COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF KENTUCKY POWER COMPANY FOR (1) A GENERAL ADJUSTMENT OF ITS RATES FOR ELECTRIC SERVICE; (2) APPROVAL OF TARIFFS AND RIDERS; (3) APPROVAL OF CERTAIN REGULATORY AND ACCOUNTING TREATMENTS; AND (4) ALL OTHER REQUIRED APPROVALS AND RELIEF	)))))))	CASE NO. 2025-00257

DIRECT TESTIMONY

OF

ROGER D. COLTON

On Behalf of:

JOINT INTERVENORS APPALACHIAN CITIZENS LAW CENTER, KENTUCKIANS FOR THE COMMONWEALTH, KENTUCKY SOLAR ENERGY SOCIETY, AND MOUNTAIN ASSOCIATION

November 17, 2025

TABLE OF CONTENTS

Introduction and Witness Credentials

Q. PLEASE STATE YOUR NAME AND ADDRESS.

A. My name is Roger Colton. My address is 34 Warwick Road, Belmont MA 02478.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT POSITION?

A. I am employed by Fisher Sheehan & Colton, Public Finance and General Economics of Belmont, Massachusetts. In that capacity, I provide technical assistance to a variety of federal, state, and municipal agencies, consumer organizations, and public utilities on rate and customer service issues involving water/sewer, natural gas, and electric utilities.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. I am testifying on behalf of Appalachian Citizens Law Center, Kentuckians for the Commonwealth, Kentucky Solar Energy Society, and Mountain Association (Joint Intervenors) to the Public Service Commission in response to the application of Kentucky Power Company (KPC).

Q. PLEASE DESCRIBE YOUR PROFESSIONAL BACKGROUND.

A. I work primarily on low-income utility issues. This involves regulatory work on rate and customer service issues, as well as research into low-income usage, payment patterns, and affordability programs. At present, I am working on various projects in the states of New Hampshire, Massachusetts, New Jersey, Maryland, Pennsylvania, Florida, Ohio, Illinois, Minnesota, Missouri, and Kentucky. My typical clients include state agencies (e.g., Pennsylvania Office of Consumer Advocate, Maryland Office of People's Counsel, Connecticut Office of Consumer's Counsel), federal agencies (e.g., the U.S. Department of Health and Human Services), community-based organizations (e.g.,

Consumers Council of Missouri, Legal Action of Chicago, Sierra Club), and private utilities (e.g., Toledo Water, Xcel Energy). In addition to state-specific and utility-specific work, I engage in national work throughout the United States. For example, in 2011, I worked with the U.S. Department of Health and Human Services (the federal LIHEAP office) to create and advance the review and utilization of the Home Energy Insecurity Scale as an outcomes measurement tool for the federal Low-Income Home Energy Assistance Program ("LIHEAP"). In 2007, I was part of a team that performed a multi-sponsor public/private national study of low-income energy assistance programs. In 2020, I completed a study of water affordability in twelve U.S. cities for the London-based newspaper, The Guardian. A description of my professional background is provided in Exhibit-RDC-1.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A. After receiving my undergraduate degree in 1975 (Iowa State University), I obtained further training in both law and economics. I received my law degree in 1981 (University of Florida). I received my Master's Degree (Regulatory Economics) from the MacGregor School of Antioch University in 1993.

Q. HAVE YOU EVER PUBLISHED ON PUBLIC UTILITY REGULATORY ISSUES?

A. Yes. I have published three books and more than 80 articles in scholarly and trade journals, primarily on low-income utility and housing issues. I have published an equal number of technical reports for various clients on energy, water, telecommunications and other associated low-income utility issues. My most recent publication is a chapter in the book "Energy Justice: US and International Perspectives," published by Edward Elgar

Publishing in London. My chapter was titled "The equities of efficiency: distributing usage reduction dollars." It offers an objective definition of "equity" based on legal and economic doctrine.

Q. HAVE YOU EVER TESTIFIED BEFORE THIS OR OTHER UTILITY COMMISSIONS?

A. Yes. I most recently testified before the Kentucky Public Service Commission (PSC or Commission) in Case Nos. 2025-00113 and 2025-00114. I also testified before the Kentucky PSC in Case No. 2021-00154 regarding the rate request of Martin County Water District.

Other than these Kentucky proceedings, I have testified in more than 350 regulatory and judicial proceedings in 44 states and various Canadian provinces on a wide range of utility issues, primarily involving low-income rates, energy efficiency, and customer service issues. A list of states and provinces in which I have testified is provided in Exhibit RDC-1.

Q. PLEASE EXPLAIN THE PURPOSE OF YOUR DIRECT TESTIMONY.

A. My Direct Testimony is presented in the following parts.

- Part 1 examines the declining affordability of rates for Kentucky Power Company. The section examines unaffordability at existing and proposed rates, and explains why it is not reasonable to rely primarily on federal LIHEAP funding as an appropriate response;
- Part 2 examines the impact of unaffordability on the payment patterns of low-income customers and proposes reasonable responses thereto. In turn, those impacts on payment patterns have noticeable impacts on the costs included in

rates charged to all ratepayers. Addressing bill unaffordability will have a beneficial impact on the costs included in rates;

- Part 3 identifies the need for, and a reasonable structure of, an Arrearage Management Program (AMP) for KPC;
- Part 4 examines how performance-based ratemaking can (and should) be used by KPC to address problems arising from increasing bill unaffordability; and
- Part 5 examines the reasonableness of the Company's proposed two-tiered residential declining block rate structure.

Summary of Recommendations

Q. PLEASE SUMMARIZE THE RECOMMENDATIONS YOU MAKE IN YOUR TESTIMONY BELOW.

A. Based on the data and discussion I present in my testimony below, I recommend as follows:

1. PSC decisions regarding a return on equity, the debt-to-equity ratio, rate design, and other issues should balance the interests of investors against the interests of ratepayers. The PSC must know and understand the interests of low- and moderate-income households in order to engage in that balancing of interests.

2. When/if the PSC considers the impacts of inflation on the need for increased rates, the PSC should also consider the disproportionate adverse impacts that inflation has had on low- and moderate-income households.

3. KPC should be directed to retain an independent firm to prepare, by no later than December 31, 2026, a customer segmentation study that examines, disaggregated by socio-economic status: (1) patterns of nonpayment; (2) characteristics of nonpayers; (3) predictors of nonpayment; (4) strategies to reduce nonpayment; and (5) early indicators of nonpayment.

4. KPC should be directed to file an annual report with the PSC (and submitted to other stakeholders) estimating the number of customers by the follow ranges of Federal

Poverty Level: (1) less than 50% FPL; (2) 50% - 100% FPL; (3) >100% - 150% FPL; (4) >150% - 200% FPL.

5. KPC should develop a tracker of "identified low-income customers" on its system. An "identified low-income customer" should include any customer for whom KPC has received information that would reasonably place them in a low-income status. The information fulfilling this metric should be developed through a collaborative including Rate Counsel, Staff, the Company, and other stakeholders wishing to participate.

6. KPC should be directed to engage in a two-year pilot project that focuses on enlisting community-based organizations in the provision of outreach for the Company's time-of-day rates initiative in particular. The pilot project should be funded at a level of $200,000 annually for two years, through a competitive bid process, through which community partners would commit to serve specific communities.

7. KPC should engage in a two-year pilot project that focuses on assisting its customers to claim their federal Earned Income Tax Credit. KPC can generate substantial new "energy assistance" benefits for its high-range poverty households by supporting efforts to promote the EITC, targeting outreach to customers in arrearsor that it has previously identified as being low-income.

8. KPC should expand its Tariff R.E.A. (Residential Energy Assistance) in the following ways:

a. The HEART assistance provided to participating low-income residential customers whose primary source of heating is electricity should be expanded from $115 per month to $150 per month;

b. The HEART assistance provided to participating low-income residential customers whose primary source of heating is non-electricity should be expanded from $58 per month to $76 per month;

c. The maximum THAW assistance that may be provided in January through April of any single calendar year should be expanded from $175 to $250.

d. The R.E.A. rate should be expanded from $0.40 per month to $0.75 per month.

9. KPC should expand the availability of the KPC Residential Service Time-of-Day rates to deliver financial benefits to low-income customers. KPC review the accounts of each of the Company's customers receiving energy assistance benefits through one of the

programs which KPC use to establish low-income status. Through this review, KPC should identify energy assistance recipients on basic residential service who would receive a bill savings of no less than $50 through a switch to each Company's TOD rates based on the customer's current usage levels.

a. Upon a finding of projected savings of $50 or more, KPC should switch the energy assistance recipient to the TOD rate, while providing those customers with an opportunity, prior to the switch, to opt-out of the switch should they choose to do so. The optimal rate should be guaranteed for the customers that were switched.

10. The Commission should reject KPC's proposed prepayment meter program. In the event that the Commission, contrary to this recommendation, approves the prepayment meter program, the Commission should only approve the program with the conditions recommended herein.

11. KPC should be directed to implement a means-tested Arrearage Management Program (AMP). The AMP should be adopted using the structure and operations recommended herein. KPC should be authorized to collect the costs of its AMP through a reconcilable surcharge. The surcharge would reconcile actual expenditures on an annual basis to the projected expenditures. Under-payments and over-payments are rolled into the surcharge in the next fiscal year.

12. KPC should be directed to implement a performance-based ratemaking mechanism to address both its treatment of low-income customers and its credit and collection outcomes. The performance-based ratemaking mechanism should adopt the following metrics:

a. for KPC to increase enrollment in LIHEAP by five percent (5%) in program year one (1) compared to the prior program year of October 1, 2024-September 30, 2025 ("Base Year"); three percent (3%) in year two (2) compared to the prior program year of October 1, 2025-September 30, 2026; and two percent (2%) in year three (3) compared to the prior program year of October 1, 2026-September 30, 2027. This recommendation would increase enrollment by ten percent (10%) over a three (3)-year period;

b. A reduction by 10% each year for three years in the absolute number of defaulted residential deferred payment arrangements;

c. A reduction by 10% each year for three years in the absolute number of residential nonpayment disconnections;

d. A reduction by 10% each year for three years in the number of residential customers who have, since April 1 of a given year, had their service disconnected for nonpayment and who, as of December 1 of that year, remain in their home with service not yet reconnected;

e. A reduction by 10% each year for three years in the average monthly arrears, measured in "Bills Behind," for identified low-income customers not on agreement;

f. Failure to achieve the proposed collection outcomes shall result in sanctions determined as follows: (1) a dollar amount equivalent to 15 basis points ROE reduction for noncompliance with a single improvement goal; (2) a dollar amount equivalent to 25 basis points ROE reduction for noncompliance with multiple improvement goals.

13. The Company's proposed increase to its fixed customer charge, along with the move to its two-tiered rate structure, be disapproved.

Part 1. The Affordability of KPC Bills for Current Service.

Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY.

A. In this section of my testimony, I examine the affordability of KPC bills for current service. I consider bill affordability from three different perspectives. First, I examine the history of rate increases for KPC since 2014 and compare those increases to the changes in the income of low-income households during that same time period. Second, I examine bill affordability to low-income customers. Third, I examine bill affordability to more moderate-income customers.

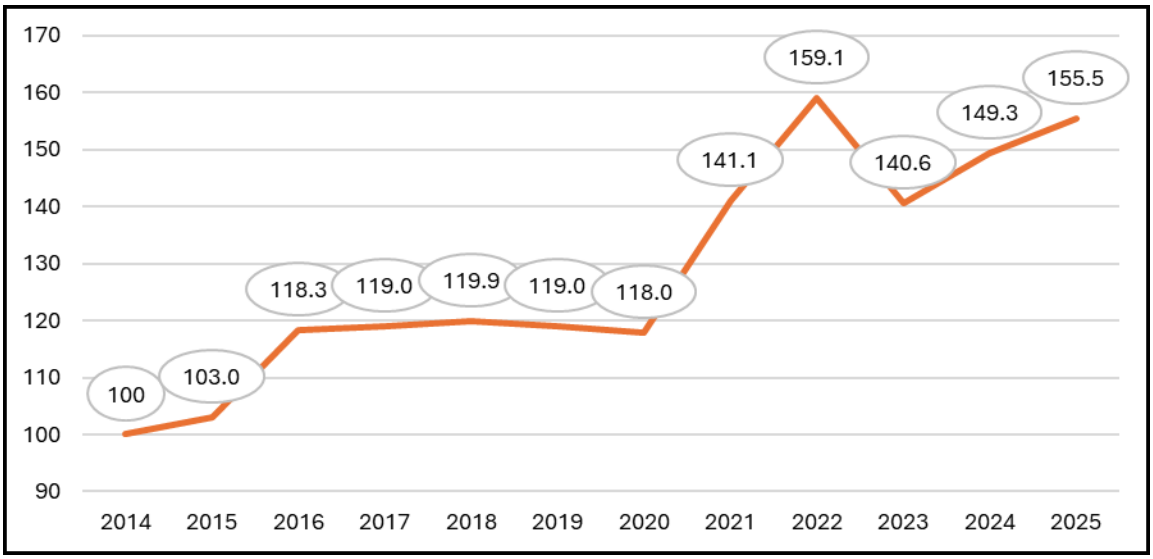
A. KPC Rates Over Time.

Q. PLEASE DESCRIBE THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY.

A. In this section of my testimony, I examine the change in KPC rates from 2014 through 2025. I determined the average residential revenue per kWh by dividing the total

residential revenue reported by KPC to the Energy Information Administration (Form 861) by the total residential sales.[1] I assigned 2014 a base case value of 100. The changes from that base case value represent the rate by which the values increased or decreased. Creating an index such as this is a common way to measure changes in prices. It is, for example, the way that the U.S. Bureau of Labor Statistics presents the rate of inflation.

Figure 1. Changes in KPC Electric Rates (2014 – 2025)



The data in the Figure above shows that increases in KPC electric rates have been substantial since 2020. While rates were relatively constant in the years 2016 through

[1] I also compared the EIA data to the prices reported by KPC in the Commission's annual statistical report. The EIA and PSC data were nearly identical. Available at https://psc.ky.gov/WebNet/ListLibrary/STAT. The average annual bill was derived by dividing the total residential revenue reported by the Commission by the total residential consumption.

2020, since 2020, there has been a sharp spike in KPC prices. KPC electric rates increased nearly 40% from 2020 through 2025.

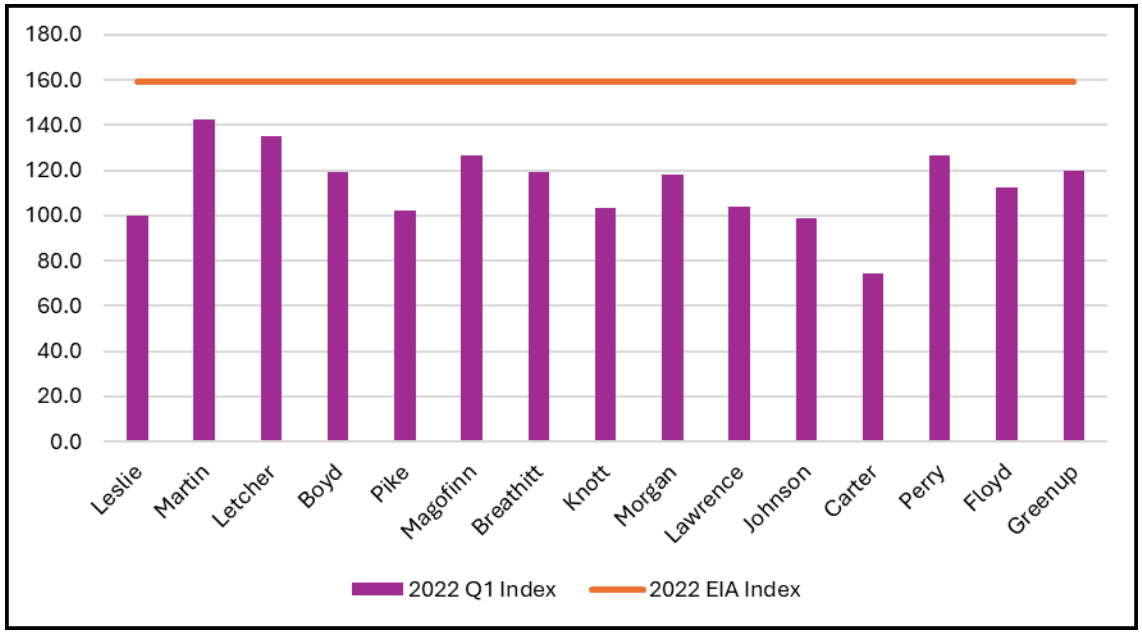
Q. HAVE YOU EXAMINED HOW THE INCREASE IN KPC PRICES COMPARES TO INCREASES IN THE INCOMES OF LOW-INCOME HOUSEHOLDS OVER TIME?

A. Yes. In this discussion, I first examine KPC bills from 2014 through 2023 as reported by the Company in its EIA Form 861. In the two Figures below, I compare results for 2022 (the highest KPC price) (figure 2) and 2023 (the most recent KPC price) (Figure 3). I use both years to show that the conclusion will be the same even when KPC prices somewhat differ by year. I then compare these average annual bills to the average First Quintile Income[2] for each of the counties served in whole or part by KPC. As can be seen in Figure 2 below, in every county served by KPC, the growth in electric rates from 2014 through 2022 has exceeded the growth in income for the lowest quintile of income. While electric rates increased by nearly 60% over that time frame, the ***highest*** growth in Q1 incomes was only 40% (Martin County). Of the 15 KPC counties, six had Q1 growth

[2] The Census Bureau rank orders all households by income from lowest to highest. It then divides that ranking into five equal part, each part of which is called a "quintile." The one-fifth of households with the lowest income is the "First Quintile" (Q1), sometimes known as the "lowest quintile." The one-fifth of households with the highest income is the "Fifth Quintile" (Q5).

rates of 100% (or less) (with an index of less than 100 meaning that incomes had declined over the time period 2014 through 2022).

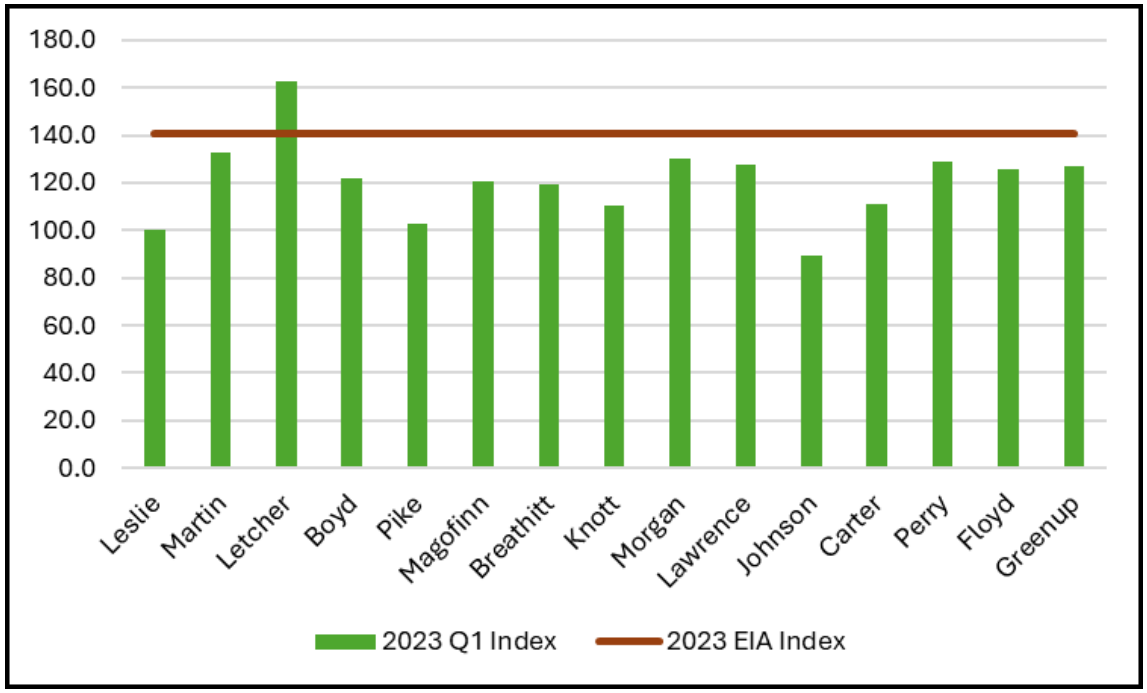
Figure 2. 2022 KPC Price Index Compared to Q1 Income Index for KPC Counties (2014 base = 100)



A comparison of the 2022 KPC Index demonstrates that short-term spikes in electric prices can have substantial affordability impacts. **Figure 1** shows, for example, that KPC prices spiked beginning in 2022 (resulting in a Price Index of 159.1 by 2022), but declined back to an Index of 140.6 in 2023. In the ensuing two years, however, KPC prices have again sharply increased, rising to an index of 155.5 by 2025 (year-to-date). Figure 3 shows that even taking the 2023 price decline into account, KPC's electric prices outstrip increases in Q1 incomes for every county except Letcher. While the one-year decrease in KPC electricity prices reduces the KPC Price Index to 140, the Q1

Income Index remains lower than the Price Index in 14 of the 15 counties comprising the KPC service territory.

