't drive the majority of savings and are generally less cost effective than other sectors, it seemed appropriate to tie the EO to other metrics.[79]

Q. Please explain your second concern with Evergy's proposed Earnings Opportunity.

A. Evergy's proposed performance incentive—18 percent of net benefits—is too high. Evergy claims that "18% of net benefits is within the range of what has been approved in multiple other jurisdictions across the country."[80] Yet, based on the results of ICF's survey of financial recovery and performance incentive mechanisms for energy efficiency and demand response programs in jurisdictions across the country, Evergy's proposed incentive percentage is ** [redacted] ** the percentage identified for the vast majority of the states with formula-based on shared net benefits.[81] ** [redacted] ** other states in the Midwest offered utilities ** [redacted] ** For example, ** [redacted] **[82]

[79] Evergy's response to CURB-31.
[80] Evergy's response to CURB-31.
[81] Confidential attachment to Evergy's response to CURB-30.
[82] Confidential attachment to Evergy's response to CURB-30.

Q. Is Evergy's proposed level of earnings incentive appropriate for Kansas programs?

A. No. Evergy argues that its proposed 18 percent value "was determined to represent an investment to match KEEIA statute intent of treating demand side investments similar to supply side investments section (d)(1)F." **[redacted]**[83]

Q. What is your third concern with Evergy's proposed Earnings Opportunity?

A. Evergy has not provided sufficient information to justify that the performance target is sufficiently robust. As a principle, incentive targets should be designed to motivate strong performance.[84] However, without a potential study or historical performance, there is insufficient information to justify whether any savings or net benefits performance target is a stretch. Relative to Evergy's estimate of Kansas potential from the IRP shown in Figure 3, proposed program savings levels do not appear to represent a stretch.

Q. What do you recommend with respect to the proposed Earnings Opportunity?

A. I recommend that performance incentives should be tied to measurable results. In addition, the percentage of net benefits should be lower. I recommend a smaller earnings opportunity, between 5 and 15 percent, to be in line with other states. Until there is more

[83] Confidential attachment to Evergy's response to CURB-30, and ACEEE. *State and Local Policy Database: Energy Efficiency Resource Standards*. Available at: https://database.aceee.org/state/energy-efficiency-resource-standards. Accessed June 2, 2022.

[84] Lowry, M. N., T. Woolf. 2016. Performance-Based Regulation in a High-Distributed Energy Resource Future. Prepared for Lawrence Berkeley National Laboratory. p. 22. Available at: https://emp.lbl.gov/publications/performance-based-regulation-high.

data to substantiate a higher earnings opportunity percentage, I recommend a value on the low end of the range of values, such as five percent. Once there is more data on the performance of the programs and a potential study has been completed, the performance incentive could be revisited.

Q. Does this conclude your direct testimony?

A. Yes, it does.

VERIFICATION

COMMONWEALTH OF MASSACHUSETTS)
)
COUNTY OF MIDDLESEX) ss:

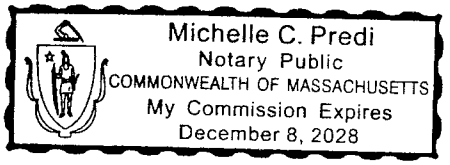
Alice Napoleon, being duly sworn upon her oath, deposes and states that she is a consultant for the Citizens' Utility Ratepayer Board, that she has read and is familiar with the foregoing *Direct Testimony*, and that the statements made herein are true and correct to the best of her knowledge, information, and belief.

Alice Napoleon

SUBSCRIBED AND SWORN to before me this 16 day of June, 2022.

Notary Public

My Commission expires:



On this 16th day of June, 2022 before me, the undersigned notary public, Alice M Napoleon (~~name of document signer~~ MP) personally appeared, proved to me through satisfactory evidence of identification, which were driver's license, to be the person who signed the ~~preceding or~~ attached document in my presence and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of (his) (her) knowledge and belief.

X

Michelle C. Predi
Notary Public
COMMONWEALTH OF MASSACHUSETTS
My Commission Expires
December 8, 2028

Alice Napoleon, Principal Associate

Synapse Energy Economics I 485 Massachusetts Avenue, Suite 3 I Cambridge, MA 02139 I 617-453-7041
anapoleon@synapse-energy.com

PROFESSIONAL EXPERIENCE

Synapse Energy Economics, Inc., Cambridge, MA. *Principal Associate*, June 2021 – Present; *Senior Associate*, June 2013 – June 2021; *Associate*, July 2008 – June 2013; *Research Associate*, April 2005 – July 2008.

- Provides expert analysis, ongoing stakeholder support, and consulting services in regulatory proceedings regarding energy efficiency program design and performance, funding and incentive mechanisms, cost-effectiveness screening, potential studies, and plans. Develops and sponsors testimony on electric and natural gas energy efficiency plans, advanced metering infrastructure (AMI) proposals, innovative programs, and regulatory structures.
- Researches policies and practices regarding ratemaking for energy efficiency, power procurement, risk management, and fuel diversity.
- Managed efforts by Synapse and subcontractors to conduct a sweeping study of the disparate impacts of electric and natural gas infrastructure on economic, social, and health outcomes, and options for improving energy equity. Conducted interviews and oversaw research, including a literature review, web meetings, and several case studies.
- Conducted extensive research on low-income energy efficiency efforts in U.S. states. Analyzed energy burden differences by income level and across factors that can impact participation in and efficacy of energy efficiency programs in order to inform program design and targeting efforts. Provided consulting services and testimony on low-income energy efficiency programs and proposals.
- Led development of a cost-effectiveness tool, program designs, and case studies to facilitate incorporating strategic energy management programs into energy efficiency program portfolios for commercial and industrial customers.
- Designed research approach and managed team that conducted a sweeping analysis of energy efficiency potential studies from utilities, states, and regions across the U.S.
- Conducted research and co-authored reports on efforts to increase resilience of the electric system, including emerging regulatory mechanisms. Designed survey instrument and oversaw interviews.
- Facilitated residential, commercial, and industrial policy working groups and managed technical analysis of working group recommendations to reduce greenhouse gas (GHG) emissions in Colorado, South Carolina, and Maryland.

Resource Insight, Inc., Arlington, MA. *Research Assistant*, 2003-2005.

Responsible for conducting research and analysis of electric, gas, steam, and water resource issues. Conducted discounted cash flow analysis for asset valuation. Developed market-price benchmarks for analysis of power-supply bids including energy, capacity, ancillary services, transmission, ISO services, losses, and adjustment for load shape. Prepared discovery responses, formal objections, comments, and testimony; collaboratively wrote and edited reports; created and formatted exhibits. Participated in drafting an Energy Plan for New York City. Edited solicitation for competitive power supply to serve aggregated municipal load.

University of Massachusetts, Amherst, MA. *Teaching Assistant*, 2001-2002.

Developed and taught lessons on applied math to a diverse group of incoming graduates; tutored students in microeconomic theory and cost benefit analysis; graded problem sets and memoranda.

International Council for Local Environmental Initiatives, Berkeley, CA. *Cities for Climate Protection Intern for the City of Northampton, MA*, 2001.

Compiled primary and secondary source data on energy consumption and solid waste generation by the municipal government, city residents, and businesses; applied emissions coefficients to calculate total GHG emissions; identified current and planned municipal policies that impact GHG emissions; researched the predicted local effects of global warming; gathered public feedback to provide acceptable and proactive policy alternatives. Composed a GHG emissions inventory describing research findings; wrote and distributed a policy report and press releases; gave newspaper and radio interviews; addressed public officials and the public during a televised meeting.

University of Massachusetts, Amherst, MA. *Research Assistant*, 2000-2001.

Located federal data sources, identified changes, and updated a research database to evaluate the Habitat Conservation Program; proofread articles and white papers; composed a literature review on land use modelling. Collaboratively administered, tested, and proposed interface enhancements for a web-based data warehouse of regional habitat change research; formally presented the system to an independent research group.

Court Square Data Group, Inc., Springfield, MA. *Administration Manager*, 1998-2000; *Project Administrator*, 1996-1998.

As Administration Manager, analysed profitability and diversity of income sources; managed cash flow, expense, and income data; created budgets; devised and implemented procedures to increase administrative efficiency; implemented new accounting system with minimal disruption to workflow.

As Project Administrator, coordinated implementation of software features; identified opportunities for future development; monitored problem resolution; wrote and coordinated production of a user's manual and questionnaires; edited technical proposals and a business plan.

EDUCATION

University of Massachusetts, Amherst, MA
Master of Public Administration, 2002

Rutgers University, New Brunswick, NJ
Bachelor of Arts in Economics, 1995

Syracuse University, Syracuse, NY, 1994

PUBLICATIONS

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Pennsylvania Public Utility Commission (Docket No. M-2020-3020830): Direct testimony of Alice Napoleon and Courtney Lane regarding PECO Energy Company's proposed Act 129 Phase IV Energy Efficiency and Conservation Plan. On behalf of the natural Resources Defense Council. January 14, 2021.

Nova Scotia Utility and Review Board (Matter No. M09519): Evidence of Alice Napoleon regarding Nova Scotia Power's Smart Grid Nova Scotia Project proposal. On behalf of Counsel to the Nova Scotia Utility and Review Board. February 19, 2020.

New York Public Service Commission (Cases 20-E-0380 and 20-G-0381): Direct testimony of Alice Napoleon and Kenji Takahashi regarding proposed earnings adjustment mechanisms in a proceeding on Rates, Charges, Rules, and Regulations related to Niagara Mohawk Power Corporation d/b/a National Grid for Electric Service and National Grid for Gas Service. On behalf of the Natural Resources Defense Council. November 25, 2020.

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New York Public Service Commission (Cases 19-E-0065 and 19-G-0066): Direct testimony of Tim Woolf and Alice Napoleon regarding energy efficiency targets and incentives in Con Edison rate case. On behalf of the Natural Resources Defense Council. May 24, 2019.

Nova Scotia Utility and Review Board (Matter No. M08604): Evidence of Alice Napoleon regarding the 2019 Demand Side Management Resource Plan. On behalf of Counsel to the Nova Scotia Utility and Review Board. June 13, 2018.

Nova Scotia Utility and Review Board (Matter No. M08349): Evidence of Alice Napoleon regarding Nova Scotia Power's Advanced Meter Infrastructure Proposal. On behalf of Counsel to the Nova Scotia Utility and Review Board. January 18, 2018.

Nova Scotia Utility and Review Board (Case No. M07767): Direct evidence in the matter of the Nova Scotia Power Advanced Meter Infrastructure Pilot. On behalf of Counsel to the Nova Scotia Utility and Review Board. February 16, 2017.

Public Service Commission of South Carolina (Docket No. 2016-223-E): Direct Testimony of Alice Napoleon regarding South Carolina Electric and Gas Energy Efficiency Efforts. On behalf of South Carolina Coastal Conservation League. September 1, 2016.

Nova Scotia Utility and Review Board (Case No. M06247): Direct evidence in the matter of an application by Efficiency Nova Scotia Corporation for approval of its electricity demand-side management plan for 2015. On behalf of Counsel to the Nova Scotia Utility and Review Board. July 14, 2014.

TESTIMONY ASSISTANCE

Public Service Commission of South Carolina (Docket No. 2017-2-E): Direct Testimony of Thomas Vitolo, PhD regarding Avoided Cost Calculations and the Costs and Benefits of Solar Net Energy Metering for South Carolina Electric & Gas Company. On behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy. March 22, 2017.

State of New Jersey Board of Public Utilities (Docket No. ER16060524): Direct testimony of Tim Woolf regarding the Petition of Rockland Electric Company for Approval of an Advanced Metering Program, and for Other Relief. On behalf of New Jersey Division of the Ratepayer Advocate. September 9, 2016.