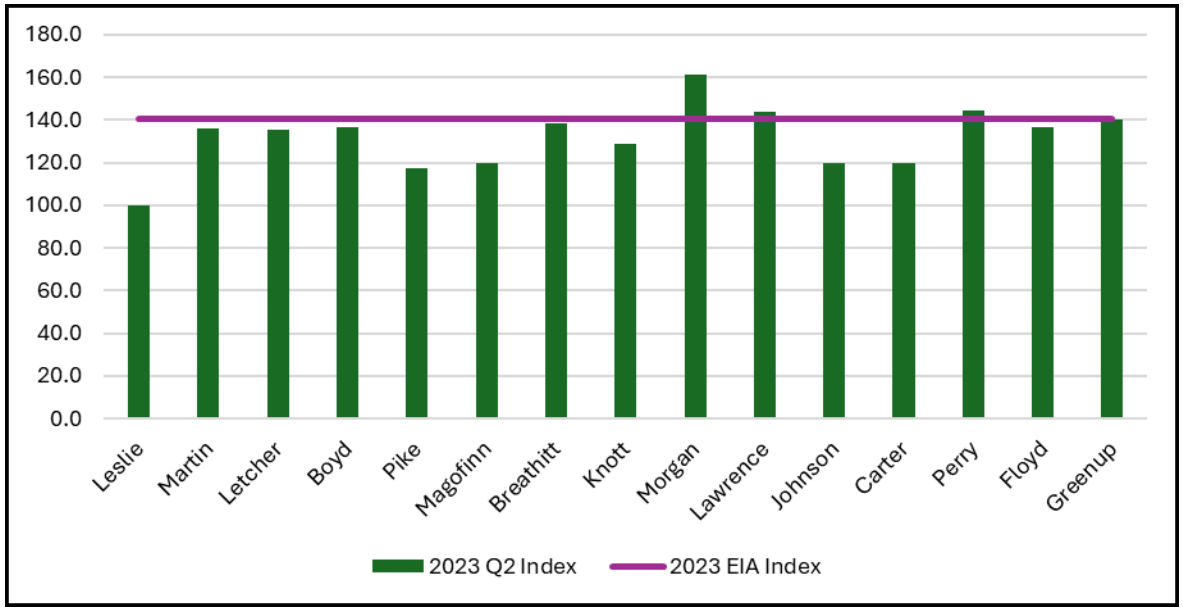
Figure 3. 2023 KPC Price Index Compared to Q1 Income Index for KPC Counties (2014 base = 100)



The impacts of electricity price increases are not limited to the lowest income KPC customers. Figure 4 and Figure 5 compare the growth of electricity prices for KPC to the growth in incomes for the Second Quintile (Q2) of income. The Q2 incomes begin to move into more moderate income ranges in several KPC counties. Greenup County, for example, has an average 2023 Q2 income of $35,644. Boyd County had an average 2023 Q2 income of $33,121, while Morgan County had an average 2023 Q2 income of $28,745. Even with these higher incomes, however, the growth in income from 2014 through 2023 was not sufficient for customers at these income levels to be able to keep up with KPC price increases. As Figure 4 immediately below documents, from 2014 through 2023, the growth in income exceeded the growth in KPC electricity rates in only

three counties (Morgan, Lawrence, Perry). In two of those counties, the degree to which incomes grew faster than electricity rates was slight.

Figure 4. 2023 KPC Price Index Compared to Q2 Income Index for KPC Counties

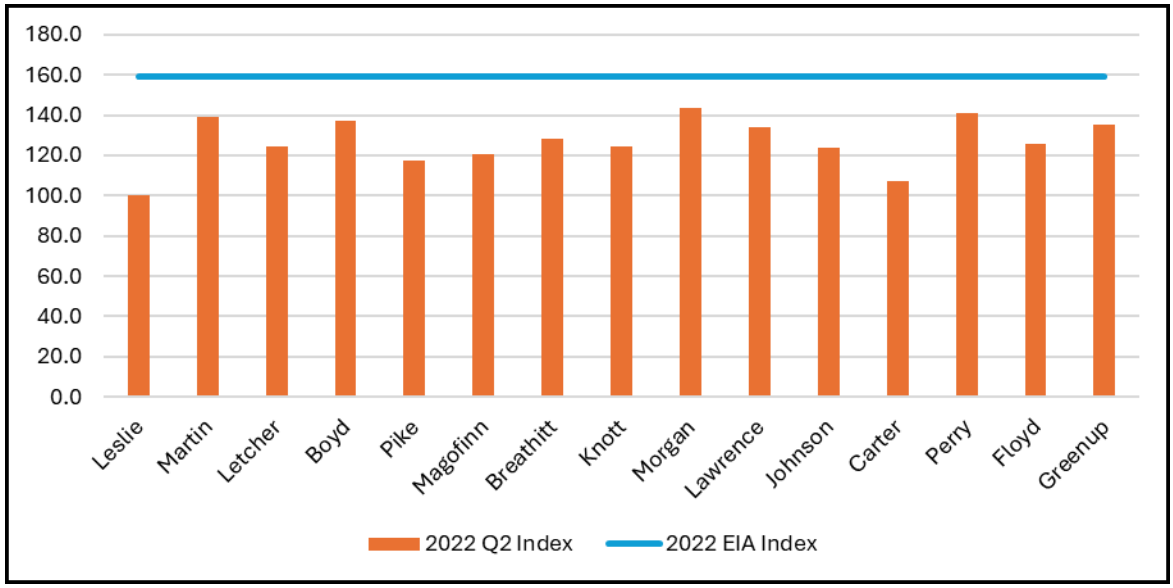


As noted above, however, the 2022 comparison of the Price Index to the Income Index (Q2) is perhaps the better measure. While KPC prices declined in 2023, by 2025, they were nearly back to 2022 levels (2025 Price Index of 155.5 compared to 2022 Price Index of 159.1).[3] A comparison of the KPC 2022 Price Index to the Q2 Income Index shows that in none of the 15 counties served by KPC did the increase in Q2 income exceed the increase in electricity rates between 2014 and 2022. For the 40% of households with the lowest incomes in the KPC service territory, in other words, electric

[3] An Income Index cannot be calculated for 2024 or 2025 since Census data has not yet been reported for those years.

customers in the KPC service territory are worse off now than they were just ten years ago.

Figure 5. 2022 KPC Price Index Compared to Q2 Income Index for KPC Counties



Q. HAVE YOU BEEN ABLE TO ASSESS THE DECLINE IN AFFORDABILITY IN DOLLAR TERMS FOR THE LOWEST INCOME KPC CUSTOMERS?

A. Yes. For each annual bill, by year, I determined what income would be required for that bill to represent an affordable burden (6%). I compare the income required for bills to be affordable to the actual Q1 income to determine to what extent, if any, there is a deficit (i.e., Q1 incomes are insufficiently high for bills to be affordable).[4] I use the income for Pike County (i.e., that KPC county with the largest population) as the surrogate for KPC counties. Moreover, the average Q1 income for Pike County was near

[4] Because of data collection limitations associated with the Coronavirus health pandemic, the Census Bureau did not report data in 2020. Census data for 2024 has not yet been publicly released.

the halfway point between the lowest 2014 Q1 average income ($4,934: Leslie County) and highest 2014 Q1 average income ($10,147: Carter County), as well as between the lowest 2023 Q1 average income ($6,725: Martin County) and highest 2023 Q1 average income ($12,690: Greenup County).

The Table shows that, for KPC electric bills, the income deficit significantly increased from 2014 ($20,727) through 2022 ($31,825). In 2022, Q1 incomes would have needed to be more than five times higher than they actually were in order for these customers to be able to afford their KPC bills (i.e., actual income is $7,882 while income needed for bills to be affordable is $39,707).

Remember, also, that KPC electric bills again increased in 2024 and 2025, approaching their 2022 levels. In 2024, KPC annual electricity bills had increased back to $2,140, requiring an income of $35,663 to be affordable (at a 6% burden). In 2025, simply through July, average KPC bills had reached $1,443 simply for January through

July. Paying just *this seven month bill* would have required an *annual* income of $24,055 to be affordable. Paying an annual bill would require a much higher income.

Table 1. Income Deficit Needed to Achieve an Affordable Burden (6%)

KPC Electric	Total Annual Bill	Q1 Incomes: Pike County	Income at 6% Burden	Q1 Deficit at 6%	Affordable Bill at 6%	Excess Over Affordable Bill
2014	$1,708.98	$7,716	$28,483	$20,767	$462.96	$1,246
2015	$1,652.39	$7,764	$27,540	$19,776	$465.84	$1,187
2016	$1,854.28	$6,988	$30,905	$23,917	$419.28	$1,435
2017	$1,708.39	$6,341	$28,473	$22,132	$380.46	$1,328
2018	$1,935.21	$6,492	$32,253	$25,761	$389.52	$1,546
2019	$1,951.23	$6,918	$32,521	$25,603	$415.08	$1,536
2020	$1,727.41	$6,348	$28,790	$22,442	$380.88	$1,347
2021	$2,105.96	$6,777	$35,099	$28,322	$406.62	$1,699
2022	$2,382.43	$7,882	$39,707	$31,825	$472.92	$1,910
2023	$1,900.00	$7,922	$31,667	$23,745	$475.32	$1,425
2024	$2,139.81	NA	$35,663	NA	NA	NA

Q. WHAT DO YOU CONCLUDE?

A. I find that electricity prices have been increasing at rates faster than the incomes of low-income customers in the KPC service territory. To the extent that there is an affordability problem facing KPC, which I find to be true, that problem has been growing more and more substantial over time.

B. The Affordability of KPC Bills to Low-Income Customers.

Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY.

A. In this section of my testimony, I examine the affordability of KPC electricity bills to low-income customers given existing and proposed rates.

Q. WHY IS IT IMPORTANT TO CONSIDER THE AFFORDABILITY OF BILLS IN A RATE PROCEEDING SUCH AS THIS?

A. Consideration of affordability is a critical task to undertake within the structure of a utility rate case. As bills become increasingly unaffordable, the payment difficulties of those customers who face unaffordability become increasingly substantial as well. I will demonstrate below how and where this conclusion has been documented time and again. One impact of the unaffordability is its impact on the operating costs (e.g., collection costs, working capital, uncollectibles) that are then passed through to other ratepayers. In addition, much of utility ratemaking involves a balancing of investor interests and customer interests.

For example, establishing a Return on Equity (ROE) is fundamentally predicated on balancing customer and investor interests. It is necessary for the Kentucky PSC to understand the customer interests in order to appropriately balance them against the competing investor interests. In deciding on the appropriate ROE and the reasonable mix of debt and equity securities, the obligation of the Commission is to balance consumer and investor interests. (*FPC v. Natural Gas Pipeline Co.*, 315 U.S. 575, 606 - 608; *see also Commonwealth ex rel. Stephens v. S. Cent. Bell Tel. Co.*, 545 S.W.2d 927, 930-931 (Ky. 1976)). Indeed, of the consumer issues that are important drivers of the just and

reasonable ROE determination, one of the most significant is the concern about affordability. If a sizable portion of customers cannot afford to pay the rates imposed by the PSC, the PSC can hardly be said to have approved just and reasonable rates. Such concerns should bear directly on the determination of the fair ROE. In addition, as a utility such as KPC adds more and more expensive plant, this increases rates, which may in turn put downward pressure on the just and reasonable ROE not for financial reasons, but because of affordability concerns.

I note that the most fundamental response to unaffordability in the KPC service territory is to minimize the rate increases, if any, approved in this proceeding. Through such a minimization strategy, the Commission will address affordability for all customers, not merely for those who apply for (and are found eligible to receive) such energy assistance. Carefully balancing competing customer and investor interests in setting a return on equity, as noted above, while carefully reviewing the Company's proposed capital expenditures, and denying rate recovery for expenditures that are either unnecessary, not used and useful, or that are otherwise inappropriately proposed to be charged to ratepayers, is the first step (but only the first step) in addressing unaffordable bills.

Q. PLEASE EXPLAIN THE METHODOLOGY YOU USE TO CALCULATE THE AFFORDABILITY OF KPC RATES TO LOW-INCOME HOUSEHOLDS.

A. I begin to calculate affordability by using the electricity bills presented by KPC in its filing with the Commission for this rate hike. The ***monthly*** bill increase reported by KPC was $27 (actually, $27.29). Spreading the total ***annual*** revenue increase over the

Company's reported 130,110 residential customers yields an annual increase in residential bills of $328.

Table 2. Current and Proposed Bills
(Application—Section II, Filing Requirements, Exhibit H)

Residential service	No. Customers	Avg Use	Present Avg Bill	Proposed Avg Bill	Bill Increase
Monthly impact	130,110	1,208	$183	$211	$27
Annual impact		14,502	$2,196	$2,532	$328

Q. HOW DO YOU DEFINE AN AFFORDABLE BURDEN?

A. For purposes here, I define "affordability" to be a total home energy burden of 6%. The 6% burden has been the standard most frequently relied upon by policymakers with respect to affordable home energy.[5] The 6% burden has been frequently adopted,[6] including in the states of Washington,[7] New Hampshire,[8] New York,[9] New Jersey,[10] and

[5] Throughout my testimony, unless I explicitly note to the contrary, the terms "home energy burdens" and "energy bill burdens" are intended to be used interchangeably.

[6] Six percent is based on the recognition that total shelter costs are generally deemed to be unaffordable to the extent that they exceed 30% of income. Moreover, utility costs tend to equal 20% of total shelter costs. A multiplication of those two data points (20% times 30%) yields the 6% figure. *See e.g.*, American Council for an Energy Efficiency Economy, Understanding Energy Affordability, at fn2, available at https://aceee.org/sites/default/files/energy-affordability.pdf

[7] Wash Admin. Code § 194-40-030 (2021) ("'Energy assistance need' means the amount of assistance necessary to achieve an energy burden equal to six percent for utility customers").

[8] New Hampshire Pub. Utils. Comm'n, Dkt. No. DE 06-079, Order No. 24,664, 3–4 (Sept. 1, 2006). ("[T]he current [Electric Assistance Program] was designed with the goal of making electricity affordable at 4 % of gross household income for non-electric heat customers (and at 6% of income for households with electric heat).").

[9] New York Pub. Serv. Comm'n, Case 14-M-0565, *Order Adopting Low Income Program Modifications and Directing Utility Filings*, 7–48 (effective May 20, 2016) (favoring a 6% energy burden level because it appears to be a widely accepted limit for utility payments, including in New Jersey and Ohio; and also reflected by EIA data).

[10] New Jersey Dep't of Community. Affairs, *Universal Service Fund (USF)*, https://www.state.nj.us/dca/divisions/dhcr/faq/usf.html#q1. (requiring USF customers who use natural gas for heating and electricity to pay 2% for their natural gas service and 2% for their electricity service. If, however, the customer uses electricity for heating, the entire 4% is devoted to the electricity service. The discount provided to customers is based on the difference between their annual utility bill (after LIHEAP is applied) and the required percentage of household income.).

Illinois.[11] In addition, the Pennsylvania PUC has capped home energy burdens for households with annual income at or below 50% of Poverty Level at 6% of income.[12] More recently, the Connecticut Public Utilities Regulatory Authority (PURA) held that a 6% burden for total home energy costs was the appropriate definition of affordability.[13] Non-governmental organizations have also widely adopted this affordability measure.[14] Having defined an affordable *total* home energy burden as being equal to 6%, and given the prevalence of the use of electricity for heating in the Company's service territory, I use that 6% burden for KPC.

Q. HAVE YOU EXAMINED BILL BURDENS FOR KPC LOW-INCOME CUSTOMERS AT EXISTING AND PROPOSED RATES?

A. Yes. I have calculated bill burdens for KPC customers both at the rates which currently exist and at those rates which have been proposed in this proceeding. I disaggregate incomes into various ranges of income up to $50,000. I use $50,000 since that is the highest income level at which KPC bills, on average, appear to fall above the affordable level at proposed rates. The income ranges I use are those which are reported by the Census Bureau in its American Community Survey.[15] The data is set forth in Table 3 below. As that Table shows, KPC electric bills at the rates proposed in this proceeding remain unaffordable for customers with income between $40,000 and $45,000 (burden of

[11] 305 Ill. Comp. Stat. 205/18(c)(2) (2022) (Illinois administers a percentage of income plan (PIP) that charges customers a maximum of 6% of their income for gas and electric service.).
[12] Pennsylvania Pub. Util. Comm'n, Docket M-2019-3012599, *Final Policy Statement and Order*, 29–31 (Sept. 19, 2019).
[13] Connecticut Pub. Util. Reg. Auth., Dkt. No. 17-12-03RE11, *Decision*, 2 (Oct. 19, 2022).
[14] *See e.g.*, Am. Council for an Energy-Efficient Economy, Understanding Energy Affordability, available at https://aceee.org/sites/default/files/energy-affordability.pdf; Sierra Club, Calculate Your Energy Burden, available at https://www.sierraclub.org/energy-burden-calculator
[15] ACS, Table B19001. The next highest income range reported by the Census is $60,000 to $74,999.

6.0% at the $42,500 mid-point of that income range). While KPC bills at existing rates are almost exactly at the limit of affordability (5.9%) at incomes between $35,000 and $40,000, the bill increased at rates proposed in this proceeding push electric burdens well above the 6% demarcation of affordability.

Table 3. KPC Bill Burdens by Income at Existing and Proposed Rates (shading simply to improve readability)

	Income Mid-Point	Annual Bill at Existing Rates	Annual Bill at Proposed Rates
Bills at existing and proposed rates	---	$2,196	$2,532
Income Range			
Less than $10,000	$5,000	43.9%	50.6%
$10,000 - $14,999	$12,500	17.6%	20.3%
$15,000 - $19,999	$17,500	12.5%	14.5%
$20,000- $24,999	$22,500	9.8%	11.3%
$25,000 - $29,999	$27,500	8.0%	9.2%
$30,000 - $34,999	$32,500	6.8%	7.8%
$35,000 - $39,999	$37,500	5.9%	6.8%
$40,000 - $44,999	$42,500	5.2%	6.0%
$45,000 - $49,999	$47,500	4.6%	5.3%

It is not simply the income below which bills become unaffordable that is significant, however. When I examine the lower income levels, the depth of unaffordability (i.e., the extent to which bills exceed an affordable burden) becomes particularly substantial. KPC bills, for example, impose twice the affordable burden (7.8%) even at an annual income

of $30,000 to $35,000, while bills range from more than 3.5 times (14.5%) to more than twelve times (50.6%) the affordable burden when income falls to $20,000 or below.

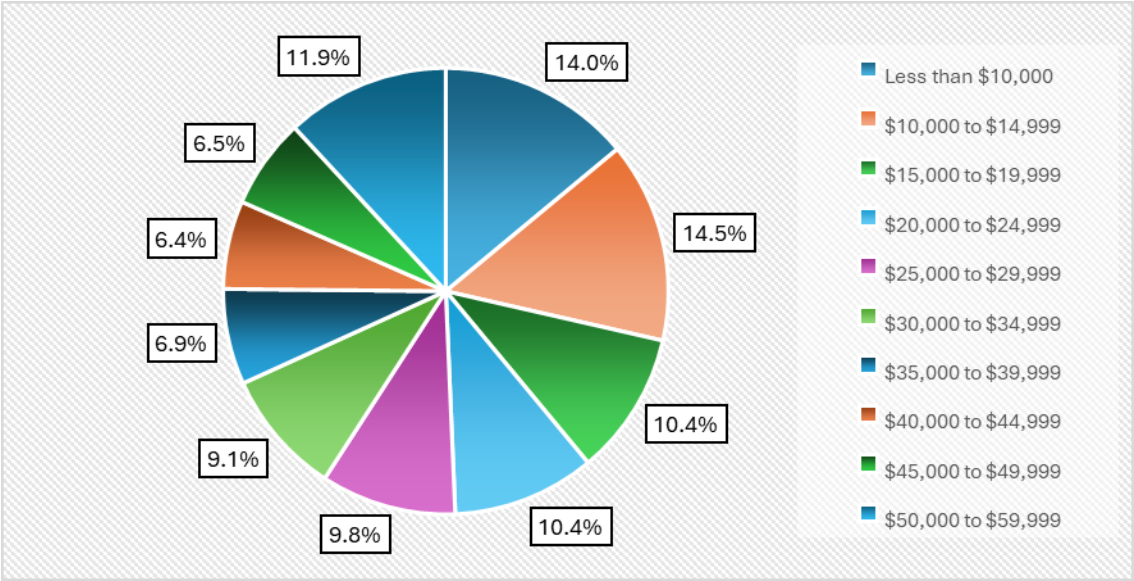
Q. WHY ARE THESE BURDENS AT DIFFERENT INCOME RANGES IMPORTANT FOR PURPOSES OF ASSESSING AFFORDABILITY?