Nova Scotia Utility and Review Board (Matter No. M06733): Direct testimony of Tim Woolf regarding EfficiencyOne's 2016-2018 demand-side management plan. On behalf of the Nova Scotia Utility and Review Board. June 2, 2015.

Missouri Public Service Commission (File No. EO-2015-0055): Rebuttal and surrebuttal of Tim Woof on the topic of Ameren Missouri's 2016-2018 Energy Efficiency Plan. On behalf of Sierra Club. March 20, 2015 and April 27, 2015.

State of New Jersey Board of Public Utilities (Docket No. EO14080897): Direct testimony of Kenji Takahashi regarding the Petition of Public Service Electric & Gas Company to continue its Energy Efficiency Economic Extension Program on a Regulated Basis (EEE Extension II). On behalf of New Jersey Division of the Ratepayer Advocate. November 7, 2014.

Kentucky Public Service Commission (Case No. 2014-00003): Direct testimony of Tim Woof regarding Louisville Gas and Electric Company and Kentucky Utilities Company's proposed 2015-2018 demand-side management and energy efficiency program plan. On behalf of Wallace McMullen and the Sierra Club. April 14, 2014.

State of New Jersey Board of Public Utilities (Docket No. GO12050363): Direct testimony of Maximilian Chang regarding South Jersey Gas Company's proposal to extend and modify its energy-efficiency programs. On behalf of New Jersey Division of the Ratepayer Advocate. November 9, 2012.

State of New Jersey Board of Public Utilities (Docket No. GO12070640): Direct testimony of Robert Fagan regarding New Jersey Natural Gas Company's petition for approval of the extension of the SAVEGREEN energy efficiency programs. On behalf of the New Jersey Division of the Ratepayer Advocate. October 26, 2012.

State of New Jersey Board of Public Utilities (Docket No. GO11070399): Direct testimony of Robert Fagan regarding Elizabethtown Gas Company's Proposed Energy Efficiency Program. On behalf of New Jersey Division of the Ratepayer Advocate. December 16, 2011.

State of New Jersey Board of Public Utilities (Docket No. GR11070425): Direct testimony of Robert Fagan regarding New Jersey Natural Gas Company's petition for approval of the extension of the SAVEGREEN energy efficiency programs. On behalf of the New Jersey Division of the Ratepayer Advocate. November 16, 2011.

State of New Jersey Board of Public Utilities (Docket No. GR10030225): Direct testimony of David Nichols regarding New Jersey Natural Gas Company's Proposed Energy Efficiency Program. On behalf of New Jersey Division of the Ratepayer Advocate. July 9, 2010.

Virginia State Corporation Commission (Case No. PUE-2009-00097): Direct testimony of William Steinhurst regarding Appalachian Power Company's Integrated Resource Plan filing pursuant to Va. Code

§ 56-597 et seq. On behalf of the Southern Environmental Law Center, Chesapeake Climate Action Network, Appalachian Voices, and the Virginia Chapter of The Sierra Club. March 23, 2010.

Delaware Public Service Commission (Docket No. 07-20): Jointly authored an expert report, with Robert Fagan, William Steinhurst, David White, and Kenji Takahashi, In the Matter of Integrated Resource Planning for the Provision of Standard Offer Service by Delmarva Power & Light Company Under 26 DEL. C. §1007 (c) & (d). On behalf of the Staff of Delaware Public Service Commission. April 2, 2009.

State of New Jersey Board of Public Utilities (BPU Docket EM05020106): Direct and surrebuttal testimony of Bruce Biewald, Robert Fagan, and David Schlissel regarding the Joint Petition Of Public Service Electric and Gas Company And Exelon Corporation For Approval of a Change in Control Of Public Service Electric and Gas Company And Related Authorizations. On behalf of New Jersey Division of the Ratepayer Advocate. November 14, 2005 and December 27, 2005.

Illinois Commerce Commission (Dockets 05-0160, 05-0161, 05-0162): Direct testimony of William Steinhurst regarding Ameren's proposed competitive procurement auction (CPA). On behalf of Illinois Citizens Utility Board. June 15, 2005 and August 10, 2005.

Illinois Commerce Commission (Docket 05-0159): Direct testimony of William Steinhurst regarding Commonwealth Edison's Proposal to implement a competitive procurement process. On behalf of Illinois Citizens Utility Board and Cook County State's Attorney's Office. June 8, 2005 and August 3, 2005.

Resume updated January 2022.

REFERENCED DATA REQUESTS

CURB DR – 3
CURB DR – 4
CURB DR – 30
CURB DR – 37
CURB DR – 47
CURB DR – 58
(Confidential Redacted)

Evergy KS Central and KS Metro
Case Name: 2022 EKME_EKCE KEEIA
Case Number: 22-EKME-254-TAR

Requestor Astrab Joseph -
Response Provided February 21, 2022

Question:CURB-3

Please provide all workbooks submitted with the application

RESPONSE: (do not edit or delete this line or anything above this)

Confidentiality: CONFIDENTIAL
Statement: (4) Reports, work papers or other documentation related to work produced by internal or external auditors or consultants

Response:
See workpapers filed in support of the application listed below.

Information provided by:
Mark Leonard, Sr Energy Solutions Analyst, and Mark Foltz, Special Projects Director

Attachment(s):

[redacted]

Verification:

I have read the Information Request and answer thereto and find answer to be true, accurate, full and complete, and contain no material misrepresentations or omissions to the best of my knowledge and belief; and I will disclose to the Commission Staff any matter subsequently discovered which affects the accuracy or completeness of the answer(s) to this Information Request(s).

Signature /s/ *Brad Lutz*
Director Regulatory Affairs

Evergy KS Central and KS Metro
Case Name: 2022 EKME_EKCE KEEIA
Case Number: 22-EKME-254-TAR

Requestor Astrab Joseph -
Response Provided February 21, 2022

Question:CURB-4

Please provide the most recent Integrated Resource Plan. Please provide all related documents including all of the appendices (if any).

RESPONSE: (do not edit or delete this line or anything above this)

Confidentiality: CONFIDENTIAL
Statement: (4) Reports, work papers or other documentation related to work produced by internal or external auditors or consultants

Response:

See attached documents.

Information provided by:
Laura Becker, Manager, ERM

Attachment(s):

- [redacted]

- [redacted]

Verification:
I have read the Information Request and answer thereto and find answer to be true, accurate, full and complete, and contain no material misrepresentations or omissions to the best of my knowledge and belief; and I will disclose to the Commission Staff any matter subsequently discovered which affects the accuracy or completeness of the answer(s) to this Information Request(s).

Signature /s/ *Brad Lutz*
Director Regulatory Affairs

Evergy KS Central and KS Metro
Case Name: 2022 EKME_EKCE KEEIA
Case Number: 22-EKME-254-TAR

Requestor Astrab Joseph -
Response Provided March 03, 2022

Question:CURB-30

Please refer to the 2023-2026 Demand-Side Management Portfolio Filing, Section 8. Why is Evergy requesting throughput disincentive/lost revenue instead of a decoupling mechanism?

RESPONSE: (do not edit or delete this line or anything above this)

Confidentiality: PUBLIC
Statement: This response is Public. No Confidential Statement is needed.

Response:

As part of Task 2 within its statement of work, ICF prepared an overview of financial recovery and performance incentive mechanisms in place in regulatory jurisdictions across the nation. ICF surveyed numerous state jurisdictions to determine what recovery mechanisms are, or have been, in place for recoveries related to energy efficiency and demand response programs. The attached memo, Q_CURB-30_Financial Recovery Mechanisms Overview_Memorandum.doc, with an imbedded Excel file provides a summary of various state programs surveyed.

The Company ultimately requested a throughput disincentive/lost revenue recovery mechanism as it concluded that this was a more direct approach to measuring the impact of the voluntary energy efficiency programs permitted under KEEIA without impacting other programs or activities unrelated to the KEEIA 2023 – 2026 Demand-Side Management Portfolio requested in this filing.

Information provided by: Mark Foltz, Director of Special Projects and Brian File, Director of Demand Side Management

Attachment(s):
Q_CURB-30_Financial Recovery Mechanisms Overview_Memorandum.doc

Verification:

I have read the Information Request and answer thereto and find answer to be true, accurate, full and complete, and contain no material misrepresentations or omissions to the best of my knowledge and belief; and I will disclose to the Commission Staff any matter subsequently discovered which affects the accuracy or completeness of the answer(s) to this Information Request(s).

Signature /s/ *Brad Lutz*
Director Regulatory Affairs

Evergy KS Central and KS Metro
Case Name: 2022 EKME_EKCE KEEIA
Case Number: 22-EKME-254-TAR

Requestor Astrab Joseph -
Response Provided March 03, 2022

Question:CURB-37

Please refer to the response to KCC-0011.

a. Does Evergy target a specific payback period for determining incentives? If so, what is the target?

b. Does Evergy seek to keep free ridership below a certain level? If so, what is the level?

c. Of the factors that Evergy uses to develop customer incentives, are certain factors more important than others, and if so, which are more important? Which factors are binding?

d. Please provide incentive formulas for each program and measure, as applicable.

e. Please indicate any caps on incentives per customer and per customer for each program, if any. For any caps, what is the time period (e.g., 1 rebate per customer per year)?

RESPONSE: (do not edit or delete this line or anything above this)

Response:

a. Payback period is not used for setting incentives. The method used is described in part c. of the response.
b. The goal is to keep free-ridership as low as reasonably possible, taking into account measure acceptance and cost specifics. For example, free-ridership can be significantly higher for some measures. There is no predetermined free-ridership level that is considerable acceptable in the industry, however the amount of free ridership does impact cost-effectiveness results.
c. The method used to determine the incentives was to use a percentage of the incremental cost, based on industry best practices. This method better reflects the actual decision-making approach when a customer is choosing between competing options. For example, in the Hard-To-Reach Homes program the incentive is set as 100% of the incremental cost for most measures. This means that low-income customers will pay no more money

for the efficient option, easing the burden on these customers. In the analysis performed, there were no factors that are "binding".

d. A general outline of the incentives for different measures by program are in the attached workbook "QCURB-37_d_Evergy KS Incentive Table.xlsx" and were used for program planning purposes.
e. No incentive "caps" by customer or by program have been established as part of the program design process. In implementation, there is an opportunity to establish caps and limits as appropriate.

Information provided by:
Mark Leonard

Attachment(s):
QCURB-37_d_Evergy KS Incentive Table.xlsx

Verification:
I have read the Information Request and answer thereto and find answer to be true, accurate, full and complete, and contain no material misrepresentations or omissions to the best of my knowledge and belief; and I will disclose to the Commission Staff any matter subsequently discovered which affects the accuracy or completeness of the answer(s) to this Information Request(s).