A. Frequently, when utilities assess affordability, they purport to assess affordability at or below a prescribed income level. Their actual analysis, however, only considers the income *at* the identified income level, while seeming to forget those households who fall within the "or below" part of the income. In contrast, my discussion considers households at *or below* $60,000. In the zip codes identified by KPC as comprising its service territory, 59.4% of all households have income at or below $60,000.

Figure 6 below, however, documents the extent to which households with income at or below $60,000 fall *below* that maximum income level. The Figure shows, for example, that nearly three-of-ten (14.0% + 14.5% = 28.5%) of all households with income at or below $60,000 in fact have income below $15,000. Nearly four-of-ten (14.0% + 14.5% + 10.4% = 38.9%) of households with income less than $60,000 in KPC

zip codes in fact have income below $20,000. The energy burdens imposed by KPC bills at these income levels are significantly above an affordable burden.

Figure 6. Percent of Households with Annual Income <$60,000 by Income (KPC Counties)



Q. WHAT DO YOU CONCLUDE?

A. I find that KPC has significant bill affordability problems facing its low-income customers. Not only should this unaffordability be considered in assessing issues such as an appropriate return on equity and rate design, the specific remedies which I recommend below should be adopted to address the issue both from the perspective of delivering reasonably adequate service to the low-income customers and from the perspective of delivering least-cost service to all customers of the utility.

C. The Affordability of KPC Bills to More Moderate-Income Customers.

Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY.

A. In this section of my testimony, I examine how the unaffordability of bills is increasingly affecting more moderate income households. Unaffordability is no longer

the exclusive province of "low-income" customers. There can be little question that even Kentucky residents with more moderate incomes are having difficulties paying their home energy bills in today's economic environment. The data shows that bill unaffordability is manifested by the stress imposed by increasing prices, by the actions which households take when they receive unaffordable bills, and by the extent to which households cannot and do not pay their bills on time, if at all.

Q. WHAT DATA HAVE YOU EXAMINED FOR KPC CUSTOMERS?

A. The difficulties have been documented through a variety of publicly available information. Perhaps most up-to-date is the data periodically published through the Census Household Pulse Survey (HPS). While the HPS does not provide data specific to utility service territories, it does provide information specific to Kentucky. At the time I write this Testimony, the most recent HPS data collection was for the period August 20, 2024 through September 16, 2024.

The most recent HPS results for Kentucky show that 69% of households with income less than $25,000 had a very difficult or somewhat difficult time in paying their usual household expenses in the last seven days. While this is substantially higher than the results for more moderate income households, those moderate income households were also having difficulties. Roughly 25% to 30% of Kentucky households with income between $100,000 and $200,000 had either a "somewhat difficult" or "very difficult" time paying their usual household expenses in the study period (August 20 – September

16, 2024). Difficulties in bill payment did not largely disappear until annual income in Kentucky exceeded $200,000.

Table 4. Difficulty in Paying Usual Household Expenses in the Last Seven Days (August 20, 2024–September 16, 2024) (Kentucky)[16]

	Not at all difficult	A little difficult	Somewhat difficult	Very difficult
Less than $25,000	12.1%	18.7%	26.7%	42.5%
$25,000–$34,999	19.2%	10.8%	38.9%	31.0%
$35,000–$49,999	20.0%	35.1%	22.1%	22.8%
$50,000–$74,999	27.2%	27.7%	26.7%	18.3%
$75,000–$99,999	33.2%	31.4%	19.8%	15.5%
$100,000–$149,999	45.4%	26.7%	23.8%	4.2%
$150,000–$199,999	48.8%	24.3%	6.6%	20.3%
$200,000 and above	80.2%	18.1%	0.0%	1.6%

Similar results are found in the Kentucky data reported for the "level of stress" caused by price increases in recent months. As shown in the Table below, substantially more than 80% of all Kentucky households with income less than $35,000 found prices increases at the time to be either "moderately stressful" or "very stressful." When incomes reached more moderate levels, although the proportion of households who found price increases to be "not at all stressful" was noticeably higher than for low-income households, nonetheless, even at these income levels, more than 70% of households with

[16] U.S. Census Bureau, Phase 4.2 Cycle 09 Household Pulse Survey: August 20–September 16, Spending Tables, Table 1. Difficulty Paying usual Household Expenses in the Last 7 Days, by Select Characteristics, *available at* https://www.census.gov/data/tables/2024/demo/hhp/cycle09.html (last accessed January 7, 2025).

income between $75,000 and $150,000 found price increases to be “very stressful” or “moderately stressful.”

Table 5. Level of stress caused by the increase in prices in the last two months (Kentucky)
Census Household Pulse Survey, Cycle 09

	Very stressful	Moderately stressful	A little stressful	Not at all stressful	Total
Less than $25,000	71.3%	15.9%	7.9%	1.2%	94.5%
$25,000 - $34,999	73.0%	11.4%	14.3%	1.2%	100.0%
$35,000 - $49,999	61.1%	14.0%	23.9%	0.0%	100.0%
$50,000 - $74,999	52.6%	25.5%	20.5%	1.4%	100.0%
$75,000 - $99,999	48.4%	30.0%	14.7%	5.8%	100.0%
$100,000 - $149,999	42.3%	30.0%	24.8%	3.0%	99.7%
$150,000 - $199,999	41.3%	15.9%	29.2%	13.7%	100.0%
$200,000 and above	13.9%	19.2%	48.1%	18.8%	100.0%

The Table above shows that more than 40% of Kentucky households with income between $100,000 and $200,000 found price increases in the last two months to be “very stressful.”

Q. HOW DOES THIS DATA RELATE TO DIFFICULTIES IN PAYING UTILITY BILLS SUCH AS HOME ELECTRIC SERVICE?

A. The economic difficulties facing moderate income households directly translate into difficulties in the ability of moderate-income Kentucky households to pay their home energy bills. The HPS reports that between 10% and 15% of households with income between $75,000 and $150,000 reported a need to reduce or forego expenses for “basic household necessities” in order to pay their energy bills in “almost every month” or in “some months.” Conversely, only 70% to 75% of households in this income range

reported that they "never" had to reduce or forgo expenditures for basic household necessities in order to pay their home energy bills. In Kentucky, even with incomes between $150,000 and $200,000, nearly twenty percent of households reported their need to reduce or forego expenses for basic household necessities in order to pay an energy bill in "almost every month" or in "some months."

Table 6. Household reduced or forwent expenses for basic household necessities, such as medicine or food, in order to pay an energy bill (Kentucky) Census Household Pulse Survey, Cycle 09

	Almost every month	Some months	1 or 2 months	Never	Total
Less than $25,000	18.3%	36.7%	10.5%	34.4%	100%
$25,000 - $34,999	19.1%	21.2%	2.6%	57.1%	100%
$35,000 - $49,999	7.4%	22.2%	11.2%	53.5%	94%
$50,000 - $74,999	5.4%	14.2%	7.4%	72.9%	100%
$75,000 - $99,999	15.3%	8.5%	8.1%	68.1%	100%
$100,000 - $149,999	9.9%	4.4%	9.9%	75.5%	100%
$150,000 - $199,999	5.1%	14.8%	4.8%	75.3%	100%
$200,000 and above	0.0%	1.6%	2.3%	96.1%	100%

Even these numbers, however, do not tell the entire story. In many instances, the payment difficulties of these moderate income households can also be seen in their reported inability to pay their energy bill, or to pay "the full bill amount" of their home energy bills. Only 90% of households with income between $100,000 and $200,000 reported that they were "never" unable to pay an energy bill, or unable to pay the full bill amount" of a home energy bill. This inability represents a lesser inability to pay (e.g., roughly half of households with income less than $20,000 reporting "never" unable to pay their home energy bills or to pay their full home energy bill), but a noticeably greater inability to pay than households with income greater than $200,000 (98.4% reporting

"never" being unable to pay their home energy bill, or to pay their full home energy bill). The Kentucky HPS data documents that nearly one-quarter (24.7%) of Kentucky households with income between $75,000 and $100,000 reported that they were "unable to pay an energy bill or unable to pay the full amount" in "one or two months", "some months", or "almost every month."

Table 7. Household was unable to pay an energy bill or unable to pay the full bill amount (Kentucky) Census Household Pulse Survey, Cycle 09

	Almost every month	Some months	1 or 2 months	Never	Total
Less than $25,000	25.9%	17.2%	9.2%	47.7%	100%
$25,000 - $34,999	6.9%	16.2%	10.3%	66.6%	100%
$35,000 - $49,999	3.1%	16.4%	14.0%	66.5%	100%
$50,000 - $74,999	0.0%	8.4%	5.7%	85.9%	100%
$75,000 - $99,999	4.6%	8.6%	11.5%	75.4%	100%
$100,000 - $149,999	3.6%	3.6%	1.6%	91.2%	100%
$150,000 - $199,999	0.0%	10.0%	2.3%	87.8%	100%
$200,000 and above	0.0%	0.0%	1.6%	98.4%	100%

Q. WHAT DO YOU EXAMINE NEXT?

A. The utility payment problems facing Kentucky's more moderate income can be attributed, at least in part, to the fact that these income levels do not provide sufficient income to allow households to comfortably meet their basic needs. The income needed to meet basic household needs is measured by Kentucky's "self-sufficiency standard" (SSS).[17] The SSS varies by county, by household size, and by household composition. Within each county, for example, a three-person household consisting of an adult with two infants would have a different self-sufficiency income than a three-person household

[17] Brolliar (2023). Technical Brief The Self-Sufficiency Standard 2023 Update, https://selfsufficiencystandard.org/wp-content/uploads/2023/09/SSS2023_UpdatedTechnicalBrief.pdf.

with two adults and a school age child. To illustrate, I have examined the fifteen (15) counties served by KPC and examined the SSS for a three-person household with three different household compositions (one-adult, two infants; one adult, two school-age; one adult, one infant, one school-age).[18] The data is set forth in Table 8 below.

The data shows that, in the 45 scenarios examined (15 counties x 3 household compositions per county), SSS incomes fall between 200% and 220% FPL 24 times. SSS incomes fall above 190% FPL in an additional 16 instances. They fall below 190% of FPL in only three (3) instances. They never fall below 188% FPL. These are all instances where a minor or temporary economic disruption to the household might result in such households having difficulties in making a KPC payment. And, once behind, their

[18] Overall, the SSS sets forth income levels for households with 719 different sizes and composition.

incomes are sufficiently low that it would be difficult to catch-up without external assistance.

Table 8. 2023 Self-Sufficiency Standard (SSS) In Dollars and FPL Percent for KPC Counties and 3-Person Households with Selected Compositions

Counties	100% FPL (2023)[19]	1 Adult / 2 Infant		1 Adult / 2 Pre-School		1 Adult / 2 School-Age	
		SSS	As % FPL	SSS	As % FPL	SSS	As % FPL
Boyd	$24,860	$48,064.78	193%	$49,563.28	199%	$48,386.56	195%
Breathitt	$24,860	$49,598.13	200%	$51,107.48	206%	$50,026.32	201%
Carter	$24,860	$48,376.59	195%	$49,932.04	201%	$49,257.04	198%
Floyd	$24,860	$50,441.04	203%	$51,961.23	209%	$50,975.64	205%
Greenup	$24,860	$49,535.98	199%	$51,072.44	205%	$50,230.20	202%
Johnson	$24,860	$49,467.39	199%	$50,928.67	205%	$49,866.78	201%
Knott	$24,860	$49,372.14	199%	$50,876.06	205%	$49,747.13	200%
Lawrence	$24,860	$46,520.41	187%	$47,998.57	193%	$46,642.66	188%
Leslie	$24,860	$49,688.33	200%	$51,197.67	206%	$50,116.52	202%
Letcher	$24,860	$49,327.05	198%	$50,830.97	204%	$49,702.03	200%
Magoffin	$24,860	$49,281.32	198%	$50,778.46	204%	$49,589.79	199%
Martin	$24,860	$51,049.63	205%	$52,546.77	211%	$51,358.10	207%
Morgan	$24,860	$46,792.89	188%	$48,291.39	194%	$47,114.67	190%
Perry	$24,860	$50,602.12	204%	$52,111.46	210%	$51,030.31	205%
Pike	$24,860	$50,550.45	203%	$52,061.15	209%	$50,991.94	205%

D. The Inability to Rely Solely on Federal Energy Assistance to Address Affordability.

Q. DOESN'T THE FEDERAL LIHEAP PROGRAM PROTECT LOW- AND MODERATE-INCOME CONSUMERS AGAINST THE UNAFFORDABILITY OF HOME ENERGY THAT YOU IDENTIFY ABOVE?

A. No. This is true for several reasons. As an initial matter, it is simply not reasonable to assume that we can rely on the federal Low-Income Home Energy Assistance Program (LIHEAP) continuing to exist at current funding levels or at all. There are ongoing threats to LIHEAP.

First, in April 2025, the President eliminated the Division of Energy Assistance, the office within the U.S. Department of Health and Human Services (HHS) that oversees LIHEAP, and fired the entire staff.[20] Even if LIHEAP is funded, in other words, with limited staff to oversee LIHEAP and disburse funds, LIHEAP is facing unprecedented uncertainty. States are expected to run their programs with no federal training or guidance and delays in funding that make it difficult to plan for the program.

Second, in addition to the threat to LIHEAP, the President's FY2026 budget also calls for the complete elimination of the Community Services Block Grant ("CSBG") program.[21] Local community action agencies ("CAAs") rely upon CSBG to fund the administration of energy assistance through LIHEAP. Even if LIHEAP is funded, the

[19] Since the most recent Self-Sufficiency Standard for Kentucky is set forth in 2023 dollars, I use the 2023 Federal Poverty Level for comparison purposes.

[20] Arthur Allen, *Trump HHS Eliminates Office That Sets Poverty Levels Tied to Benefits for at Least 80 Million People*, CBS News (Apr. 11, 2025), https://www.cbsnews.com/news/trump-hhs-poverty-levels-medicaid-benefits/.

[21] National Council on Nonprofits, *President Trump Proposes to Slash Funding for Domestic Programs in FY2026* (May 2, 2025), available at https://www.councilofnonprofits.org/articles/president-trump-proposes-slash-funding-domestic-programs-fy2026.

elimination of CSBG would severely limit, if not effectively eliminate, the ability of CAAs to deliver such assistance.[22] The Central Kentucky Community Action Council, for example, described CSBG as the "backbone of the Community Action ecosystem . . ." It described advocating for CSBG as "advocating for the resources that rely on its support, including programs like [the] Low Income Home Energy Assistance Program (LIHEAP). . ."[23] Community Action Kentucky asserts that CSBG is the "foundation" of its ability to deliver services throughout the state and that "CSBG funding is essential to [the] mission" of the CAAs. It is, in other words, not merely funding cuts to LIHEAP that threaten future participation in energy assistance programs.

Q. DO YOU HAVE AN ADDITIONAL CONCERN ABOUT ANY RELIANCE ON LIHEAP AS AN AFFORDABILITY RESOURCE?

A. Yes. Not only is LIHEAP funding inadequate to address unaffordability, but there have also been changes to the program in Kentucky which make it less available as an affordability resource.

Q. WHAT CHANGES HAVE OCCURRED?

A. There have been substantial changes in LIHEAP in Kentucky since 2001. Using state eligibility standards, the number of income eligible households declined by more than 40,000 households from 2011 (470,949) to 2024 (430,119). At the same time, the number of households actually receiving LIHEAP benefits (of any type) declined from 171,218 in 2011 to only 117,373 in 2024. Indeed, the number of LIHEAP recipients in 2024 was the lowest participation rate in Kentucky since 2016 (2024 participation of

[22] See, Libby Perl, *Community Services Block Grants (CSBG): Background and Funding, Congressional Research Service*, (January 23, 2018), available at https://www.warnock.senate.gov/wp-content/uploads/2021/05/08-Community-Services-Block-Grants-CSBG.pdf.

[23] https://www.capky.org/2025-conference/

117,373 vs. 2016 participation of 118,148). In every year since 2013, the proportion of eligible households actually receiving LIHEAP benefits in Kentucky has not exceeded 25%.

Table 9. Changes in LIHEAP Over Time (2011 – 2023) (Kentucky)[24]

Year[25]	LIHEAP Income Eligible Population (state)	No. of LIHEAP Recipients: All	Pct of Income-Eligible Participating
2011	400,949	171,218	30.015%
2013	407,123	130,418	23.431%
2015	413,962	125,580	22.409%
2016	410,919	118,148	21.108%
2020	382,603	129,790	24.484%
2021	446,062	131,438	24.722%
2022	419,508	121,263	23.447%
2023	343,690	119,407	24.111%
2024	430,419	117,373	23.781%

At the same time these changes in LIHEAP participation were occurring in Kentucky, the LIHEAP program was making changes in its use of its federal funding. The percentage of total funding devoted both to "assistance" in general, and to heating assistance in particular, has declined since 2001. In addition, in recent years, there has been a substantive change in the use of LIHEAP funds. Table 10 shows that the Kentucky LIHEAP program has in recent years chosen to begin to allocate funding for cooling assistance while historically it has not. Corresponding to years with increased cooling

[24] LIHEAP Custom Reports, *available at* https://liheappm.acf.gov/datawarehouse/custom_reports

[25] The omission of some years is intentional and done simply for space and presentation purposes. 2021 data may well be non-representative due to COVID. Not only would the number of applicants decrease due to the economic shutdown, but there were significant federal funds appropriated for COVID emergency-relief.

assistance has been a noticeable decline in heating assistance. In addition, there is substantial fluctuation in the use of Kentucky LIHEAP funds for crisis assistance, ranging from a low of 29.60% of total LIHEAP funds devoted to crisis in 2021 to a high of 67.89% in 2022 and 68.74% in 2011.

Table 10. Changes in LIHEAP Allocations Over Time (2011 – 2024) (Kentucky)[26]

	Percent of Assistance Funds Allocated to Heating Assistance	Percent of Assistance Funds Allocated to Cooling Assistance	Percent of Assistance Funds Allocated to Any Crisis Assistance
2011	31.27%	0%	68.74%
2013	40.72%	0%	48.47%
2015	39.55%	0%	48.90%
2016	29.60%	0%	62.59%
2020	0%	41.33%	46.61%
2021[27]	19.02%	44.28%	29.60%
2022	11.62%	7.88%	67.89%
2023	19.79%	34.62%	36.89%
2024	37.30%	10.61%	38.99%

My discussion here is not intended in any fashion to criticize the choices which the Kentucky LIHEAP program makes with respect to how it uses its limited federal funding. The conclusion I draw is simply that the LIHEAP program *does* have choices. In some years, the program may choose to use its funding to prevent disconnections or to restore service through Crisis grants. In other years, it may choose to use its funding for winter heating assistance, while in yet other years, it may choose to use its funding for

[26] LIHEAP Custom Reports, *available at* https://liheappm.acf.gov/datawarehouse/custom_reports

[27] 2021 data may well be non-representative due to COVID. Not only would the number of applicants decrease due to the economic shutdown, but there were significant federal funds appropriated for COVID emergency-relief, thus making the total percentages devoted to assistance and to heating assistance temporarily decline.

summer cooling assistance. Even if Congress appropriates funding for LIHEAP, and assuming the Administration allows those appropriated dollars to be used for the purposes for which they are intended, it simply cannot be assumed that LIHEAP will be available on a consistent and continuing basis to help address KPC bill affordability assistance.

Q. DO YOU HAVE ANY FINAL CONCERN ABOUT LIHEAP?

A. Yes. My experience has taught that, particularly given the low participation rates of low-income customers in LIHEAP, there is frequently a desire to increase that participation rate. There is an unstated assumption behind this desire that if additional outreach could increase LIHEAP participation, there would be a corresponding increase in the amount of federal assistance that would be applied against low-income accounts.

That unstated assumption, however, is wrong. LIHEAP is what is known as a federal "block grant" program. Under a block grant program, states are allocated a prescribed amount of a federal appropriation. Each state's LIHEAP block grant allocation is based on a complex federal formula.[28] That formula does not take into account LIHEAP participation rates in a particular state. When a state's LIHEAP block grant funding is exhausted, the state must stop distributing further LIHEAP benefits. Increasing LIHEAP participation by enhanced outreach, in other words, would result in the same Kentucky LIHEAP allocation being distributed over more participants. As a result, the State would need to either reduce the average grant per participant, or terminate

[28] The LIHEAP statute provides for two types of program funding: regular funds—sometimes referred to as block grant funds—and emergency contingency funds. Regular funds are allotted to states on the basis of the LIHEAP statutory formula, which was enacted as part of the Human Services Reauthorization Act of 1984 (P.L. 98-558). The formula section is codified at 42 U.S.C. §8623.

additional enrollment earlier than it might otherwise have planned. Under either scenario, total LIHEAP dollars received by Kentucky low-income customers would not expand.