Signature /s/ *Brad Lutz*
Director Regulatory Affairs

Evergy KS Central and KS Metro
Case Name: 2022 EKME_EKCE KEEIA
Case Number: 22-EKME-254-TAR

Requestor Astrab Joseph -
Response Provided March 03, 2022

Question:CURB-47

The following types of programs and measures are not included in the Company's proposed DSM plan. For each program not included in the plan, please provide any and all analyses undertaken regarding the program, including all relevant assumptions regarding the program design, costs, benefits, savings and cost-effectiveness.

a. A residential new construction program

b. A targeted multi-family program

c. A commercial and industrial new construction program

d. A commercial and industrial retro-commissioning program

e. An agricultural program

f. A strategic energy management or continuous energy improvement program for commercial and industrial customers

g. A net zero energy building pilot program

h. A deep energy retrofit pilot program

i. A conservation voltage reduction program (CVR)

RESPONSE: (do not edit or delete this line or anything above this)

Response:
a. was not considered cost effective when originally screened so excluded from initial filing.
b. is included as part of the Whole Home Efficiency and Hard-to-Reach Homes Programs.
c. and *d.* are included as a part of the Whole Business Efficiency program.
e. is one of the options being considered for the Pilot Incubator Program.

f. are included as components of the Whole Business Efficiency Program. Also, Building Operator Certification is part of the Whole Business Education Program which will educate and certify building operational personnel to make possible these sorts of performance adjustments.
g. was not considered explicitly for the program plan but would be potential candidates for the Pilot Program Incubator as well.
h. the other programs, such as Whole Home Efficiency, Hard-to-Reach Residential, Whole Business Efficiency and Hard-to-Reach Businesses are designed with multiple components to achieve deep energy retrofits/savings.
i. was not considered explicitly for the program plan but would be potential candidates for the Pilot Program Incubator as well.

Information provided by:
Mark Leonard

Verification:
I have read the Information Request and answer thereto and find answer to be true, accurate, full and complete, and contain no material misrepresentations or omissions to the best of my knowledge and belief; and I will disclose to the Commission Staff any matter subsequently discovered which affects the accuracy or completeness of the answer(s) to this Information Request(s).

Signature /s/ *Brad Lutz*
Director Regulatory Affairs

Evergy KS Central and KS Metro
Case Name: 2022 EKME_EKCE KEEIA
Case Number: 22-EKME-254-TAR

Requestor Astrab Joseph -
Response Provided May 13, 2022

Question:CURB-58

Please refer to the Evergy KEEIA Technical Resource Manual (TRM) provided in response to KCC Q8.

a. In all instances where a source is listed as "Calculated" or "Calculated Value", please provide the formula. If the formula draws on inputs that are not currently in the TRM, please add these inputs to the TRM and provide the source, page number and link.

b. Please provide the source, page number and link or formula for calculating values shown in Column H: Net to Gross Factors and Col. O: Nameplate Demand Savings.

c. Please provide the source, page number and link or formula for calculating realization rates.

d. Please provide the formula for calculating net to gross factors.

e. Please add a tab that defines the data in each column of the KEEIA TRM tab.

f. Please provide links to source documents.

g. In all instances where a source is not listed in the corresponding column, please provide the source, page number, and link, or calculation for the following:

iv. Column I: Incremental Measure Cost ($/Unit)

v. Column L: Electric Energy Savings (Annual kWh/unit)

vi. Column O: Nameplate Demand Savings (kW/unit)

vii. Column S: Coincident Peak Demand Savings (kW/unit)

viii. Column Y: Measure Life (Years)

If Evergy is unable at this time to populate all of the requested TRM data for all of Evergy's proposed DSM measures, please provide data for as many measures as feasible along with an explanation for how Evergy selected the subset of measures to cover in this sample.

RESPONSE: (do not edit or delete this line or anything above this)

Confidentiality: PUBLIC
Statement: This response is Public. No Confidential Statement is needed.

Response:

It is not feasible to provide the level of detail requested in the data request. As an alternative, Evergy can provide a summary of the approach used by ICF to create the measure specific values that are incorporated into the filed KEEIA Technical Resource Manual (see attachments).

As the attachments outline, the TRM was created from a robust process that evaluated thousands of energy efficiency and demand response measures for attributes suitable for a Kansas portfolio. The end goal of the process was to create a manageable resource document that would pare down measures to the hundreds, be visible in a single usable spreadsheet for reference and inputs into DSMore and be applicable across all of Evergy's Kansas footprint (including Metro and Central jurisdictions).

To part a of the question, the term "calculated value" outlined in the TRM refers to the approach used by ICF to work through the aggregation process to combine measures. A specific measure example of the aggregation calculation is also attached for reference.

Information provided by: Brian File, Director – DSM Products

Attachment(s):
QCURB0058_KEEIA TRM Development.ppt
QCURB0058_Evergy_TRM Measure Development Process.docx
QCURB0058_Evergy KS_Aggregation Example.xls

Verification:

I have read the Information Request and answer thereto and find answer to be true, accurate, full and complete, and contain no material misrepresentations or omissions to the best of my knowledge and belief; and I will disclose to the Commission Staff any matter subsequently discovered which affects the accuracy or completeness of the answer(s) to this Information Request(s).