My caution, therefore, is not to assume that enhanced LIHEAP outreach will necessarily result in increased LIHEAP funding being delivered to KPC customers. Enhanced outreach will certainly not result in an increase in LIHEAP funding for low-income customers. Providing assistance to low- and moderate-income customers, therefore, must find innovative ways to generate or access new dollars or new ways to reduce bills. I will explain several alternative ways below.

Q. WHAT DO YOU CONCLUDE?

A. The federal energy assistance program, called LIHEAP, presents substantial uncertainties if considered as a primary mechanism for addressing the unaffordability of KPC bills to low- and moderate-income households. Presently, while a U.S. Senate committee has voted to continue funding LIHEAP, the President's budget has proposed to eliminate the program in its entirety. Even if funded at the same levels it has been funded in the past, however, LIHEAP's status as a "block grant" program creates inherent limitations on its ability to fund an increasing need for affordability assistance. While there is a need for KPC to expand its existing low-income rate affordability programs (HEART and THAW), as I explain in more detail below, initiatives such an

Arrearage Management Program, and the promotion of time-of-use rates, can also help fill this gap.

Part 2. The Impact of Unaffordability on Low-Income Payment Patterns.

Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY.

A. In this section of my testimony, I examine the impacts which low-income payment difficulties have on the financial operations of KPC and, by extension, on the remaining customers of the Company.

A. The Problem.

Q. HAVE YOU HAD AN OPPORTUNITY TO EXAMINE THE IMPACTS OF UNAFFORDABLE BILLS ON THE PAYMENT PATTERNS OF LOW-INCOME KPC CUSTOMERS?

A. Yes. Since KPC states that it does not know the income of its customers,[29] it is not possible to engage in a direct examination of the payment patterns of identified low-income customers. KPC states that the way low-income customers are identified is by whether those customers "participate in either LIHEAP, LIHEAP Crisis, and/or the Company's HEART program."[30] As I have discussed elsewhere, however, and as the Company's response to discovery appears to acknowledge, LIHEAP serves a small fraction of KPC's total customer base. Moreover, KPC has identified only 13,417

[29] KPC Response to Joint Intervenors Request 1-50 and 1-51 ("JI 1-50 and 1-51") ("The Company does not maintain customer income information. The Company has limited insight into customer incomes based on customers who participate in either LIHEAP, LIHEAP Crisis, and/or the Company's HEART program. Notably, it is probable that not all customers eligible for these programs apply and not all customers who apply for these programs may participate."); see also, JI 1-77 ("The Company does not maintain customer information").

[30] JI 1-50.

customers as being "low-income" in this fashion,[31] 10.4% of its total customer base of 129,432.[32] That identified low-income population is substantially less than what might be expected given that 35.8% of the population in KPC zip codes live with annual income less than 150% FPL and 46.4% live with income less than 200% FPL.[33]

Q. PLEASE EXPLAIN HOW YOU HAVE EXAMINED THE PAYMENT PATTERNS OF LOW-INCOME CUSTOMERS.

A. Rather than examining payment patterns on an individual customer basis, I examine such patterns on a geographic basis. I do this by looking at two different populations: (1) the zip codes with 40% or more of their population living with income at or below 150% of Federal Poverty Level (Poverty-Based Set) (n=89); and (2) the zip codes with 25% or more of their households living with an annual income of less than $20,000 (Income-Based Set) (n=90). While these sets of zip codes may provide somewhat different results, one purpose of using both of them is to allow me to examine both the similarities and the differences. Having identified the zip codes by the income characteristics, I matched those zip codes with payment pattern data by zip code provided by KPC in response to discovery.[34] I compare each set of low-income zip codes to the remaining zip codes in the KPC service territory. I compare data for three time periods: (1) the full 24 months of data provided by KPC (October 2023 through September 2025);

[31] JI 1-52.
[32] JI 1-29.
[33] American Community Survey (5-year data) (2023). Table C17002.
[34] JI 1-47.

(2) the twelve-month period ending September 2024; and (3) the twelve-month period ending September 2025.[35]

This assessment leads me to the conclusion that low-income customers are more likely to have payment difficulties than are the remaining customers in the KPC service territory. This conclusion is consistent with the data developed through the Census Bureau's Household Pulse Survey (HPS) which I discuss in more detail above. That statewide HPS data accurately describes the circumstances facing KPC customers in particular. I will also identify the consistency of this KPC data with national Residential Energy Consumption Survey (RECS) results published by the U.S. Department of Energy's Energy Information Administration (DOE/EIA).

Q. WHAT DID YOUR ASSESSMENT OF KPC DATA FIND?

A. My assessment of KPC data in the manner which I describe above supports the following findings:

I find that KPC pursues a disproportionate number of collection interventions in the low-income zip codes which I examined. In my analysis, I started with the determination that the zip codes in the Poverty-Based Set represent 29.8% of the Company's total customers; and the zip codes in the Income-Based Set represent 37.0% of total customers.

An examination of collection activities reveals that KPC engages in a disproportionate number of collection activities in both low-income zip code sets. For

[35] I use twelve-month periods ending in September rather than twelve-month periods ending in December in order to retain complete winter heating seasons in each twelve month period.

both low-income sets, the percent of collection activities is greater than the percentage of underlying customers:

- While zip codes in the Income-Based Set have 37.0% of all customers, they represented 38.0% of all nonpayment disconnection notices and 41.4% of all nonpayment disconnections over the 24 month period (October 2023 through September 2025). The same results appertain for each individual twelve-month period ending in September 2024 and in September 2025.

- While the zip codes in the Poverty-Based Set have 29.8% of all KPC customers, they had 32.4% of all disconnect notices (over the 24 month period), and 33.8% of all nonpayment disconnections.

The data also demonstrates that KPC is more likely to disconnect service in low-income geographic areas, particularly in the four "post-winter months" (March through June). While the Income-Based set of zip codes represented 38.1% of all disconnect notices in the post-winter months of 2024, those same zip codes represented 43.3% of all actual nonpayment disconnections. While the Poverty-Based zip codes represented 32.4% of all

disconnect notices in the post-winter months of 2025, they represented 35.1% of all disconnections for nonpayment.

Table 11. KPC Credit and Collection Activities in Low-Income Zip Codes

	Disconnect Notices		Disconnection-NonPayment	
	Income-Based Set	Poverty-Based Set	Income-Based Set	Poverty-Based Set
24-Months (Oct '23 – Sep '25)	38.0%	32.4%	41.4%	33.8%
12-months (Oct '23 – Sep '24)	38.3%	33.0%	40.9%	32.2%
12-months (Oct 24 – Sep '25)	37.8%	31.9%	42.0%	35.9%
Post Winter 2024[36]	38.1%	32.8%	43.3%	34.1%
Post Winter 2025	37.8%	32.4%	39.6%	35.1%

Q. DOESN'T KPC OFFER ITS PAYMENT-TROUBLED CUSTOMERS PAYMENT ARRANGEMENTS THROUGH WHICH THEY CAN RETIRE THEIR PAST DUE BILLS?

A. Yes. However, those payment arrangements are largely ineffective. According to data provided by KPC, from October 2023 through September 2025, KPC entered into 48,696 new residential payment agreements.[37] During that same 24 month period, however, KPC experienced 30,987 defaulted payment plans. For every 100 new payment agreements entered into by KPC, in other words, 65 default. In contrast, during the same 24 month period, KPC experienced 8,587 payment plans which were successfully completed. For each 100 new payment agreements, only between roughly one-of-six and one-of-five (18.7%) were completed.[38] Even though KPC entered into 48,696 new

[36] "Post-winter" is defined as the months of March, April, May and June of each calendar year.
[37] JI 1-92.
[38] *Id.*

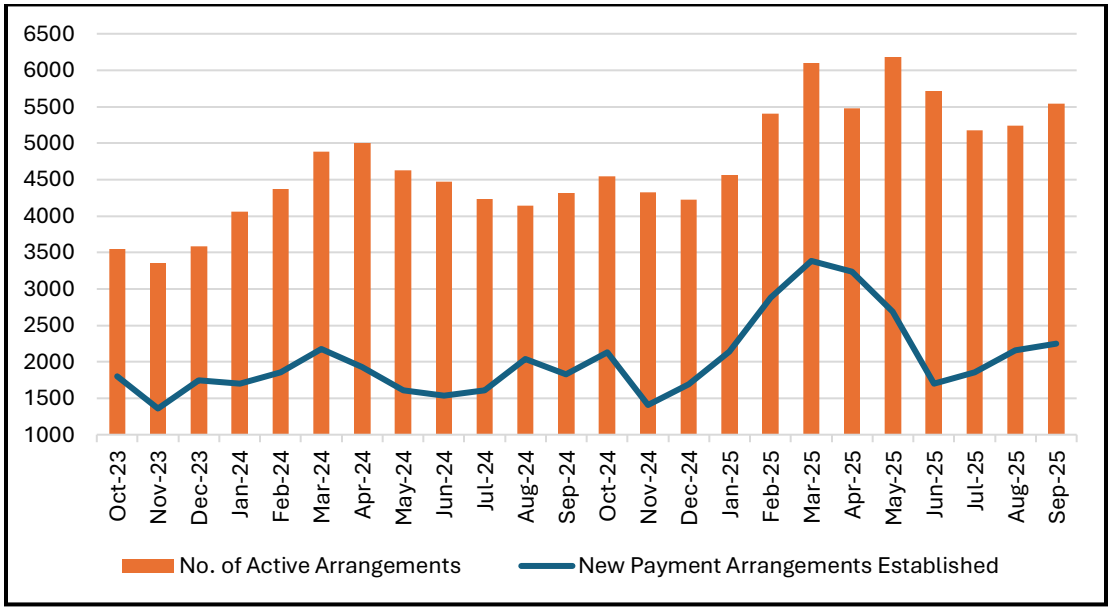
payment agreements over the 24 month period, it maintained an average of only 4,712 active payment plans per month.[39]

As the Figure below shows, while KPC has entered into between 1,500 and 3,500 *new* payment agreements *each month*, the overall number of total average number of active payment plans has increased from only 3,500 per month to 5,500 per month over a

[39] *Id.*

24-month period. The reason the average has not increased is because payment plans default, not because they are successfully completed.

Figure 7. New Residential Payment Arrangements by Month and Active Residential Payment Arrangements by Month



The Company could not provide data on payment agreements by zip code. According to KPC, it only has total Company data on payment agreements.

Q. WHY IS THIS DATA ON UNAFFORDABILITY AND PAYMENT DIFFICULTIES SIGNIFICANT FOR THIS RATE PROCEEDING?

A. The data I present in my discussion above is of particular importance in a rate proceeding. The need to pursue substantial, and disproportionate, collection interventions directed toward low-income customers, while achieving less success from those interventions, has rate implications for the Company and its customers. The arrearage balances of customers unable to pay not only impose the risk of bad debt write-offs and collection expenses, but they impose substantial working capital expense as well. Since working capital is a capital expense, there will be an equity return associated with it. And

the equity return will necessarily have a tax impact associated with it. The rate impacts of unaffordability, therefore, are higher than the direct expense impacts. Addressing unaffordability will, in other words, not only generate benefits to low-income customers, but will also generate positive impacts to all other ratepayers as well.

Q. IS THE KPC EXPERIENCE CONSISTENT WITH THE BROADER EXPERIENCE OF UTILITIES NATIONWIDE?

A. Yes. In addition to being consistent with the statewide data for Kentucky which I discussed in detail above, the KPC data is consistent with nationwide data as well. Data published by the U.S. Department of Energy/Energy Information Administration (DOE/EIA) convincingly establishes the relationship between income and "energy

insecurity" in nationwide data from its 2020 Residential Energy Consumption Survey (RECS). The data is presented in Table 12 below.

Table 12. Household Energy Insecurity, 2020 EIA/DOE Residential Energy Consumption Survey (RECS)[40]

2020 annual household income	Any household energy insecurity	Reducing or forgoing food or medicine to pay energy costs	Leaving home at unhealthy temperature	Receiving disconnect or delivery stop notice	Unable to use heating equipment
Less than $20,000	58.0%	46.9%	24.8%	26.6%	11.2%
$20,000 to $39,999	56.1%	46.6%	21.2%	19.5%	9.5%
$40,000 to $59,999	46.8%	37.7%	20.7%	18.1%	8.0%
$60,000 to $79,999	39.7%	31.3%	15.0%	14.4%	6.3%
$80,000 to $99,999	29.3%	21.5%	8.9%	11.5%	4.2%
$100,000 to $119,999	20.1%	12.8%	5.7%	7.0%	2.0%
$120,000 to $139,999	11.1%	6.1%	4.1%	3.7%	1.2%
$140,000 or more	7.2%	2.6%	3.1%	1.5%	0.8%

The data shows that as household income increases, home energy insecurity decreases. The Table also shows the relationship between household income and "any household energy insecurity." Nearly six-of-ten of households with income less than $20,000 had experienced an energy insecurity, while that number falls to 20% and below for households with income of $100,000 or more. When income increases to more than $140,000, the percentage experiencing any type of energy insecurity falls below 10%.

[40] U.S. Energy Information Admin., Table HC 11.1 Household Energy Insecurity, 2020, available at https://www.eia.gov/consumption/residential/data/2020/hc/pdf/HC%2011.1.pdf (accessed April 27, 2023). .

B. Proposed Responses.

Q. PLEASE EXPLAIN A REASONABLE RESPONSE BY KPC TO THE PROBLEMS YOU IDENTIFY ABOVE.

A. I recommend adoption of a pilot outreach program directed toward expanding participation in low-income energy assistance programs. I make this recommendation, notwithstanding my testimony above about the inability to rely primarily on LIHEAP to address affordability problems for KPC. I make the recommendation because expanding LIHEAP participation can be expected to benefit the KPC low-income customer base under my recommendations below, even if LIHEAP funding does not correspondingly increase. I have recommended tying the Arrearage Management Program (AMP) and Time-of-Day (TOD) initiatives to LIHEAP participation. So, too, is participation in HEART and THAW. Accordingly, increasing LIHEAP participation would benefit low-income customers by opening a door to new programs even if the dollars delivered through LIHEAP, itself, do not increase. The benefits, however, depend on adoption of the recommendations I advance below.

Q. PLEASE EXPLAIN YOUR FIRST RECOMMENDATION WITH RESPECT TO ACCESSING NEW DOLLARS OR GENERATING NEW WAYS TO REDUCE LOW-INCOME BILLS.

A. Yes. The efficacy of seeking to improve access to new and innovative programs that would assist low-income customers, such as the TOD initiative discussed below, as well as the AMP, depends on the ability of KPC to effectively reach low-income customers. The goal of such outreach is to provide "effective knowledge." Effective knowledge is a term-of-art which refers to: (1) communicating the existence of the

program; (2) communicating the benefits/advantages of program participation; and (3) communicating the means of accessing program participation. Knowing "about" a program, for example, without knowing how to access that program, is not "effective knowledge."

There are numerous impediments to effective outreach promoting participation in KPC programs. Recent research addresses the impact that consumer "trust" (or lack thereof) in utilities has on the willingness of such consumers to participate in utility programs. In that study, Przepiorka and Horne reported that:

> . . .previous research suggests that consumers' trust in utilities is generally low. . .We corroborate that people in the United States have little trust in utilities and this lack of trust is negatively associated with consumer willingness to be involved in utility programs.[41]

It is intended to be neither pejorative nor disrespectful to acknowledge that many customers do not trust their local utility. This recent academic research lends credence to the concerns about utility trust. The Przepiorka and Horne article reports that:

> [W]hen consumers trust a utility, they are more likely to believe its assertions and to expect that utility programs will help them, rather than benefit the utility at their expense. Therefore, the more that consumers view a utility as trustworthy, the more willing they will be to participate in utility programs that promise a benefit for them.[42]

Q. WHAT DO YOU RECOMMEND AS A REMEDY?

A. In responding to that question, let me first provide the empirical basis for my recommendation. I will next present my specific recommendation. Overall, the most

[41] Przepiorka and Horne, *How Can Consumer Trust in Energy Utilities be Increased? The Effectiveness of Prosocial, Proenvironmental, and Service-Oriented Investments as Signals of Trustworthiness* Organization & Environment, Vol. 33(2): 262 – 284 (2020).
[42] *Id.*

effective way to address this lack of trust of utilities, in low- and moderate-income communities in particular, is through the use of "community messengers." Using community members as a mechanism to identify and engage hard-to-reach populations has repeatedly been found to be among the most effective mechanisms to use in serving hard-to-reach populations.

Substantial research supports this conclusion. For example, one population that is frequently difficult to identify, let alone engage, involves the aged, particularly those facing medical difficulties. In response, the Medicare-Medicaid Coordination Office ("MMCO"), along with the Centers for Medicare and Medicaid Services ("CMS"), initiated a specific program toward hard-to-reach individuals.[43] Based on a focus group with representatives from seven health plans in California, Massachusetts, Ohio, and Virginia that "have experience locating and engaging Medicare-Medicaid enrollees," CMS specifically recommended "hir[ing] staff from the community for outreach and navigation. Individuals from the community likely have existing connections with local health and social service organizations, as well as knowledge about how to find and connect with community members."

Another study, funded by Blue Shield of California and performed by the Institute of Medicine ("IOM"), undertook a comprehensive review of evaluations from organizations across the nation that focused on "enrollment of hard-to-reach populations" for the ACA.[44] One purpose of the IOM study was to create "a conceptual model" that

[43] Resources for Integrated Care, *Hard-to-reach populations: Innovative Strategies to Engage Isolated Individuals with Behavioral Health Need* (Sept. 2015).

[44] Parker, et al. *Successfully Engaging Hard-to-Reach Populations in Health Insurance: A Focus on Outreach, Sign Up and Retention, and Use*, Institute of Medicine, Roundtable on Health Literacy, Collaborative on Health Literacy and Access, Health Care Coverage, and Care, Washington D.C. https://cdn.cocodoc.com/cocodoc-form-pdf/pdf/453295370--Paper-Institute-of-Medicine-.pdf

incorporated the successful strategies and approaches. The lessons reported by IOM included the observation that "community partnerships were also an important resource for enrollment efforts to reach hard-to-reach populations. Partnerships with longstanding and trusted community organizations provided access to hard-to-reach communities and served as trusted sources of information and trusted spaces for enrollment to occur."[45] The need to rely on "trusted sources" cannot be overstated based on the IOM report. The IOM evaluation stated:

> The need to create trust among consumers is the foundation upon which successful strategies rest. First and foremost, it is essential to identify community partners who are trusted resources in the population at which enrollment efforts are aimed. All of the interviewees said that the most important and successful method in reaching their intended audiences was approaching consumers through a trusted source; such an approach could occur either through their own organization, if it was a community-based trusted source, or through a partnership with groups and individuals who were trusted in the community. Although every community has different trusted sources, each community organization and coalition interviewed highlighted that identifying and working with trusted sources is key to a successful outreach and enrollment process.[46]

Trusted sources varied by community and culture. They included advocacy groups, social services and community support groups, faith-based groups, and federally qualified health centers.[47] Although different, these trusted community partners had all been active in the communities prior to the enrollment process and were either already aware of, or

[45] *Id.*, at 10.
[46] *Id.*, at 12.
[47] *Id.*, at 12.

uniquely positioned to identify, population-specific challenges and sensitive issues in the targeted populations.

One important step in designing outreach is to "identify who the trusted advisors are in the various communities of interest—that is, who do people in these communities turn to for advice about what is correct information and what to do with it," IOM found.[48] Groups focusing on Latino communities found that community health workers were "neutral and trusted advisors," whereas "African American and rural communities often saw their faith leaders as trusted advisors," and "Immigrant communities with limited English proficiency often relied on neighbors and friends for information." In some instances, particular industries "have heavy representation in hard-to-reach communities. For example, some efforts were aimed at leaders of taxicab drivers or beauty and nail salon owners as trusted advisors to help engage specific populations."[49] These "trusted advisors" are necessary because "in addition to profound financial challenges, many also do not trust the system to advocate for them or to help them successfully navigate complex content and tasks."[50]

Q. GIVEN THIS RESEARCH FOUNDATION FOR YOUR RECOMMENDATION, WHAT SPECIFICALLY DO YOU RECOMMEND KPC DO IN THIS PROCEEDING?

A. I recommend that KPC engage in a two-year pilot project that focuses on enlisting community-based organizations in the provision of outreach for the Company's time-of-day rates initiative in particular. The pilot project should be funded at a level of $200,000

[48] *Id.*, at 16.
[49] *Id.*, at 16.
[50] *Id.*, at 18.

annually for two years. The $200,000 should be distributed through a competitive bid process, through which community partners would commit to serve specific communities (e.g., rural, Black, Hispanic, aged, families with children). Through such a competitive bid process, KPC could incorporate its desired outcomes along with periodic performance measurement.