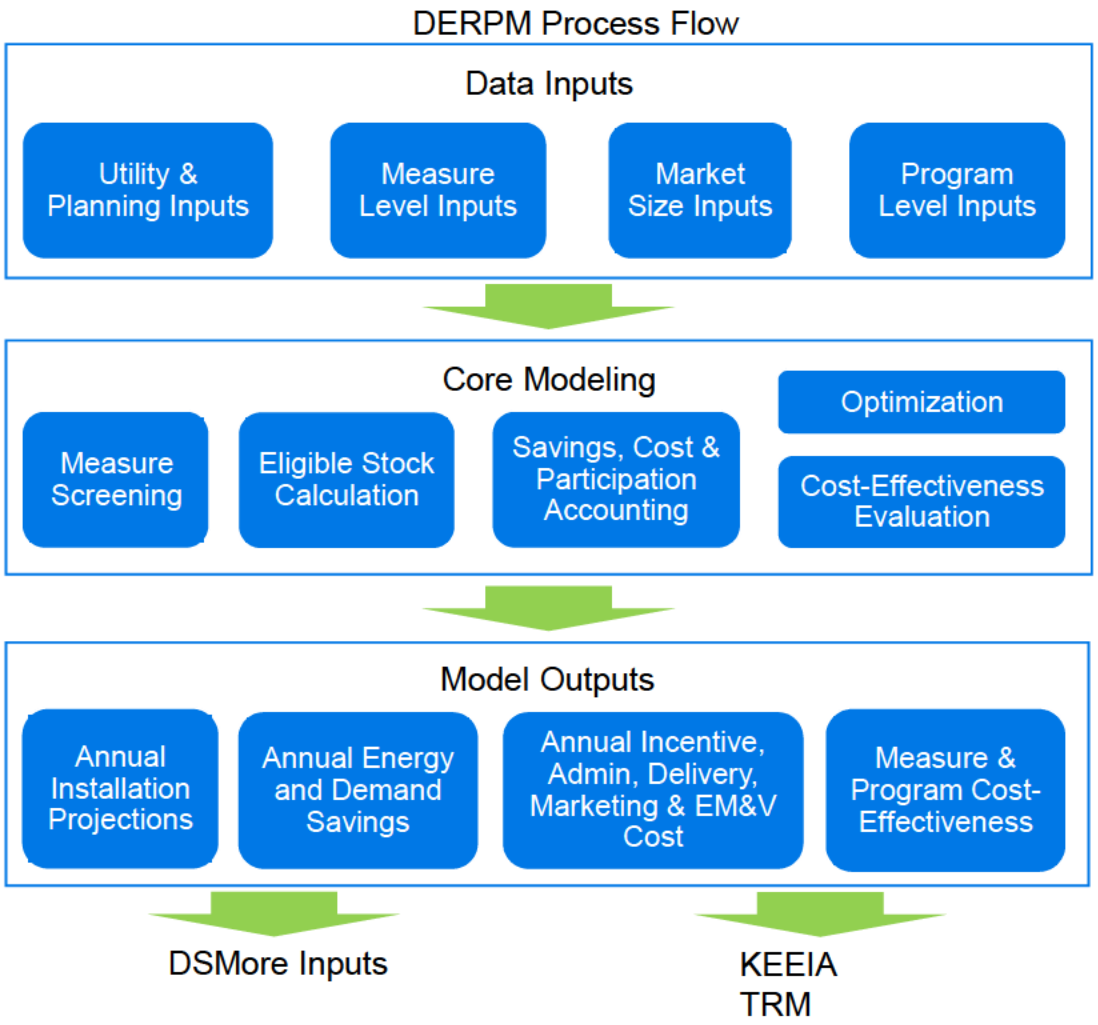
Signature /s/ *Brad Lutz*
Director Regulatory Affairs

KEEIA TRM development

evergy

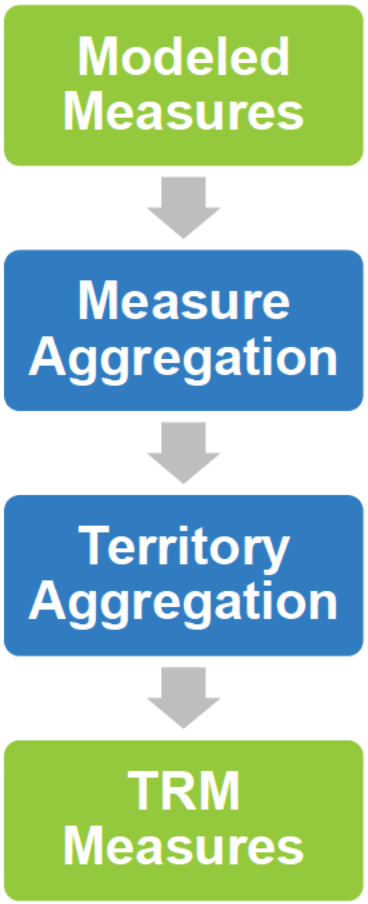
Recap of DSM Planning Process

1. **Program Scoping***
   - Programs and goals
2. **Measure Development**
   - Costs, savings, etc.
3. **Eligible Stock Calculation**
   - Territory details and stock
4. **Measure Selection**
   - Cost-effectiveness & goal achievement
5. **Program Design***
   - Model and program briefs
6. **Design Review***
   - Alternative designs and priorities



New example for Technical Conference

KEEIA TRM Development

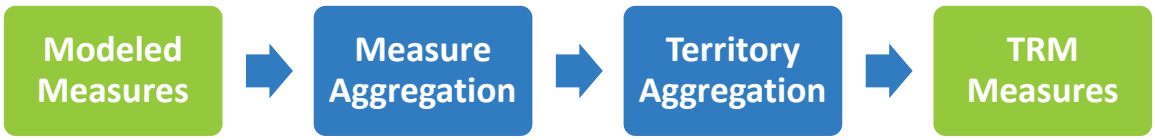


- Modeled measures: two jurisdiction-based models with thousands of lines
  - Produces detailed totals for likely measure participation, savings achievement, and budgets
  - Allows unique jurisdictions modeling against predictive factors: building stock, demographics, etc.
- Measure aggregation necessary to create a useable (shorter) measure list for implementation
  - Grouped logically when savings impacts are similar but kept separate when characteristics produce a large modeled difference in savings
  - Largest impact in commercial offerings due to the wider variety of segments in the original models
- Territory aggregation necessary to combine the results from the separate models
  - Final TRM measures were weighted by average forecasted savings in each territory to derive one measure that could be used in either territory
- Ongoing measure evaluation of deemed savings
  - It is an evaluated practice to take a likely measure mix in a territory like Evergy's and use it to create the original deemed measure for program TRMs
  - As Kansas programs proceed through evaluated years, these measures will continue to evolve to more perfectly match program actuals

Evergy's process for program design leveraged lessons learned from implementations in Missouri and best practices from other programs across the country to develop a savings model for measures that is as accurate as possible, and takes into consideration evaluation, review, and ease of implementation to maximize program benefits.

With this in mind, a large model was created that included a long list of measures that would need to be condensed to create a final Evergy Kansas Technical Resource Manual (TRM) but would allow initial design to have more specific details to better represent the Kansas Territories. There were originally two of these models, one for each jurisdiction of the Evergy Kansas Service Territory, so that each measures' likely performance could be modeled against predictive factors such as known building stock, demographics, and rate type.