In sum, if eligibility to receive benefits through the AMP or TOD programs is tied to whether someone is currently receiving LIHEAP, the threats to the continuation of LIHEAP, as I discuss above, may well result in a corresponding reduction in the reach of the AMP and TOD programs as well. My recommended outreach program, however, helps to address that problem. By expanding LIHEAP participation, even if there is not a corresponding expansion of LIHEAP funding, the outreach programs would use LIHEAP eligibility to further extend bill reduction efforts that are being delivered without need for federal funding. Using outreach to expand LIHEAP eligibility in the way I describe would mean that the AMP and TOD eligibility based on such eligibility could be structured so as to insulate the AMP and TOD programs against ongoing federal efforts to reduce, if not eviscerate, federal LIHEAP funding.

Q. IS THERE A SECOND RESPONSE THAT YOU RECOMMEND BE ADOPTED?

A. Yes. In this second response, I seek to address several of the bill unaffordability problems which I discuss above. Based on my discussion above, there can be little question but that low-income status, unaffordable bill burdens, and utility payment problems (be those problems carrying arrears, facing nonpayment service disconnections, or having households make "heat-or-eat" tradeoffs in order to maintain their utility bill

payments) all exist in tandem. One traditional response has been the delivery of federal LIHEAP assistance, that delivery is under serious current threat. One response has been to deliver ratepayer-funded assistance, but that response by KPC has become increasing outdated as bills increase but the level of assistance does not. One response has been for the Company to enter into deferred payment arrangements through which customers are purportedly given an opportunity to retire their arrears over time, but those DPAs result in default more often than not. An additional response that does not suffer from any of these problems is merited. That additional response would bring "new" money to low- and moderate-income households, particularly those who are facing payment difficulties, and particularly at the time of year in which those payment difficulties are most prevalent. One source of such new money would involve the federal Earned Income Tax Credit (EITC).

Even though poverty and payment problems have grown in Kentucky in recent years, the use of the EITC as a means to supplement household incomes has not seen a corresponding growth. The Congressional Research Service, for example, reports that nearly one-in-five eligible Kentucky households failed to claim their EITC in 2019 (the last year which CRS studied).[51] In Kentucky, despite the growing economic problems, the EITC participation grew only 0.1% from 2015 through 2019 (from 82.0% in 2015 to 82.1% in 2019).[52] This data demonstrates a persistent participation gap where many

[51] Congressional Research Service, *The Earned Income Tax Credit (EITC): How it Works and Who Receives It*, (Nov. 2023), available at https://www.congress.gov/crs-product/R43805.
[52] *Id.*

eligible families do not claim their credit, offering Kentucky a clear opportunity to increase its a participation rates through targeted outreach.

As a stakeholder who has a particular interest in bringing new resources to households facing payment difficulties, particularly at a high-cost time of the year, there are specific steps that KPC can take to respond to the lack of sufficient household resources to meet basic home energy needs not only by low-income customers but by more moderate income customers as well. Helping income-eligible households claim their federal Earned Income Tax Credit (EITC) is one initiative that KPC should pursue for its high-range poverty households that would address all three problems I identify: (1) the increasing unaffordability of KPC bills; (2) the payment problems associated with that unaffordability; (3) the threats to the delivery of federal fuel assistance; and (4) the growing mismatch between increasing KPC bills and the level of ratepayer-provided assistance). In looking at the fifteen counties in the KPC service territory, I find that:

- In Tax Year 2022,[53] 31,190 taxpayers claimed a total of $82,671,000 in Federal EITC credits (an average credit of $2,651);
- In Tax Year 2022, of those taxpayers claiming an EITC credit, 28,270 (90.6%) claimed an EITC credit greater than their total tax liability (i.e., obtained a tax

[53] Tax Year 2022 (returns filed in 2023) is the last year for which data is available.

refund), totaling $72,952,000 in refundable EITC credits (87.8%) (an average credit of $2,568);

- Of the 31,190 households claiming an EITC credit, 13,120 (42.1%) had an income of more than $10,000 but less than $25,000, while an additional 10,120 (32.4%) households had an income of more than $25,000 but less than $50,000.

As can be seen, in other words, the EITC tends to serve more moderate-income populations in addition to a low-income population.

Q. WOULD PROMOTING THE RECEIPT OF EITC CREDITS BENEFIT KPC IN ITS CAPACITY AS A UTILITY?

A. Yes. EITC credits would directly benefit KPC. According to a study of EITC recipients in New York, performed by faculty at Colgate University, 40% of the households reporting using their EITC to pay bills used those benefits to pay utility bills, a higher percentage than those using the EITC to pay for rent (31%), credit cards (28%), car payments (22%), and groceries (21%).[54] More than two-thirds of EITC recipients use their credits to pay for basic needs, while half use their credits to pay off a debt. Another study found that 65% of EITC recipients have a "making ends meet" use for their credits,

[54] Simpson, et al., *The Efficacy of the EITC: Evidence from Madison County (New York), Colgate University Department of Economics*, (Oct. 2006).

with the payment of utility bills and rent the most important uses, followed by the purchase of food and clothing.[55]

Q. DOES KPC AGREE THAT TAKING STEPS TO PROMOTE ECONOMIC DEVELOPMENT IS AN APPROPRIATE EXPENDITURE OF RATEPAYER FUNDS?

A. Yes. When asked whether promoting economic development is an appropriate use of ratepayer funds, KPC responded:

> It is an appropriate utility function to support economic development throughout its service territory. Kentucky Power takes great pride in being a leader of economic development in eastern Kentucky. By pursuing economic development, the Company can make positive impacts on rates to the benefit of all customers. This is of particular importance in the Kentucky Power service territory that suffers from continued decline in load, which has a negative impact on the utility and customer rates alike.[56]

This objective is important when considering the multiple needs served by promotion of the EITC. One additional benefit of the EITC, beyond assisting low- and moderate-income households, is its impact on promoting economic development. One study in San Antonio, for example, found that every $1 in EITC benefits received in that city generated $1.58 in local economic activity. The San Antonio study found further that every $37,000 in local economic activity would generate one additional permanent job.

[55] Timothy Smeeding, et al., *The EITC: Expectation, Knowledge, Use and Economic and Social Mobility*" National Tax Journal, 53(4): 1187, 1198 (Dec. 2020). Smeeding is with the Center for Policy Research, The Maxwell School, Syracuse University (NY).
[56] JI 1-5.

According to the Brooking Institute, the EITC generates a concentrated infusion into local economies, in many cities, more than $1.0 million per square mile.

Q. GIVEN THE EMPIRICAL FOUNDATION FOR YOUR RECOMMENDATION, WHAT SPECIFICALLY DO YOU RECOMMEND KPC DO IN THIS PROCEEDING?

A. I recommend that KPC engage in a two-year pilot project that focuses on assisting its customers to claim their federal Earned Income Tax Credit. KPC can generate substantial new "energy assistance" benefits for its high-range poverty households by supporting efforts to promote the EITC. It should not be difficult for KPC to engage in reasonable amounts of targeted outreach with the objective of increasing the penetration of income-eligible households claiming their EITC by at least five percent. In the 15 KPC counties examined above, a five percent (5%) increase in the number of EITC claims would result in roughly 1,560 households newly receiving the EITC, generating an additional $4.135 million in benefits flowing to these counties. Given the finding that EITC credits flowing into a utility service territory creates one job for every $37,000 in tax credits, these additional benefits would result in 112 new jobs in the KPC service territory.

Given these benefits, I recommend that KPC's pilot EITC outreach project should take the following steps:

- KPC should direct targeted EITC outreach to customers in arrears. Indeed, KPC could (and should) direct EITC outreach to payment-troubled customers that the utility has previously identified as being low-income.

- KPC should fund outreach efforts targeted toward populations that under-utilize the EITC. Rather than doing generic outreach campaigns, the Company should help fund "gap-filling" outreach. According to the national EITC Outreach Campaign, women fill a disproportionate number of part-time and low-wage jobs.

Newly employed women, in particular, are less likely to file for EITC benefits. Moreover, Hispanic parents are much less likely to file for EITC benefits. An Urban Institute study found that only 32% of low-income Hispanic parents knew about the EITC, and only 20% of such parents claimed their EITC. KPC should direct funding to specific community-based organizations that can document their ability to reach these under-served populations.

- KPC should refer payment-troubled customers to free tax preparation clinics (called Volunteer Income Tax Assistance, or "VITA," sites). Customers who contact the utility during the tax preparation season who have received energy assistance in the past, or who are currently participating in the utility's AMP, or who have otherwise been identified as "low-income," can be directed toward VITA sites in addition to being directed toward energy assistance agencies. Information on VITA sites can be included with shutoff notices, with written confirmation of payment plan terms, or in other collection initiatives.[57]

  According to EITC outreach specialists, the primary problem with VITA sites is that not enough people use them. Most people do not know about VITA sites; those that do often find it difficult to find them. Unfortunately, the local IRS telephone assistance lines through which people might obtain information on the location of VITA sites are often busy.

- KPC should add EITC outreach to its existing contacts with its customers. Adding an EITC information message during the call-center hold time, particularly during tax preparation season (January through April) would be helpful. Adding EITC outreach materials to the Company's web site would reach a different population. Including EITC outreach with shutoff notices would provide an opportunity for payment-troubled customers to seek additional financial resources.

  Akin to other pilot projects, KPC should be allowed to track its expenditures on the EITC outreach identified above to be recovered in a future rate case.

Q. ARE YOU AWARE OF ANY UTILITY THAT ENGAGES IN THE TYPE OF EITC SUPPORT YOU RECOMMEND FOR KPC?

A. Yes. Entergy is a multi-state electricity company serving the Middle South. Entergy perhaps leads the nation in supporting the promotion of the EITC amongst utility

[57] Free tax preparation clinics are available throughout Kentucky. The availability of such clinics is identified by the Kentucky Department of Revenue. https://revenue.ky.gov/Individual/pages/free-tax-return-preparation.aspx A map of Kentucky, with the availability of centers identified, is attached as Exhibit RDC-6.

companies.[58] Entergy has used utility dollars to promote the EITC to the Company's 2.8 million customers for more than 15 years. Entergy spends more than a half million dollars a year on its EITC outreach. The Company begins with a Comprehensive Media campaign. This plan involves paid media, including print, on-line, and social media. The media campaign not only encourages taxpayers to determine if they qualify for the EITC, but also points people to the Entergy.com EITC website which identifies all free tax preparation sites available to taxpayers in the EITC service territories.

In addition to its paid media, Entergy uses two bill inserts a year (one produced by the Company and the other produced by the Internal Revenue Service (IRS)) to promote the EITC. The IRS EITC mailers are the only non-Entergy literature the Company allows to be included with its bills. The billing inserts are circulated with the December and January bills, the two months in which the Company's customers begin to think about tax filing. A taxpayer must file a tax return to claim the EITC.

Aside from this written literature that Entergy provides to its customer base, Entergy also targets outbound telephone calls to remind customers who the Company has reason to believe are low-income to remind the customers that it is tax season; to

[58] See e.g., https://www.entergy.com/freetaxhelp; see aso, https://www.entergy.com/blog/entergys-2023-sponsorship-free-tax-prep-empowers-customers-with-over-40-million-in-tax-refunds; https://www.entergy.com/blog/employee-volunteers-help-customers-maximize-tax-returns; https://www.entergy.com/blog/entergy-partners-with-irs-help-customers-during-tax-season; https://www.entergy.com/news/entergy-mississippi-customers-can-receive-free-tax-prep. https://www.pressreader.com/usa/el-dorado-news-times/20070313/281668260257328?srsltid=AfmBOorF7hRQjzEoR_S9jDAZJWXQfIEVfuU9gtsG8kMhPaYxqaCTJN1t

encourage customers to determine if they are eligible for the EITC; and to point people toward the Entergy.com web site to find local free tax preparation clinics.

Entergy seeks to help its low-income customers keep the full tax credit for their own use as well. One drain on the tax credit occurs when people use paid tax preparers to file their returns. Not only do such tax preparers charge hundreds of dollars for the relatively simple returns involved with EITC recipients, but many also prey on the financial problems of low-income households by offering "tax anticipation loans" with exorbitant interest rates. To try to keep more of the EITC in the low-income household, Entergy has supported more than 400 Volunteer Income Tax Assistance (VITA) sites providing free income tax preparation for income-qualified households. Entergy has supplemented these sponsored sites with "a couple of hundred" company employees who donate their time as volunteers to help staff the sites.

Given its years of experience with EITC promotion, Entergy staff now says that they no longer need to "prove" the value of the effort to Entergy's management. The value of the tax refunds they help to generate is large and getting larger each year. According to Entergy, in 2023 alone, the Company's IRS-certified employees contributed more than 2,800 volunteer hours to help vulnerable customers prepare and file tax returns. This dedicated effort resulted in more than 37,000 Entergy customers benefitting from a total of $42.7 million in federal tax refunds facilitated by Entergy-sponsored

VITA sites. Since it began offering these services in 2011, Entergy has helped more than 185,000 families access $330 million in EITC refunds.

Q. WHAT DO YOU CONCLUDE?

A. The receipt of EITC benefits in the KPC service territory places substantial sums of money (an average benefit of more than $2,600) into the hands of low- and moderate-income households at the time of year in which those households may most need assistance in paying their KPC bills. Directing EITC benefits into the hands of low- and moderate-income households effectively serves as a source of "energy assistance" without using ratepayer dollars and without placing a further call on already constrained federal LIHEAP funding. Directing EITC benefits into the hands of KPC customers also generates a source of "energy assistance" to a population which, as I described early in my testimony, often faces payment problems even though they have income that is not sufficiently low to qualify for traditional sources of energy assistance. KPC should pursue the EITC outreach pilot project that I recommend above.

Q. DO YOU HAVE A THIRD RECOMMENDATION FOR HOW KPC SHOULD DELIVER BENEFITS TO LOW-INCOME CUSTOMERS?

A. Yes. I recommend that KPC expand its Tariff R.E.A. (Residential Energy Assistance) in the following ways:

1. The HEART assistance provided to participating low-income residential customers whose primary source of heating is electricity should be expanded from $115 per month to $150 per month;

2. The HEART assistance provided to participating low-income residential customers whose primary source of heating is non-electricity should be expanded from $58 per month to $76 per month;
3. The maximum THAW assistance that may be provided in January through April of any single calendar year should be expanded from $175 to $250.
4. The R.E.A. rate should be expanded from $0.40 per month to $0.75 per month.

The basis for these recommendations was presented in detail earlier in my testimony. In my discussion below, I simply summarize that data which has direct applicability to support my recommendations.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION TO EXPAND THE HEATING-BASED HEART ASSISTANCE FROM $115 TO $150 PER MONTH AND THE NON-HEATING HEART ASSISTANCE FROM $58 TOP $76 PER MONTH?

A. When the Commission approved an increase in the R.E.A. charge from $0.10 to $0.30 (Docket 2017-00179), that increase was justified as necessary for the programs previously approved by the Commission to "keep pace" with increases in Kentucky Power bills. When the R.E.A. charge was increased in Docket 2023-00159, no change was also made to the underlying benefits.

This is the time to increase not only the R.E.A. charge, but also to increase the benefits provided by the HEART and THAW programs, those programs supported by the

R.E.A. charge, in order to "keep pace." The data presented in detail above documents that:

- There was a 37% increase in KPC bills from 2020 through July 2025 (**Figure 1**);
- The price increases experienced by KPC residential customers through 2023 exceeded increases in income for Q1 customers in all but one KPC county (**Figure 3**);
- KPC bill increases have driven unaffordability to the point where for every 100 new Deferred Payment Arrangements which KPC customers enter into, 65 default. (Footnote 37 and accompanying text).
- The winter peak bill for heating customers has increased by more than $50 (from $259 in February 2024 to $312 in January 2025), with non-heating winter bills seeing a similar, albeit somewhat smaller, increase. (Figure 8).

On top of these *past* bill increases imposed by KPC on its residential customers, the rates proposed in *this* proceeding will increase annual bills by an additional $328.

While I discuss the affordability impacts of these high KPC bills in detail above, that discussion is not essential to approving the proposed changes I recommend. The Commission has already previously approved the reasonableness of both the HEART program and the THAW program. Moreover, the Commission has already previously approved the reasonableness of adjusting those programs in order to "keep pace" with ongoing increases in KPC rates (and, correspondingly, in KPC bills). It is not possible to reasonably conclude that there is not now a need to again make an adjustment in order to "keep pace" with the Company's bill increases.

Q. WHAT IS THE BASIS FOR YOU RECOMMENDATION TO EXPAND THE MAXIMUM THAW ASSISTANCE FROM $175 TO $250 PER YEAR?

A. One impact of the increasing bills I identify above is that the arrearages of KPC customers are increasing as well. An increase in the maximum THAW assistance is

needed in order for THAW to "keep pace" with these increasing arrears. The Company's data, which I have discussed in detail above, documents that:

- The average arrears of all residential customers in arrears has increased from $234 to $339 simply since October 2023 (Table 11).
- The dollars of residential arrears that are more than 60 days old has nearly doubled from October 2024 to September 2025 (Table 15).
- The average arrears at the time a residential customer defaults on a payment plan - –recognizing again that 65% of KPC's payment plans end in default—has nearly doubled from October 2023 ($345.17) to September 2025 ($671.41) (Table 16).
- In addition, the average arrears at the time of a residential disconnection has increased by 55% just since October 2023. (This data is set forth in the Table below.)

It is clear that the $175 limit on assistance provided through THAW is outdated and needs to be updated in order to continue to serve the purpose the THAW program was originally intended to serve.

Table 13. Average Residential Arrears at the Time of Disconnection for Nonpayment [59]

Month	Average Arrears at Disconnection
Oct-23	$ 602.55
Nov-23	$ 569.19
Dec-23	$ 517.09
Jan-24	$ 534.81
Feb-24	$ 584.95
Mar-24	$ 693.08
Apr-24	$ 610.94
May-24	$ 700.76
Jun-24	$ 708.55
Jul-24	$ 636.68
Aug-24	$ 586.10
Sep-24	$ 540.95
Oct-24	$ 587.77
Nov-24	$ 570.43
Dec-24	$ 546.94
Jan-25	$ 586.39
Feb-25	$ 666.49
Mar-25	$ 916.78
Apr-25	$ 873.13
May-25	$ 1,046.23
Jun-25	$ 928.42

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION TO EXPAND THE R.E.A. TARIFF RATE FROM $0.40 TO $0.75 PER MONTH?

A. The increase in the R.E.A. Tariff Rate is designed to reflect four things. First, the increase is needed to provide the additional assistance I have described above. Second, the increase is needed in order to maintain the proportion of a residential bill being

devoted to R.E.A. programs roughly constant over time. Third, the increase is needed in order to ensure that increases in KPC's contributions keep pace with increases in the ratepayer contributions. The Commission has previously approved a two-to-one Company matching of R.E.A. contributions. I do not propose any change in that matching which the Commission previously approved. Finally, the increase is needed to take into account the fact that KPC has a shrinking residential customer base. According to KPC's EIA Form 861, in 2020, the Company served 134,284 residential customers. By 2024, that residential customer base had declined to 130,852, while by July 2025, it had declined even further to 130,539. Given the shrinking customer base, along with the increasing need, as well as the decreasing effectiveness in the R.E.A. funds serving the purpose for which they were originally levied, it is appropriate to increase the R.E.A. charge to the extent I recommend.

Q. PLEASE EXPLAIN YOUR FOURTH RECOMMENDATION.

A. I recommend an expansion of the availability of the KPC Residential Service Time-of-Day rates to deliver financial benefits to low-income customers. KPC's tariff for "Residential Service Time-of-Day" provides:

> Available for residential electric service through a multiple-register meter capable of measuring electrical energy consumption during the on-peak and off-peak billing periods to individual residential customers, including residential customers engaged principally in agricultural pursuits. Availability is limited to the first 1,000 customers applying for service under this tariff.[60]

The significance of this tariff for purposes here is two-fold: (1) the tariff is "limited to. . .1,000 customers"; and (2) the Company serves customers on a first-come-first-

[59] JI 1-92.

[60] PSC KY 13 2d Revised Sheet No. 6, Tariff R.S.-T.O.D. (Residential Service Time of Day).

served basis. I recommend that each of these two elements be modified in the manner I describe below.

I recommend that KPC review the accounts of each of the Company's customers receiving energy assistance benefits through one of the programs which KPC use to establish low-income status. Through this review, KPC should identify energy assistance recipients on basic residential service who would receive a bill savings of no less than $50 through a switch to each Company's TOD rates based on the customer's current usage levels. Using this minimum savings would limit the impacts of volatility of small changes in usage affecting savings.

Upon a finding of projected savings of $50 or more, KPC should switch the energy assistance recipient to the TOD rate, while providing those customers with an opportunity, prior to the switch, to opt-out of the switch should they choose to do so. The optimal rate should be guaranteed for the customers that were switched. After a customer is on the new rate for 12 months, the rate switch should be compared to the basic residential tariffed rate. If the comparison proves it would have been better for the customer to have remained on the basic residential rate, KPC should switch the customer back to that rate and refund the difference (this review and refund would only occur for the first year).