Once likely performance was modeled at this detailed level it became necessary to combine this information in a logical way that would be implementable and logical according to evaluation best practices. To compile the measures for the TRM, these had to be combined through two aggregation steps, shown in the figure below.



Modeled Measures

The original database has thousands of measures that take an original recommended calculation process from established TRMs (like the Illinois TRM) and applies the calculation to detailed segment types, i.e. building types, and equipment types against their baselines. This allows the list to be comprehensive and compared to population and utility data to determine likely participation. This step is crucial in designing a program in a "green field" territory, where existing programs do not provide a participation baseline for the model. The Missouri participation in DSM programs provided the opportunity to QC the data by allowing the team to compare percent of likely participation across a similar territory, but the detailed measure study allows the Kansas program to be specifically designed to the building types and population data that exist in the real world.

For the example calculations in this whitepaper, the *Behavioral Measure Tier 1* measure is used. This is a residential measure that is included as a part of the Home Energy Education program. The savings for each version of the measure are calculated based on the historic performance of the measure in the Evergy MO territory, adjusted for the Evergy KS territory. The actual calculated values are listed in the table below:

Segment	Measure Savings
Single Family	165
Multi Family	135
Hard-to-Reach Single Family	97
Hard-to-Reach Multi Family	76

The source of the difference in each segments savings value for the same measure is the average home energy use per year. Hard to reach homes have lower average usage due to smaller average home size and less electrical equipment.

Measure Aggregation

Modeled measures and likely participation allowed the team to establish savings goals and budgets required for incentives. To streamline data collection and application processing, measures had to be aggregated to develop a list that is manageable by implementation teams, separated into distinct program types and with estimated savings weighted by business type. In other words, segments of the different sectors were combined to create an aggregate deemed measure.

In the case of residential offerings, single-family and multi-family measures were grouped where they logically could be but kept separate when the savings could differ significantly or there were specific planned offerings that differed based on home type. For commercial offerings, general and small business were combined in similar cases but kept distinct where logic dictated. The greatest amount of aggregation at this step was on the business side due to the wider variety of different segments in the original modeling.

In the larger model process this one measure has dozens of variations, not only in the type of the equipment but in the modeled savings that each segment type is likely create. For our example measure, the *Behavioral Measure Tier 1*, it applies to all residential customers.

The actual aggregation is a weighted average based on the forecasted participation by segment. In the case of the *Behavioral Measure Tier 1* measure, the segments, the measure-level savings, and their weighting by participation for each are shown in the following table for both territories.

Segment	**Measure Savings**	**Metro Weighting**	**Central Weighting**
Single Family	165	65%	27%
Multi Family	135	26%	62%
Hard-to-Reach Single Family	97	3%	2%
Hard-to-Reach Multi Family	76	6%	9%
Metro Aggregation	*137.1*	*100%*	-
Central Aggregation	*149.9*	-	*100%*

Territory Aggregation

Because the two Evergy Kansas territories are unique, the modeling up to this point was duplicated in each territory. However, it isn't practical or cost effective to run a separate TRM in each territory. Thus, the last step was to aggregate the measures across territories to create a single measure that would be representative of the expected savings of both territories. The aggregation was again done as a weighted average based on the forecasted participation but by territory in this case.

The data in the table below is from our example, the *Behavioral Measure Tier 1* measure:

Territory	Measure Savings	Territory Weighting
Metro	137.1	75%
Central	149.9	25%
TRM Measure	*146.7*	*100%*

The territory weights are based on the total participation expected for each territory from the specific measure. This value is based both on the total number of customers in the applicable segments in each territory as well as the difference in forecasted participation rates in each territory.

Modeled

Program Name	Sub-Sector	Territory	Efficient Measure Definition	kWh
Home Energy Education	HTR MF	Central	Income-Eligible Home Energy Report Custom Measure	76
Home Energy Education	HTR SF	Central	Income-Eligible Home Energy Report Custom Measure	97
Home Energy Education	MF	Central	Home Energy Report Custom Measure	135
Home Energy Education	SF	Central	Home Energy Report Custom Measure	165
Home Energy Education	HTR MF	Metro	Income-Eligible Home Energy Report Custom Measure	76
Home Energy Education	HTR SF	Metro	Income-Eligible Home Energy Report Custom Measure	97
Home Energy Education	MF	Metro	Home Energy Report Custom Measure	135
Home Energy Education	SF	Metro	Home Energy Report Custom Measure	165

Aggregators

	Central	Metro
HTR MF	6%	9%
HTR SF	3%	2%
MF	26%	62%
SF	65%	27%
TOTAL	*100%*	*100%*

These percentages come from dividing the total particiation for the individual iteration of the measure (based on sub-sector) by the the total participation for all iterations of the measure (for all sub-sectors) across all years of the modeling.

Program Name	Territory	Efficient Measure Definition	kWh
Home Energy Education	Central	Home Energy Report	149.9
Home Energy Education	Metro	Home Energy Report	137.1

Customers

Central	75%
Metro	25%

These percentages come from dividing the the total participation from a single territory by the total participation for all territories.