Q. IS THERE ANY PRECEDENT FOR OFFERING TOD RATES AS A MECHANISM TO REDUCE LOW-INCOME BILLS AS A SUPPLEMENT TO GOVERNMENT-PROVIDED ENERGY ASSISTANCE?

A. Yes. A Wisconsin utility, Wisconsin Power and Light (WPL), uses such a program to benefit its low-income customers. Based on its experience with the WPL

switch of energy assistance recipients in the manner I recommend above, WPL found that fewer than 10% of the energy assistance recipients chose to opt out of the switch. Moreover, WPL reported that after a year, about 97 percent of customers projected to achieve savings through WPL's data modeling did in fact realize savings. Moreover, WPL found, customers could have achieved even greater savings if they were willing and able to adjust usage patterns during lower rate periods.

Q. WHAT ADVANTAGE DOES THIS PROPOSED REMEDY OFFER TO LOW-INCOME CUSTOMERS AND TO KPC?

A. KPC states that it does not maintain income data for its customers. However, KPC *would* know which of its customers are enrolled in LIHEAP (or any of the Company's other energy assistance programs), as qualified individuals must specifically apply for and be found eligible for those benefits. Accordingly, through this remedy, KPC could help address the affordability issues I have identified above irrespective of whether it maintains data on the actual income of individual customers. Moreover, this proposed remedy provides assistance to reduce low-income bills without need of providing non-cost-based discounts or assistance that might give rise to concerns about "discrimination." The reduced bills for low-income customers are no different from the reduced bills experienced by any other customer taking TOD service.

Q. IS THERE AN INTENDED SYNERGY BETWEEN THE RECOMMENDATIONS YOU MAKE IN THIS PROCEEDING?

A. Yes. There are strong synergies that flow throughout my testimony. The TOD initiative which I propose will deliver real dollars of benefits to low-income customers to offset, at least in part, the adverse financial impacts of the substantial increases in rates

over time which I discuss in detail above. The TOD initiative will deliver benefits independently of the funding of federal energy assistance (or the CSBG services which help deliver those energy assistance benefits). The low-income outreach program will help expand the population of energy assistance recipients which would serve as the foundation for moving low-income customers to TOD rates irrespective of federal energy assistance funding. Both the outreach program, and the TOD initiative, would yield the result of not only benefitting low-income customers, but also benefitting all customers by reducing the future costs of the AMP. And, finally, each of the recommendations I make will deliver financial benefits to low-income customers while at no point introducing the question of whether there exists a non-cost-based "subsidy" being provided to low-income customers.

Q. IS THERE A FINAL STEP THAT KPC SHOULD TAKE TO MAXIMIZE ITS ABILITY TO DELIVER LOW-INCOME ASSISTANCE?

A. KPC operates in a vacuum of knowledge about its low-income customers. Indeed, the Company stated that it could not even ***estimate*** the number of its customers with income at or below 150% of FPL since it does not maintain customers' annual income levels.[61] KPC stated that it does not maintain data on customer incomes and, accordingly, has never undertaken a study to consider the relationship of payment difficulties and the socio-economic status of customers.[62] While it substantially and routinely relies on collection activities such as nonpayment disconnections, and deferred payment arrangements, as a means to collect money, it has never established, nor even considered,

[61] JI 1-53.
[62] JI 1-127 and 1-128.

the extent to which, or even whether, those activities reduce residential bad debt, reduce residential arrears, or accelerate residential payments.[63] Despite its high failure rate for payment arrangements, it has never studied, nor even considered, *why* customers do not successfully complete payment arrangements.[64] It has never considered *why* customers do not contact the utility in response to shutoff notices,[65] let alone studied or considered the effectiveness of shutoff notices as a method of communicating with its customers in arrears.[66] It has never developed a study or report which: (1) characterizes patterns of nonpayment; (2) identifies the characteristics of nonpayers; (3) identifies predictors of nonpayment; (4) identifies strategies to reduce nonpayment; or (5) identifies early indicators of nonpayment.[67]

The Commission should direct KPC to remedy this complete lack of knowledge about its low-income customers. I recommend that, in consultation with the Joint Intervenors and other interested stakeholders, the Company should be directed to retain an independent firm to prepare, by no later than December 31, 2026, a customer segmentation study that examines the factors I identify above, disaggregated by socio-economic status: (1) patterns of nonpayment; (2) characteristics of nonpayers; (3) predictors of nonpayment; (4) strategies to reduce nonpayment; and (5) early indicators of nonpayment.

Such a study would be useful to help evaluate the need for and effectiveness of credit and collection practices and thus reduce not merely bad debt, but utility arrears

[63] JI 1-109, 1-110, 1-111, 1-112, 1-113, 1-114.
[64] JI 1-107.
[65] JI 1-105.
[66] JI 1-106.
[67] JI 1-98.

(and thus working capital) as well. The study would also inform programs such as affordability assistance, clean energy investments, energy efficiency investments, and energy assistance outreach as well. Each of these results yield positive benefits to all ratepayers.

C. Implications of Payment Difficulties for the KPC Pre-Payment Meter Proposal.

Q. PLEASE DESCRIBE THE PREPAYMENT METER PROPOSAL ADVANCED BY KPC.

A. My understanding of the prepayment meter program proposed by KPC is based on the testimony of witness Stevi Cobern. She explains that the prepayment meters proposed by the Company would require customers to deposit funds in advance to pay for energy as it is used. Witness Cobern explains that:

> Customers will receive notifications through their chosen communication method when their account balance hits zero, along with daily updates on their balance status. They will have until the beginning of the next business day to make a payment and restore a positive account balance. If no payment is made, the customer's meter will be automatically disconnected during regular business hours, which are 8:00 a.m. to 5:00 p.m. from Monday to Thursday, and 8:00 a.m. to noon on Friday, excluding Company-recognized holidays. Customers must ensure their payment covers any charges incurred during weekends, holidays, and moratorium periods.[68]

Q. SHOULD THE PREPAYMENT METER PROPOSAL BE APPROVED?

A. No. The prepayment meter program requested by KPC should be disapproved. Several reasons support this conclusion. First, the data discussed in detail above unquestionably supports the conclusion that using prepayment meters will

[68] Direct Testimony of Stevi N. Cobern on Behalf of Kentucky Power Company at 29 (Aug. 29, 2025) ("Cobern Direct").

disproportionately adversely affect low income consumers. All of the data, whether on a statewide basis or on a utility-specific basis, supports the conclusion that inability-to-pay resides primarily within the low-income population. In addition, the data I discuss above supports the conclusion that payment difficulties are increasingly reaching into more moderate income households.

Second, a prepayment meter does not match a customer's income or cash flow. Given the substantial seasonal variability in KPC bills, requiring customers to prepay for their service in order to retain service would thus impose a substantial hardship. Table 11 below shows KPC's mean and median bills (disaggregated by heating, non-heating, and total residential), and median arrears (of residential accounts in arrears) by month for the most recent 24 months available.

The data makes clear is the dangers associated with requiring prepayment of utility bills. Over the 24-month period, there are noticeable spikes in usage, bills and arrears. The two highest spikes occur in the winter heating season of both 2024 and 2025. Colder weather January and February, in particular, resulted in a corresponding spike in bills. A third spike in usage (and bills), even though lower, is evident in the middle of the hot weather season (July/August). The degree to which the median arrears track the median bills show that in the KPC service territory, there is at least a substantial

systemwide inability-to-pay these higher seasonal bills on a regular basis, let alone to prepay these high seasonal bills.

Table 14. KPC Median Usage, Median Bill, Median Arrearage for Most Recent 24 Months (shading only to improve readability)

	Mean Bill[69]			Median Bill[70]			Average Arrears (of those in arrears)[71]
Billing Period	Htg	Non-Htg	All Res	Htg	Non-Htg	All Res	
Oct-23	$119	$133	$128	$108	$124	$118	$234
Nov-23	$118	$154	$141	$104	$146	$131	$207
Dec-23	$133	$195	$172	$106	$185	$158	$224
Jan-24	$165	$256	$223	$123	$242	$200	$228
Feb-24	$175	$275	$238	$130	$259	$214	$306
Mar-24	$143	$208	$184	$115	$198	$168	$312
Apr-24	$127	$171	$155	$111	$163	$144	$273
May-24	$122	$144	$136	$111	$135	$127	$284
Jun-24	$140	$154	$149	$126	$140	$135	$241
Jul-24	$181	$188	$185	$166	$173	$171	$270
Aug-24	$186	$192	$190	$171	$177	$175	$301
Sep-24	$163	$171	$168	$148	$157	$154	$299
Oct-24	$128	$142	$137	$116	$131	$126	$252
Nov-24	$115	$145	$134	$104	$138	$126	$245
Dec-24	$168	$246	$217	$134	$227	$193	$236
Jan-25	$211	$334	$289	$155	$312	$258	$300
Feb-25	$203	$326	$281	$145	$304	$248	$399
Mar-25	$174	$268	$233	$133	$247	$205	$394
Apr-25	$129	$172	$156	$113	$163	$145	$405
May-25	$129	$154	$145	$117	$144	$134	$402
Jun-25	$141	$159	$152	$124	$144	$137	$366
Jul-25	$219	$228	$225	$200	$211	$207	$381
Aug-25	$231	$236	$234	$212	$218	$216	$408

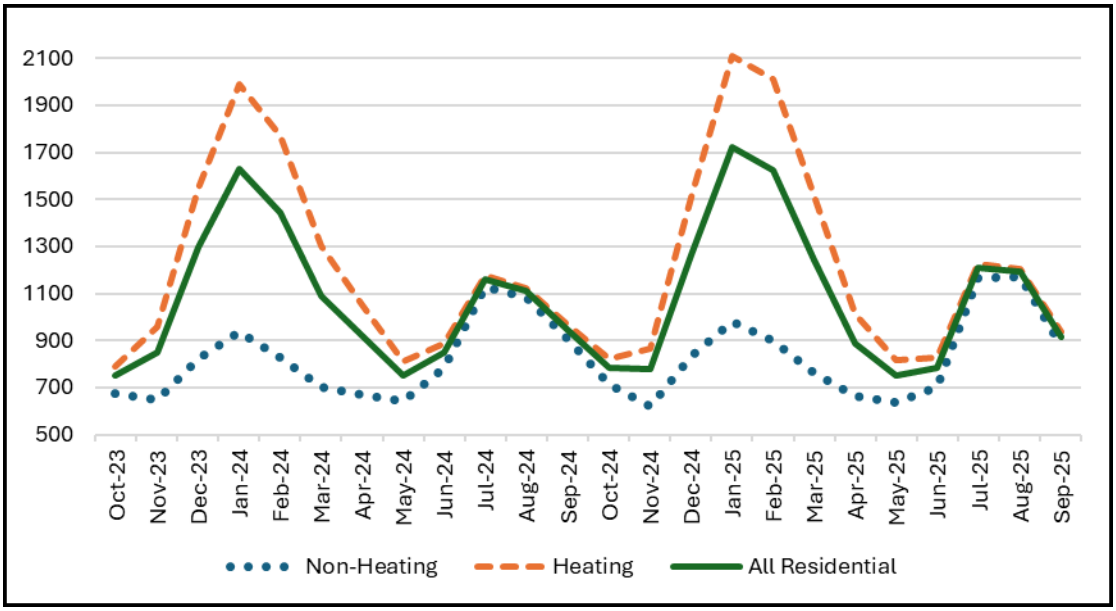
[69] JI 1-29.
[70] *Id.*
[71] JI 1-92.

Table 14. KPC Median Usage, Median Bill, Median Arrearage for Most Recent 24 Months (shading only to improve readability)							
	Mean Bill[69]			Median Bill[70]			Average Arrears (of those in arrears)[71]
Billing Period	Htg	Non-Htg	All Res	Htg	Non-Htg	All Res	
Sep-25	$181	$190	$187	$162	$173	$169	$339

The data can be seen pictorially in the Figure below. The Figure shows the fallacy of the Company's arguments in support of its prepayment proposal. The Company's testimony bears no relationship to reality. Company witness Cobern argues, for example, that through the program, "customers have increased control over the frequency and timing of their payments. . ."[72] She asserts that prepayment meters would "provide[…] customers of Kentucky Power with enhanced options regarding the timing and method of their electric service payments."[73] Neither of these statements is true or accurate. A customer facing difficulties in paying their monthly bills under traditional billing will face even greater difficulties under the proposed prepayment meter program. Under traditional billing, customers can choose which bills to pay and which bills to delay payment on. Under the proposed prepayment meter program, those customers lack that choice.

[72] Cobern Direct at 4.
[73] *Id.*

Figure 8. KPC Median Heating and Non-Heating Bills (most recent 24 months)



The assertion by the Company that prepayment meters will allow customers to better control their energy consumption ignores the inability of low-income customers to engage in such energy-saving behavior. It is easy to create the image of people turning off lights, turning down thermostats, and taking other affirmative steps to control consumption by behavioral changes. In addition, it may be easy to create the image of a vast savings potential that would arise if low-income households only turned off "wasteful" appliances. However, it is not the number of new appliances, but rather the

age, condition and energy efficiency of basic appliances, as well as the age, condition and efficiency of the housing structure itself, that drives low-income consumption levels.

Q. DO CUSTOMERS REALLY MAKE THE CHOICE TO DELAY PAYING THEIR KPC BILLS IN ONE MONTH ONLY TO PAY THOSE BILLS IN THE NEXT MONTH?

A. Yes. KPC provided limited data on the aging of arrears for its residential customers.[74] That data is presented in the Table below. The Table shows the extent to which customers may make a choice to delay payment of their KPC bill, only to make-up that payment in the next month. In both 2024 and 2025 (October 1), the dollars of arrears falling in the aging bucket of 1 to 30 days old dramatically dropped by the next month. Arrearages dropped even further between the aging bucket of 31 to 60 days old and 61 to 90 days old. Rather than providing customers with greater flexibility, and with more choice on when to pay their bills, the Company's prepayment meter program removes the customer's choice altogether. If customers cannot pay immediately when energy is used, the service to that customer is terminated.

Table 15. Residential Arrears by Age of Arrears (arrears <90 days old)

	October 1, 2024			October 1 2025		
	Arrears [30 Days]	Arrears [60 Days]	Arrears [90 Days]	Arrears [30 Days]	Arrears [60 Days]	Arrears [90 Days]
10 (non-heating)	$745,053	$174,588	$64,516	$1,011,550	$266,004	$106,891
20 (heating)	$1,272,398	$261,515	$112,784	$1,657,415	$415,907	$185,570
Grand Total	$2,017,451	$436,103	$177,300	$2,668,964	$681,910	$292,462

[74] JI 1-60.

Q. ARE PREPAYMENT METERS REQUIRED IN ORDER FOR A CUSTOMER TO MAKE MULTIPLE PAYMENTS IN A MONTH TO ALIGN PAYMENTS WITH CASH FLOW?

A. No, there are no practical limits on the number of payments a customer may make even without a prepayment meter. When KPC was asked to provide a complete list of all existing restrictions on the number of payments a customer is allowed to make each month, it responded that "The Company's third-party payment vendor, responsible for processing phone and select online payments, has restrictions that include: a residential customer may make a maximum of four payments in a single day and 25 payments within a 30-day period. These measures are implemented as a fraud prevention strategy to protect both the customer and the Company."[75] In other words, without needing to place themselves at the risk a prepayment meter creates for a customer, if a customer wants to make multiple payments in any particular month, for whatever reason, they are entirely allowed to do so.

Q. DO YOU HAVE ANY ADDITIONAL OBSERVATION ABOUT THE COMPANY'S PREPAYMENT METER PROPOSAL?

A. Yes. One adverse impact of prepayment meters involves the extent to which customers will self-disconnect their utility service by failing to purchase additional energy when that energy becomes unaffordable. In this circumstance, the disconnection of service is not avoided, but rather merely "hidden" from regulatory and public oversight. A self-disconnection occurs when, rather than having a utility disconnect service for nonpayment, a consumer's meter runs out of money and, because the

[75] JI 1-27.

consumer lacks the necessary resources, the consumer fails to purchase additional energy to keep the meter operating. As a result, the flow of electricity into the housing unit stops.

The concern in this regard appears to be well-founded. Great Britain has more than four million customers who use prepayment meters. A 2022 study provided to the Great Britain House of Commons defined a "self-disconnection" as "when a consumer with a prepayment meter does not have enough money to top-up their meter and their meter cuts out, or when they do not realize that credit on the meter."[76] This study found that in 2020, 4.3 million residents had prepayment meters in Great Britain.[77] The study cited a study by OFGEM (the utility regulatory body in Great Britain) as finding:

> . . .1 in 7 customers self-disconnected during 2019, and more recent data from Citizens Advice shows these numbers could be higher. Evidence shows that around half of those who are self-disconnecting appear to experience a negative impact. This could be a physical impact such as living in a cold home and/or emotional impact which includes financial distress. Some groups will generally be more affected than others such as households including children and/or the elderly.[78]

[76] Adcock, et al. *Self-Disconnection of Prepayment Meters* (Dec. 2022).
[77] Ofgem, *Decision – Decision on self-disconnection and self-rationing* (Oct. 19, 2020), at 6.
[78] *Id.* (internal notes omitted).

The House of Commons study reported that "The number of people Citizens Advice had seen in 2022 (up to October) who were unable to top up their [prepayment meter] was more than for the whole of the previous five years combined."[79]

Q. PLEASE RESPOND TO THE COMPANY'S ARGUMENT THAT PREPAYMENT METERS HELP CUSTOMERS ALIGN THEIR KPC PAYMENTS WITH THEIR CASH FLOW.

A. Company witness Cobern argues that with a prepayment meter, "customers can select methods and schedules that best fit their personal circumstances. They can opt for smaller, more frequent payments that align with their cash flow, rather than a single larger monthly payment." She finally asserts that a prepayment meter "helps customers avoid unexpected high bills. . ."[80] There is no basis to those arguments, and no truth to those arguments. Witness Cobern certainly has provided no basis for these assertions and no facts to demonstrate their truthfulness. A customer's "cash flow" does not increase in the peak billing periods identified above simply because KPC is billing on a pre-payment basis. Customer cash flows in the winter high bill months do not double simply because the doubled KPC bill is being billed on a prepayment basis.

Moreover, the Company has no foundation upon which to make such claims. Specifically referencing Cobern's claims of prepayment meters "aligning" payment with customer cash flows, KPC was asked to "provide all empirical studies done by or on behalf of the Company since January 2021: (a) Identifying the monthly cash flows for the Company's customers; and (b) Identifying the monthly cash flows for the Company's

[79] Adcock, supra, at 3.
[80] *Id.*

customers disaggregated by source of income." KPC conceded that "The Company does not have access to information regarding its customers' monthly cash flows or its customers' source of income and, therefore, there are no studies responsive to this request."[81]

Q. ARE THERE REGULATORY PROBLEMS WITH THE IMPLEMENTATION OF PREPAYMENT METERS?

A. Yes. There are several regulatory problems with the implementation of prepayment meters. First, any prepayment meter program that is adopted by state regulators should be accompanied by discounts provided to participants in the program. A prepayment meter program not accompanied by discounts should not be approved. Discounts accompanying prepayment meters are justified on two different grounds. On the one hand, prepayment meter customers impose fewer costs on a utility system, which limited costs should be reflected in lower rates. If nothing else, in addition to contributing to credit and collection expenses, by definition, customers using prepayment meters would impose fewer working capital expenses.

On the other hand, prepayment meters constitute a "lesser" service that should, accordingly, be accompanied by a lesser charge. There is no question but that a company using prepayment meters will impose a stricter payment requirement, and less payment flexibility, on customers using prepayment meters than it does on its customers using traditional billing. Traditional billing does not result in the immediate pursuit of collections if a bill is not paid. All public utilities operate under what is called a "treatment amount." Under the treatment amount, the utility will undertake no collection

[81] JI 1-28.

activity until an arrears reaches a certain size or age (or a combination of the two). The difference between the median arrears carried by customers[82] and the average arrears at the time of disconnection,[83] demonstrates that KPC utilizes such a treatment amount as well.

This payment flexibility is lost under the prepayment meter initiative. When the meter runs dry, service is discontinued. With prepayment meters, in other words, the option is never provided to the customer to manage his or her money to address household necessities. When the meter runs dry, a payment must be made irrespective of other household financial necessities or the electric service is terminated. This requirement is not placed on other customers.

Under current practices, to be cost-effective, the Company will limit its service termination process to arrears of much greater age and magnitude. Not all residential customers in arrears have their service disconnected. Not all customers receiving a disconnect notice have their service disconnected (even if no payment is made). In contrast, customers on prepayment meters will receive no such dispensation.

Prepayment meters impose substantial limitations on a customer's decisions regarding bill payments. Prepayment meters do not allow a customer to make short-term budget decisions on whether to delay payment of one bill in order to meet other household necessities. The data provided by KPC on its own aging of arrears shows that the vast majority of its arrears do not represent a risk of loss to the company. Few 30-day

[82] JI 1-13.
[83] JI 1-47(n).

arrears become 60-day arrears. And even fewer 60-day arrears become 90-day arrears. In those instances, a customer's service is not placed in jeopardy under traditional billing.

With prepayment meters, however, the option is never provided to the customer to manage his or her money to address household necessities. When the meter runs dry, a payment must be made irrespective of other household financial necessities or service is terminated. This requirement is not placed on other customers. This lack of flexibility is a particular problem for low-income and low wage customers. Low-income and low wage customers live at or below the line of economic viability. Even at the low wage jobs (setting aside the low-income population for a moment), if the ten year old automobile needs a new muffler, or if the four-year old child gets sick (requiring the parent to miss two or three days of work), there is no financial cushion. Under traditional billing, these customers do not place their energy service in jeopardy because of a broken refrigerator or a childhood illness. Under the prepayment meter, they do.

Q. IS THERE AN ADDITIONAL REGULATORY PROBLEM WITH PREPAYMENT METERS?

A. Yes. At common law, public utilities may not discontinue service until after giving notice in accordance with the terms of the contract between the consumer and the utility. It may be true that KPC has the right under its contract to shut off the supply of utility service to compel payment of amounts already due. It is equally true, however, that a utility may not do so until after giving notice in accordance with the terms of the contract. Thus, it may be argued that a utility's common law right to terminate service to

enforce payment is conditional upon its duty to notify the consumer of its intention to do so prior to exercising that right.

After the relationship with a regular customer is established, the customer having made his outlays in the premises, and, in view of the loss, inconvenience, discomfort, and maybe hazard to health, involved in a sudden discontinuance of service without warning, the general laws touching the reasonableness of rules, or discontinuance without notice, on the part of a public utility, are not the same as applied to many forms of contract, wherein a breach on the part of one clothes the other with a right to terminate immediately. Indeed, a contract by a public utility with its customer is an agreement to furnish service for an indefinite period of time. An implied term of such a contract is that service will not be suddenly terminated without reasonable notice. Even if the consumer has the right to contest the service disconnection, that consumer still has the right to receive prior notice. Regardless of whether a customer has a right to contest the discontinuance of service, they certainly have a right to know that service was being discontinued to enable them to protect themselves from the very damages that did occur.

While I do not propose that public utilities are insurers or guarantors of the safety of persons or their property, I do assert that there is a duty on the part of KPC to protect its customers from foreseeable damage from the failure of electricity service.

Q. IS THERE A FINAL REGULATORY PROBLEM THAT YOU WISH TO ADDRESS?

A. Yes. The use of prepayment meters would eliminate important regulatory safeguards protecting consumers against the unnecessary or unreasonable termination of service. In Minnesota, for example, Otter Tail Power Company implemented a

prepayment meter program without seeking variances from a variety of shutoff protections promulgated by the PUC. Indeed, the commission noted that in implementing the program, the "company emphasize[[d] that the validity of the information gained from the project depended in large part on the customer's understanding the finality of their situation, i.e., that they must pay 'on delivery' and that when that 'delivery' is used up, they will be 'out of' electricity without further notice."

The Minnesota PUC then found that Otter Tail Power's prepayment meter program violated the following shutoff protections: (1) permissible reasons for disconnecting service; (2) disconnect notice requirements; (3) required premise visit; (4) emergency reasons to suspend disconnections; (5) information provided in billing; and (6) declaration of inability to pay and cold weather protections.

In each instance above, the preshutoff duty of the public utility extends beyond making available an opportunity for the customer to pay his or her bill. A public utility's duties are, of course, defined by Commission regulation. Those duties might require a reasonable time within which to apply for fuel assistance; an opportunity to pay an arrears over an extended period of time; and an opportunity to prevent disconnections due to a medical emergency. In addition, consumers are entitled to reasonable notice of these rights and remedies before the utility terminates service. Finally, irrespective of the right

of a consumer to dispute the service disconnection, the consumer has a right to written pretermination notice.

Q. HOW DOES THE COMPANY RESPOND TO THESE REGULATORY PROBLEMS?

A. KPC witness Cobern does not address the regulatory problems that I have identified above. Indeed, witness Cobern has at least acknowledged the fact that the prepayment program is at odds with Commission notice requirements when she requests a waiver of 807 KAR 5:006, Section 15(1)(f) (Refusal or Termination of Service) which regulation requires a utility to mail or otherwise deliver an advance termination notice.[84]

Overall, however, the testimony of witness Cobern does not address many, if not most, of the regulatory problems posed by the proposed prepayment program. I conclude that the prepayment meters proposed by witness Cobern do not meet the pre-disconnection notice requirements imposed on the Company, or the other regulatory requirements I discuss above. The Commission should so find, and the Company's request for a deviation from the Commission's regulations should be denied.

Q. IS THERE ANY REASON TO FIND THAT KENTUCKY POWER'S REQUEST FOR APPROVAL OF ITS "FLEX PAY" PROGRAM IS PREMATURE AT THIS TIME?

A. Yes. KPC witness Cobern states that "Kentucky Power's FlexPay program will be available to all residential services equipped with an AMI meter, except for those under Schedule Residential Demand-Metered ("R.S.D.")."[85] However, in response to discovery

[84] Cobern Direct at 15.
[85] *Id.* at 5.

from the Joint Intervenors in this proceeding, Kentucky Power stated "The Company has not yet installed the AMI meters authorized by the Commission in Case No. 2024-00344. . ."[86] Given that the Company has not undertaken to install the AMI meters which are a pre-requisite to participation in the prepayment program, it is inappropriate to consider the reasonableness of the program based on such installation. How the reasonableness of the prepayment program could be determined in the absence of anyone who is qualified to participate is questionable at best.

Part 3. KPC Should be Directed to Implement an Arrearage Management Program (AMP).

Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY.

A. In this section of my testimony, I recommend that KPC be directed to implement a means-tested Arrearage Management Program (AMP). Through such an AMP, not only will the Company address its non-collection of long-term arrears, it will also improve the collection of future bills for current service as well.

A. The Recommended Structure of a KPC AMP.

Q. PLEASE EXPLAIN THE DOCTRINE SUPPORTING ADOPTION OF AN AMP.

A. An arrearage management program is designed to reduce pre-program arrears over an extended period of time in exchange for a customer's continuing payment of bills for current service. Through an AMP, a customer earns credits toward his or her preprogram arrears over a period of time, so long as the customer remains on the

[86] JI 1-93.

program. By the end of the time period, the household's preprogram arrears will be reduced to $0.

The objectives of an arrearage management program include:

- To reduce bills for income-qualified customers to a level where they are sustainably payable without imposing undue hardships on the customer's household. Sustainable payments made without undue hardship involve payments made from current household resources without placing utility bill payment in undue competition with payments for other household necessities and without requiring the household to take undue coping actions.

- To reduce bills for income-qualified customers to a level where they are sustainably payable as reflected in month-to-month payment patterns to the utility. Payment patterns include the extent to which bill payments are complete, timely, regular, and unprompted (*i.e.*, made without collection intervention by the billing utility).

- To reduce bills for income-qualified customers to a level where the billing utility receives a tangible improvement in bill collectability with quantifiable reductions in utility expenses associated with collection expenses, working capital, uncollectibles, and related enhanced or preserved revenue streams.

Q. HOW SHOULD A KPC AMP BE STRUCTURED?

A. While some utilities simply forgive all bill balances brought into the AMP at the time the program begins, most utilities provide arrearage management over an extended period of time. A KPC AMP should forgive arrears in a pro rata fashion over a 24-month period. Arrearage credits are earned on a monthly basis. The AMP is directed toward

customers who have an outstanding arrears of $180 or more at the time they enroll in the program.

Q. IS THE FORGIVENESS OF ARREARS MADE DEPENDENT ON FULL AND TIMELY PAYMENT OF FUTURE BILLS?

A. Not entirely. While at first blush, it may seem desirable to make the grant of credits toward preprogram arrears contingent upon full and timely payment of current bills,[87] there are both policy and operational reasons *not* to do this.

- First, there are the operational issues. To implement such a contingent credit, KPC would need to develop an information system process that determines, on a monthly basis, whether the full bill has been paid in a timely fashion. Depending on the answer to that inquiry, different bills will be generated by the utility (either one reflecting an arrears credit or one not reflecting such a credit).

- Second, from a policy perspective, program administrators have learned that the best "incentive" for making full and timely payments is to have customers taking service pursuant to the AMP be subject to the same credit and collection processes as all other customers. In addition, creating layer upon layer of "incentives" for payments clouds the fundamental underlying proposition. That proposition posits that, in recognition of the underlying unaffordable burden posed by utility bills at standard residential rates, the customer is allowed to take service under a process which allows them to get out from under their arrears in exchange for future bill payment.

Accordingly, arrearage management credits should be granted for each full and timely payment made by the AMP participant. *In addition*, in the event an arrearage management credit is not provided because of a missed or incomplete payment in a particular month, that credit should be provided retroactively as soon as the AM participant completes payment of the bill. The objective of such a policy is to prompt customers to continue to make *some* payment on their bills even if they cannot afford to

[87] When universal service programs were first designed, there was a tendency to think of credits toward preprogram arrearages as an "incentive" for low-income customers to make their current bill payments on a full and timely basis. That belief has since been largely abandoned.

make a full and timely payment. A partial payment, which is subsequently later completed is a better payment outcome for both the utility and the customer than for no payment to be made at all.

Q. PLEASE EXPLAIN WHO WOULD BE ELIGIBLE TO PARTICIPATE IN AN AMP?

A. KPC should make the AMP available not only to a customer who has an unpaid balance but remains on the system, but also to a customer who has had service previously disconnected for nonpayment. The objective of the overall program is to address pre-existing arrearages in a way that generates a stream of revenue to KPC and generates offsetting cost savings such as the reduction in bad debt and/or working capital through the reduction of pre-existing arrearages. Whether those arrears are associated with a customer who has had service disconnected for nonpayment, or a customer whose service remains active, does not affect the ability of the AMP to achieve those objectives. AMP participation would be limited to customers who have received benefits through the federal LIHEAP program, or through an REA-funded program (HEART, THAW), or through a government- or ratepayer-funded means-tested energy efficiency program.

In sum, late and/or incomplete payments do not result in a loss of arrearage management credits so long as those payments are later cured. Continuing nonpayment under the proposed AMP will place the program participant in the same collection process as would be faced by any other customer in a similar situation.

Q. HOW WOULD CUSTOMERS ENTER THE PROPOSED AMP?

A. I recommend that KPC adopt the same enrollment process that was adopted by WPL (and approved by the Wisconsin PSC) for that Company's AMP. Under the WPL

program, customers who meet the minimum arrearage requirements are automatically enrolled in the AMP subject to an opt-out provision should they choose not to participate. Customers are enrolled if they have received benefits from either the federal Low-Income Home Energy Assistance Program (LIHEAP) or the state's Wisconsin Home Energy Assistance Program (WHEAP) in the current program year. Due to uncertainties in federal funding –as I describe in detail above—a proposal is currently pending to enroll customers who have received LIHEAP and/or WHEAP in this program year or either of the two immediately preceding program years. In addition, WPL has proposed –which proposal was approved by the Wisconsin PSC in October 2025—that AMP benefits be available to participants in a wider range of energy assistance program (e.g., weatherization, hardship funds). In contrast, customers who have previously had their service disconnected for nonpayment would be enrolled at the time they seek reconnection. At that time, the customer would be in direct contact with the Company.

Given that KPC uses the receipt of a variety of energy assistance programs to identify their low-income customers,[88] there would be a number of doors through which a customer could enter the AMP. KPC need not know the dollar income of any particular customer in order to participate in AMP. If the Company knows that the customer has participated in, or received benefits through, one of the programs that it currently tracks, it would also know the customer is eligible for AMP.

Q. IS THERE A FINAL ELEMENT TO THE STRUCTURE OF AN AMP?

A. Yes. Income-qualified customers taking service under the AMP should make a monthly copayment toward preprogram arrears. In this fashion, customers with minimum

[88] JI 1-50.

levels of payment troubles will not receive credits toward their arrears. In addition, in this fashion, AMP customers will bear some responsibility for their preprogram debt.[89] A copayment of $7.50 per month is deemed to be reasonable.

This program component, of course, has implications for who is "eligible" to participate in the AMP. A $7.50/month copayment over 24 months is a $180 customer payment. Accordingly, only customers with a pre-program arrearage balance exceeding $180 would be eligible to earn arrearage forgiveness. Moreover, based on data provided by KPC, it is clear that an arrearage of $180 would exceed the maximum average monthly arrears in any given month within the most recent 24 months for which data is available.[90]

Q. PLEASE SUMMARIZE THE AMP YOU PROPOSE FOR KPC.

A. In sum, the following components of a recommended AMP for KPC are recommended:

- Arrears are to be retired through *pro rata* credits over a two-year period, with 1/24th of the pre-existing balance forgiven for each complete payment;
- Customers are to make minimum, but meaningful, copayments toward their arrears ($7.50/month);
- One implication of a $7.50/month copayment is that only customers with a pre-existing arrearage balance exceeding $180 will be eligible to receive arrearage forgiveness.
- No pre-condition is established for participation in the arrearage management program component. The arrearage management program should be made

[89] However, some utilities have decided that the cost of developing a billing capacity for the customer copayment is not merited by the amount of revenue produced by the copayment process. These utilities provide credits toward 100% of the preprogram arrears.
[90] See, Table 14, supra.

available both to customers who are active and to customers who have had service disconnected and are currently off-system;

- Arrearage management credits are to be made for each full and timely payment made toward a current bill. *In addition*, retroactive credits should be made in the instance of a missed or incomplete payment when a participant complete payment toward a prior bill;

- The appropriate response to continuing nonpayment is to place the program participant in the same collection process as any other residential customer; and

- Program participants are not removed from the program as a consequence of nonpayment. Instead, program participants are subject to the same collection interventions as any other residential customer would be subject to.

Q. HOW DO YOU PROPOSE KPC RECOVER THE COSTS OF YOUR PROPOSED AMP?

A. I recommend that KPC collect the costs of its AMP through a reconcilable surcharge. The surcharge would reconcile actual expenditures on an annual basis to the projected expenditures. Under-payments and over-payments are rolled into the surcharge in the next fiscal year.[91]

I recommend a reconcilable surcharge because it will be difficult to project with accuracy what the costs of the AMP are a year in advance. The costs of the program are driven by a number of factors that may change from year-to-year. Those factors include not merely the number of program participants in a given year, but also the level of arrears subject to forgiveness and the degree to which AMP participants make complete payments. Program costs may also be driven by the cost of fuel. If electric rates go up or

[91] Pennsylvaniaa's energy utilities have nearly universally adopted an "offset" for reduced bad debt and working capital to be applied to their reconcilable surcharge. Similarly, the Philadelphia Water and Sewer Board has determined that the reduction in revenue associated with the arrearage forgiveness elements of its low-income rate have already been incorporated into rates and thus do not merit separate recovery. Othe utilities, however, do not separately track the offsets, but rather capture changes in revenues and expenses in the determination of revenue requirement in a rate case.

down, the costs of the program will likely mirror those increases or decreases. In order to assure that KPC recovers the costs of its program, but only the costs of its program, I recommend cost recovery through a reconcilable surcharge.

B. The Regulatory Basis for Adopting a KPC AMP.

Q. DOES ADOPTION OF AN AMP HAVE A SOUND BASIS IN TRADITIONAL REGULATORY PRINCIPLES?

A. Yes. An arrearage management program component is necessary to help get low-income customers "even" so they have a chance at future success in making payments. It makes no difference to have *current* bills be affordable (e.g., through a program such as HEART) if the household is subject to service termination for *past due* bills incurred before the program began (known as preprogram arrears). In addition, it makes no sense to have *current* bills be affordable if the *total* bill is unaffordable due to payment obligations required to retire past arrears.

In addition to these impacts to customers, an AMP can be expected to help KPC generate revenue and to control costs. This reference to the need to generate revenue and minimize costs is not simply to minimize credit and collection costs. Imposing an obligation on customers to retire the entirety of pre-discount balances, when customers do not have the ability to do so, will not only place the collection of those balances in jeopardy, it will also place the ability of customers who would otherwise be able to

maintain future payments in jeopardy of having service disconnected. The result will be to deny KPC future revenue that it need not have lost.

Q. CAN YOU ILLUSTRATE?

A. Yes. First, consider what Wisconsin Electric Power Company (WEPCO) reported with respect to its arrearage forgiveness program (called the Low-Income Forgiveness Tool, LIFT). In the Wisconsin Staff Memorandum examining the reasonableness of WEPCO's request to make LIFT a permanent program,[92] the Wisconsin PSC Staff observed that "the Joint Applicants have found that 'the LIFT program has resulted in the collection of over $13 million in customers payments of arrears balance that likely would not have been recovered and would have become bad debt.'" According to the PSC Staff, "the Joint Applicants stated that 'they believe 100 percent of the LIFT 'pre-program arrears' would been written off over time without the implementation of the LIFT program.'" In presenting its LIFT proposal, WEPCO stated in relevant part that "The payment data reviewed while preparing this response illustrates that the average annual customer payments received per account over a four year period (3 years prior to LIFT being implemented and the first year that LIFT was implemented) was (*sic*) never sufficient to cover the customer's annual current energy consumption charges, let alone enough to reduce arrears."

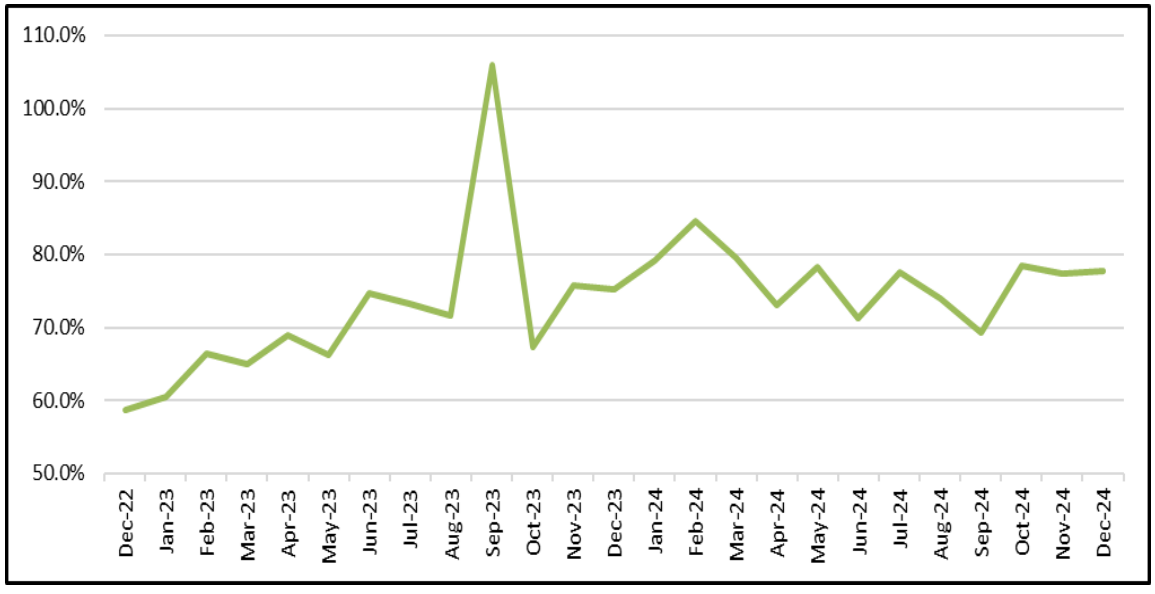
In addition, in 2024, I was hired by the New Hampshire state energy office to assess the impacts of the AMP, called "New Start," implemented by Eversource Utilities

[92] Joint Application of Wisconsin Electric Power Company, Wisconsin Gas LLC, and Wisconsin Public Service Corporation for Approval of Tariffs Related to the Low Income Forgiveness Tool Program, Wisconsin Public Service Commission Docket 5-TU-100 ("Wisconsin PSC Docket 5-TU-100", full docket *available at* https://apps.psc.wi.gov/APPS/dockets/content/detail.aspx?id=5&case=TU&num=100), Staff Memorandum (Nov. 20, 2023), https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=%20485457.

in that state. The impacts of New Start on low-income payment patterns are shown in the Figures below.