Program Name	Efficient Measure Definition	kWh
Home Energy Education	Home Energy Report	146.7

TRM

Program	Measure Name	kWh
Home Energy Education	Behavioral Measures Tier 1	146.7

CERTIFICATE OF SERVICE

22-EKME-254-TAR

I, the undersigned, hereby certify that a true and correct copy of the above and foregoing document was served by electronic service on this 17th day of June, 2022, to the following:

*JAMES G. FLAHERTY, ATTORNEY
ANDERSON & BYRD, L.L.P.
216 S HICKORY
PO BOX 17
OTTAWA, KS 66067
jflaherty@andersonbyrd.com

*DOUGLAS LAW, ASSOCIATE GENERAL COUNSEL
BLACK HILLS/KANSAS GAS UTILITY COMPANY, LLC D/B/A BLACK HILLS ENERGY
2287 COLLEGE ROAD
COUNCIL BLUFFS, IA 51503
douglas.law@blackhillscorp.com

*DOROTHY BARNETT
CLIMATE & ENERGY PROJECT
PO BOX 1858
HUTCHINSON, KS 67504-1858
barnett@climateandenergy.org

*CATHRYN J. DINGES, SR DIRECTOR & REGULATORY AFFAIRS COUNSEL
EVERGY KANSAS CENTRAL, INC
818 S KANSAS AVE
PO BOX 889
TOPEKA, KS 66601-0889
cathy.dinges@evergy.com

*AMBER HOUSHOLDER, REGULATORY AFFAIRS, MGR
EVERGY KANSAS CENTRAL, INC
818 S KANSAS AVE
PO BOX 889
TOPEKA, KS 66601-0889
amber.housholder@evergy.com

*BRIAN FILE
EVERGY METRO, INC D/B/A EVERGY KANSAS METRO
ONE KANSAS CITY PLACE
1200 MAIN ST., 19th FLOOR
KANSAS CITY, MO 64105
brian file@evergy.com

*MARK FOLTZ
EVERGY METRO, INC D/B/A EVERGY KANSAS METRO
ONE KANSAS CITY PLACE
1200 MAIN ST., 19th FLOOR
KANSAS CITY, MO 64105
mark.foltz@evergy.com

*DARRIN R. IVES, V.P. REGULATORY AFFAIRS
EVERGY METRO, INC D/B/A EVERGY KANSAS METRO
ONE KANSAS CITY PLACE
1200 MAIN ST., 19th FLOOR
KANSAS CITY, MO 64105
darrin.ives@evergy.com

*TIM NELSON
EVERGY METRO, INC D/B/A EVERGY KANSAS METRO
ONE KANSAS CITY PLACE
1200 MAIN ST., 19th FLOOR
KANSAS CITY, MO 64105
Tim.Nelson@evergy.com

*LARRY WILKUS, DIRECTOR REGULATORY AFFAIRS
EVERGY METRO, INC D/B/A EVERGY KANSAS METRO
ONE KANSAS CITY PLACE
1200 MAIN ST., 19th FLOOR
KANSAS CITY, MO 64105
larry.wilkus@evergy.com

*KIM WINSLOW
EVERGY METRO, INC D/B/A EVERGY KANSAS METRO
ONE KANSAS CITY PLACE
1200 MAIN ST., 19th FLOOR
KANSAS CITY, MO 64105
kimberly.winslow@evergy.com

TERESA A. WOODY
KANSAS APPLESEED CENTER FOR LAW AND JUSTICE, INC.
211 E. 8th STREET, SUITE D
LAWRENCE, KS 66044
twoody@kansasappleseed.org

*DAVID COHEN, ASSISTANT GENERAL COUNSEL
KANSAS CORPORATION COMMISSION
1500 SW ARROWHEAD RD
TOPEKA, KS 66604
d.cohen@kcc ks.gov

*BRIAN G. FEDOTIN, GENERAL COUNSEL
KANSAS CORPORATION COMMISSION
1500 SW ARROWHEAD RD
TOPEKA, KS 66604
b fedotin@kcc ks.gov

*JARED JEVONS, LITIGATION ATTORNEY
KANSAS CORPORATION COMMISSION
1500 SW ARROWHEAD RD
TOPEKA, KS 66604
j.jevons@kcc ks.gov

*CARLY MASENTHIN, LITIGATION COUNSEL
KANSAS CORPORATION COMMISSION
1500 SW ARROWHEAD RD
TOPEKA, KS 66604
c masenthin@kcc ks.gov

*ROBERT E. VINCENT, MANAGING ATTORNEY
KANSAS GAS SERVICE, A DIVISION OF ONE GAS, INC.
7400 W. 110th St.
OVERLAND PARK, KS 66210-2362
robert.vincent@onegas.com

*LESLIE WINES, EXECUTIVE ADMINISTRATIVE ASSISTANT DR.
KCP&L AND WESTAR, EVERGY COMPANIES D/B/A EVERGY KANSAS CENTRAL
818 S. KANSAS AVENUE
PO BOX 889
TOPEKA, KS 66601-0889
Leslie.Wines@evergy.com

*TIMOTHY J. LAUGHLIN, ATTORNEY
LONG & ROBINSON, LLC
1800 BALTIMORE AVENUE STE 500
KANSAS CITY, MO 64108
laughlin@longrobinson.com

*GLENDA CAFER, ATTORNEY
MORRIS LAING EVANS BROCK & KENNEDY
800 SW JACKSON
SUITE 1310
TOPEKA, KS 66612-1216
GCAFER@MORRISLAING.COM

*ASHOK GUPTA, EXPERT
NATIONAL RESOURCES DEFENSE COUNCIL
20 N WACKER DRIVE SUITE 1600
CHICAGO, IL 60606
agupta@nrdc.org

SUNIL BECTOR, ATTORNEY
SIERRA CLUB
2101 WEBSTER, SUITE 1300
OAKLAND, CA 94312-3011
sunil.bector@sierraclub.org

JUSTIN T. SOMELOFSKE
SIERRA CLUB
50 F Street NW, Eighth Street
WASHINGTON, DC 20001
justin.somelofske@sierraclub.org

CONNOR A. THOMPSON
SMITHYMAN & ZAKOURA, CHTD.
7400 W. 110th St.
OVERLAND PARK, KS 66210-2362
connor@smizak-law.com

*JAMES P. ZAKOURA, ATTORNEY
SMITHYMAN & ZAKOURA, CHTD.
7400 W. 110th ST.
OVERLAND PARK, KS 66210-2362
jim@smizak-law.com

ROBERT R. TITUS, Attorney at Law
TITUS LAW FIRM, LLC
6600 W. 95th STREET, SUITE 200
OVERLAND PARK, KS 66212
rob@tituslawkc.com

Della Smith
Senior Administrative Specialist

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