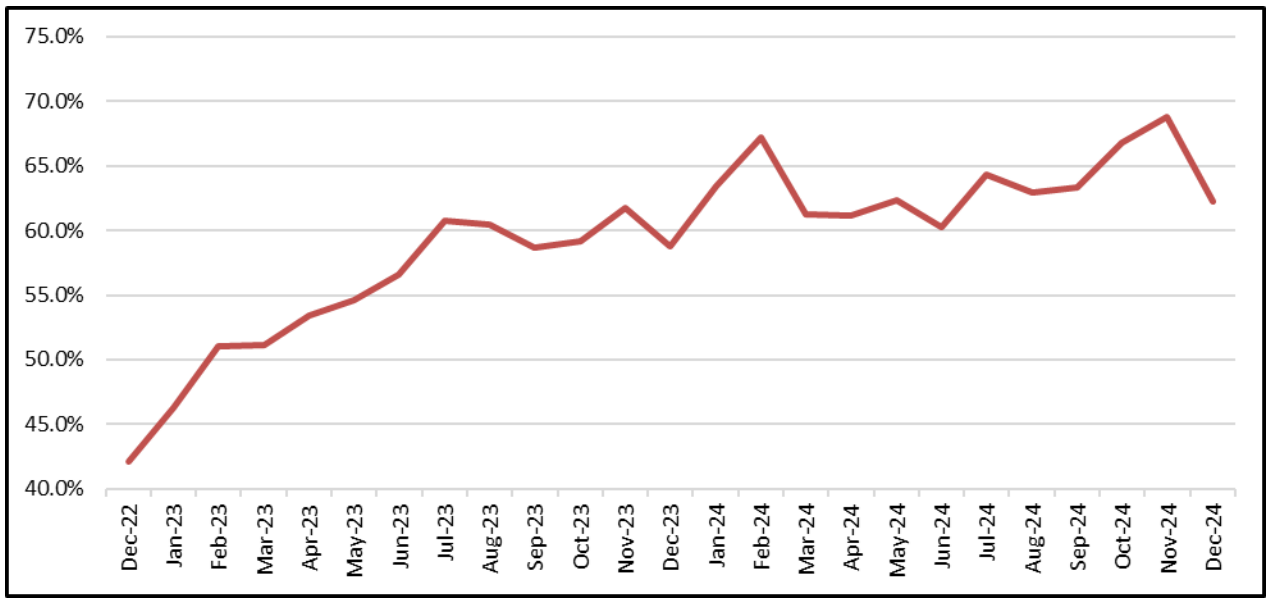
The percentage of New Start accounts in arrears was found to be declining over time. One reason for that result is that New Start customers are increasingly paying a higher portion of their bill each month. The "payment coverage ratio" is a simple ratio, with the *dollars of bills* placed in the denominator and the *dollars of payments* placed in the numerator. Figure 9 below (using New Hampshire data) shows the New Start Payment Coverage Ratio by month for December 2022 through December 2024. Even setting aside the unexplained result in September 2023 (payment coverage ratio of 106%), the increase in the proportion of current bills being paid by New Start participants is evident. While New Start participants paid only 60% of their current bill in December 2022, by 2024, the New Start payment coverage ratio was consistently over 75%, with the ratio leveling out near 80% in the last three months of 2024.

Figure 9. New Start Payment Coverage Ratio



Finally, similar to the Payment Coverage Ratio, the New Start Payments-to-Bills Ratio has seen a steady increase since the inception of the program. The Figure below shows that while New Start participants were making roughly 40 payments in response to each 100 bills that Eversource issued to them when they entered the program, by January 2024, the Ratio had increased to more than 60 payments for each 100 bills, and by July 2024, the ratio had increased to 65 payments for each 100 bills. There has, in other words, been more than a 50% increase in the rate at which New Start recipients make payments in response to each bill they receive from Eversource.

Figure 10. New Start Payments-to-Bills Ratio



In short, as with the Wisconsin utilities, the Eversource AMP in New Hampshire resulted in significant improvements in bill payment patterns for the low-income customers. Similar results would be expected for KPC.

C. The Empirical Basis for a KPC AMP.

Q. HAVE YOU HAD AN OPPORTUNITY TO ASSESS THE EMPIRICAL BASIS FOR ADOPTING AN AMP BY KPC?

A. Yes. The data provided by KPC allows several conclusions to be drawn. First, it is unquestioned that KPC bases its reserve for uncollectibles (sometimes referred to as write-offs or bad debt) based on the age of its arrears.[93] Based on this, I sought to examine the aging buckets for KPC arrears. KPC, however, asserts that the Company's billing system does not maintain data on the aging of arrears stated either in the dollars of arrears,[94] or stated in the number of accounts in arrears.[95] It is generally accepted, however, that once an account has an arrears of 90 or more days old, the likelihood that that account will remain in arrears increases significantly. In this regard, KPC has a growing arrearage problem. The data on arrears that are 90+ days old as of October 1 of 2024 and October 1, 2025 is set forth in the Table below. As the Table shows, the percentage of total residential arrears that are 90 days old or older has doubled from October 1, 2024 to October 1, 2025. This doubling of very old arrears is consistent with the increasing unaffordability of bills that I discussed in detail above.

Table 16. Percent of Arrears Age 1 Day or Older Represented by Arrears Age 90 Days or Older (October 1 202 & October 1, 2025)[96]

October 1, 2024		October 1, 2025	
Service	Pct Arrears >90 Days Old	Service	Pct Arrears >90 Days Old
Non-Heating	5.7%	Non-Heating	11.2%
Heating	3.3%	Heating	6.7%

[93] JI 1-74.
[94] JI 1-75.
[95] JI 1-76.
[96] JI 1-60.

Total Residential	2.1%	Total Residential	4.2%

Q. HOW DO DEFERRED PAYMENT ARRANGEMENTS AFFECT THE AGING OF ARREARS?

A. KPC cannot reasonably argue that retaining arrears on customer accounts will allow them to be collected through deferred payment arrangements rather than having them forgiven through an AMP as I propose above. While there is no question that KPC collects *some* money through deferred payment arrangements, the Company loses far more money to defaulted payment arrangements than it collects. I discussed the ineffectiveness of the Company's payment plans in detail above.

Q. WHAT RETURN WOULD KPC RECEIVE THROUGH AN AMP?

A. KPC will receive an almost immediate return on its investment in an AMP. By definition, customers who qualify for an AMP are customers who are not making payments to retire their bills for current service, let alone making payments toward their unpaid balances. KPC will receive a positive return on its AMP for the same reasons a utility such as Wisconsin Electric Power Company (WEPCO) found that it receives a positive turn on its AMP discussed above (called the Low-Income Forgiveness Tool, or LIFT). WEPCO has previously stated that customers who became LIFT participants were, prior to their participation in LIFT, not paying their entire bill for current service.[97] In approving WEPCO's AMP, the Wisconsin Commission specifically cited the factual representation by WEPCO that "the LIFT program has resulted in the collection of over $13 million in customer payments of arrears balances that likely would not have been

[97] Docket 5-TU-100, Walnut Way Comments, Ex.-WW-Colton-21 (Dec. 04, 2023), https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=486266.

recovered – and otherwise would have become bad debt expense – without the LIFT program."[98] WEPCO told the Commission Staff that:

> the LIFT program provided benefits to the program participants while being cost neutral to the non-participating customer base. The payment data reviewed while preparing this response illustrates that the average annual customer payments received per account over a four year period (3 years prior to LIFT being implemented and the first year that LIFT was implemented year) was never sufficient to cover the customer's annual current energy consumption charges, let alone enough to reduce arrears.[99]

For KPC to generate a positive return the payments the Company would receive through the AMP over 24 months would need to equal more than one-third of the arrears which KPC would forgive over that same time period.

The KPC AMP I recommend is designed to generate this positive return. According to KPC, it loses far more dollars than it collects through its deferred payment arrangements. Data on the Company's defaulted payment arrangements is set forth in the Table below. Under the AMP, the AMP credit is not provided (i.e., the AMP cost is not

[98] Wisconsin PSC Docket 5-TU-100, Final Decision, at 13, 16 (Feb. 28, 2024).
[99] Wisconsin PSC Docket 5-TU-100, WEPCO Response to Staff Data Request 2-PSC-KM-24 & Attachment (Jul. 05, 2023).

incurred) unless and until the AMP copayment has been made. Accordingly, the losses which KPC is incurring through its payment arrangements will be avoided.

Table 17. Number of Defaulted Payment Arrangements and Average Dollars at Time of Default [100]

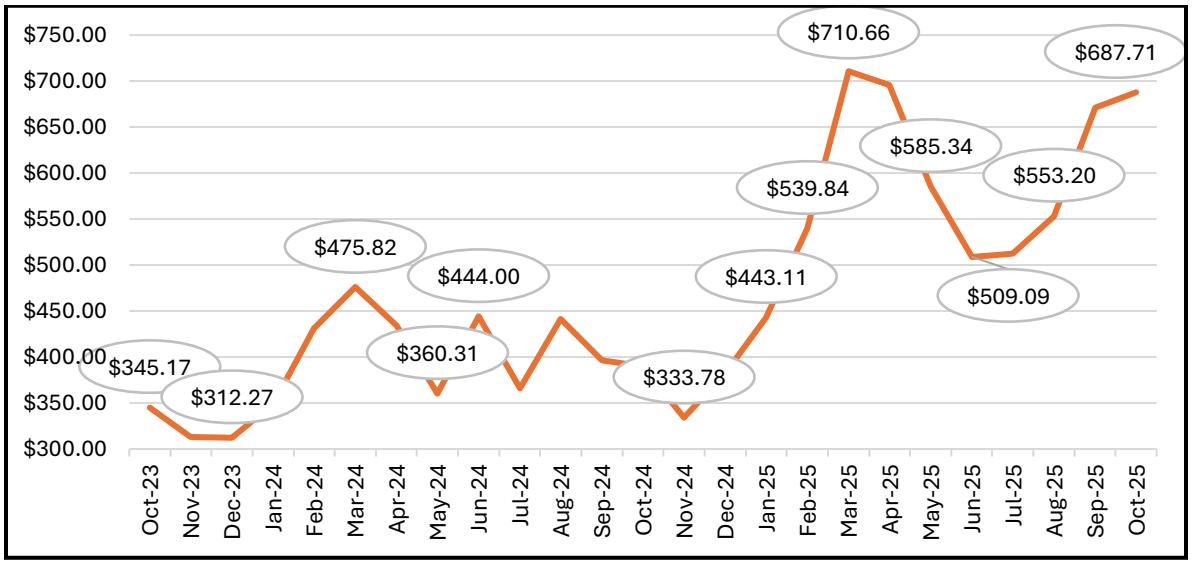
Month	No. Defaulted Payment Plans	Average Dollars at Time of Default	Month	No. Defaulted Payment Plans	Average Dollars at Time of Default
Oct-23	1,415	-$345.17	Oct-24	1,608	-$389.61
Nov-23	1,007	-$312.94	Nov-24	1,015	-$333.78
Dec-23	1,259	-$312.27	Dec-24	1,101	-$382.32
Jan-24	1,237	-$349.45	Jan-25	1,201	-$443.11
Feb-24	1,322	-$431.57	Feb-25	1,811	-$539.84
Mar-24	1,626	-$475.82	Mar-25	1,206	-$710.66
Apr-24	1,496	-$433.84	Apr-25	2,009	-$695.51
May-24	1,271	-$360.31	May-25	1,917	-$585.34
Jun-24	1,213	-$444.00	Jun-25	1,134	-$509.09
Jul-24	1,287	-$366.17	Jul-25	1,061	-$512.37
Aug-24	1,411	-$441.14	Aug-25	795	-$553.20
Sep-24	1,324	-$396.13	Sep-25	261	-$671.41

The Figure below further shows the decreasing effectiveness of KPC payment arrangements. In the most recent 24-month period, the dollar amount remaining at the time of a payment plan default has doubled, from $345 in September 2023 to $688 in September 2025. As bills have become increasingly unaffordable to KPC customers, the

[100] JI 1-83.

ability of customers in arrears to retire those arrears through a payment arrangement has declined precipitously.

Figure 11. Average Arrears Remaining at Time of Payment Arrangement Default



Q. WILL THE GAIN GENERATED BY A KPC AMP BE EVEN GREATER THAN YOU IDENTIFY IMMEDIATELY ABOVE?

A. Yes. Under KPC's current payment system, the Company posts customer payments toward unpaid arrearage balances before posting payments against bills for current service. There is nothing controversial in that observation. The Company readily engaged in the following exchange:

> For accounts enrolled in a payment arrangement, any payment received that exceeds the sum of the current monthly bill and the corresponding payment arrangement installment will be retained as a credit balance until the subsequent billing cycle. Once the new bill is generated, this credit balance will be applied to the new balance due. However, customers may reach out to the Company if they wish to apply the excess credit towards the deferred balance of their payment arrangement.[101]

[101] JI 1-84.

Since the arrears get retired *first*, to the extent that KPC customers default on their payment plan, KPC not only loses the missed arrearage payment, but also fails to collect the bill for current service in the month of default. In contrast, under the AMP, unless the bill for current service (plus the AMP copayment) has been paid in full, no AMP credit is provided (and thus no program cost is incurred).

Q. CAN'T KPC SIMPLY RENEGOTIATE AND EXTEND A DEFAULTED PAYMENT ARRANGEMENT?

A. KPC *could* renegotiate or extend a defaulted payment arrangement, but the Company does *not* generally do so. The Table below shows the number of renegotiated payment agreements by month for the past 24 months.[102] Between October 2023 and September 2025, the Company experienced 30,987 defaulted payment plans. It renegotiated a total of 2,173 payment arrangements during that same 24-month period.

Table 18. Renegotiated Payment Plans by Month

Month	Renegotiated Payment Plans	Month	Renegotiated Payment Plans
Oct-23	81	Oct-24	131
Nov-23	77	Nov-24	96
Dec-23	113	Dec-24	141
Jan-24	107	Jan-25	125
Feb-24	83	Feb-25	191
Mar-24	106	Mar-25	85
Apr-24	81	Apr-25	112
May-24	60	May-25	88
Jun-24	59	Jun-25	50
Jul-24	64	Jul-25	58
Aug-24	83	Aug-25	47

[102] JI 1-36(h).

Q. WHAT DO YOU CONCLUDE BASED UPON YOUR ABOVE DISCUSSION?

A. Going forward, providing an opportunity for customers to make complete payments for current service, and providing an arrearage repayment program, are interrelated. People do not make separate payments for their bill for current service and for their arrearages. Rather people make a payment toward their total bill. From a payment perspective, therefore, it makes no difference whether that total payment is unpayable due to the bill for current service or unpayable due to a pre-existing arrearage. In the absence of an arrearage management program, pre-existing arrearages will represent a substantial contributor to the inability of low-income customers to pay their KPC utility bills for current service and to retain service.

Accordingly, based on the above, I conclude that the Commission should direct KPC to adopt the AMP recommended above.

Part 4. Using Performance-Based Ratemaking to Address the Impacts of Unaffordability on KPC System Costs.

Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY.

A. In this section of my testimony, I build on my discussion above demonstrating how the failure to acknowledge and to address the unaffordability of KPC rates will have the impact of increasing total costs that are incurred by the Company. As the Company's costs increase, KPC will need to seek higher rates to cover those costs. Accordingly, failing to address unaffordability will have the impact of increasing rates which KPC will

seek to impose on all customers. I propose that the Commission adopt a Performance-Based Ratemaking system to use to address this problem.

Q. DO YOU HAVE REASON TO BELIEVE THAT KPC HAS NEVER ADDRESSED THE ISSUE OF UNAFFORDABLE BILLS AT THE CORPORATE LEVEL?

A. Yes. The Company has never addressed how to respond to the unaffordability of service to low- and moderate-income customers at the corporate level. For example, KPC was asked to provide:

- Each presentation or other set of materials to the company Board of Directors regarding low-income energy issues;
- Each holding company Board of Directors agenda identifying low-income issues as a separately-stated agenda item;
- Each set of presentation or other set of materials distributed to the holding company Board of Directors as part of the agenda item;
- Each Company Board agenda identifying customer service and/or credit and collection issues as a separately stated agenda item;
- Each presentation to the Company Board of Directors regarding customer service and/or credit and collection issues;
- Each set of written materials regarding customer service and/or credit and collection issues distributed as part of the agenda item.

In response to each such request, KPC stated that ". . .the Company does not have in its possession or control any documents responsive to this request."[103]

Indeed, KPC seem to take an aggressive disinterest in defining low-income payment difficulties, let alone in seeking to develop appropriate responses.

- When asked for any study or evaluation that KPC had undertaken to understand "why nonpaying residential customers do not make contact with the utility when, in response to bill nonpayment, those nonpaying customers receive a request or

[103] JI 1-126.

notice to contact the utility to avoid the disconnection of service," KPC replied that it had undertaken no such inquiries.[104]

- When KPC was asked for any documents where the Company identified, evaluated or discussed "why residential customers do not successfully complete deferred payment plans (sometimes known as payment agreements or other similar terms) in order to avoid the disconnection of service for nonpayment," KPC replied that it had undertaken no such studies.[105]

Given the number of disconnection notices KPC issues each month, as discussed above, along with the large percentage of defaulted payment arrangements, the failure of KPC to even consider *why* customers routinely do not respond to such disconnect notices, and *why* customers are routinely not able to successfully complete their payment arrangements, is indicative of the need to create a performance based measurement system.

Q. PLEASE EXPLAIN THE NATURE AND ROLE OF CREATING "OUTCOME" METRICS BY WHICH TO MEASURE UTILITY PERFORMANCE.

A. I recommend that the Commission adopt a series of outcome metrics to measure the Company's performance with respect to its credit and collection outcomes. Through these metrics, rather than focusing on what KPC is *doing* (*i.e.*, its activities), I will focus on an assessment of what the Company is *accomplishing* (*i.e.*, its outcomes, or results).

Measuring "outcomes" is to be distinguished from measuring "activities." An "activity" is defined as the work performed that directly produces products or services.

[104] JI 1-105.
[105] JI 1-107.

The "outcome" of a program is the accomplishment of program objectives attributable to program activities.

Performance measurement has been growing now for nearly 30 years in both public and private programs. Perhaps the best-known application is the federal Government Performance and Results Act of 1993. GPRA was designed to address the same conceptual issues that KPC must address for its credit and collection activities: to grapple with how to best improve effectiveness and service quality while limiting costs. It shifts the focus from program activities to program results.

According to GPRA, "[t]he key concepts of this performance-based management are the need to define clear agency missions, set results-oriented goals, measure progress toward achievement of those goals, and use performance information to help make decisions and strengthen accountability."[106] Utilities face the same sort of problems in measuring efficiency as do federal agencies. As James Hinchman, Acting Comptroller General observed when GPRA was first enacted, "[m]any agencies have a difficult time moving from measuring program activities to establishing results-oriented goals and

[106] Statement of James F. Hinchman, Acting Comptroller General, *Managing for Results: The Statutory Framework for Improving Federal Management and Effectiveness* at 1, GAO /T-GGD/AIMD-97-144 (Jun. 1997)., available at https://www.govinfo.gov/content/pkg/GAOREPORTS-T-GGD-AIMD-97-144/pdf/GAOREPORTS-T-GGD-AIMD-97-144.pdf

performance measures."[107] Within this construct, I will focus *not* on measuring what KPC is or is not *doing*. I will instead focus on what KPC//KPC is or is not *accomplishing*.

Q. WHAT IS THE FIRST SPECIFIC METRIC THAT YOU RECOMMEND FOR KPC?

A. I recommend that the first outcome metric to be used should be an increase in the enrollment of KPC low-income customers in LIHEAP and in REA-funded programs (HEART, THAW). By adopting this metric, the Company is required to take ownership in identifying the steps that are required to provide outreach to customers and to help those customers negotiate the processes required to enroll in the available assistance programs. It would be unreasonable to expect a 100% enrollment rate for identified low-income customers. There will always exist some sub-population of low-income customers who choose not to enroll in such programs. Establishing an outcome performance metric requires KPC to determine what barriers exist to enrollment. Rather than seeking to micro-manage the reasonableness of each action which KPC decides to adopt to address the lack of information, use of an outcome performance metric reviews the *results* of the KPC activities. If those activities are not working, it remains within the province of the Company to determine what modifications need to be made in order to achieve the results (or outcomes).

More specifically, I recommend that the outcome measure to be adopted should mirror the performance metric recently adopted by the New Jersey Board of Public Utilities for that state's utilities. The metric I recommend is for KPC to increase enrollment in LIHEAP by five percent (5%) in program year one (1) compared to the

[107] *Id.*, at 1.

prior program year of October 1, 2024-September 30, 2025 ("Base Year"); three percent (3%) in year two (2) compared to the prior program year of October 1, 2025-September 30, 2026; and two percent (2%) in year three (3) compared to the prior program year of October 1, 2026-September 30, 2027. This recommendation would increase enrollment by ten percent (10%) over a three (3)-year period. I discuss above the advantages of increasing LIHEAP enrollment, even in the event that total LIHEAP funding does not correspondingly increase.

Q. WHY SHOULD THERE BE A METRIC MEASURING THE EXPANSION OF LIHEAP PARTICIPATION GIVEN YOUR DISCUSSION OF LIHEAP'S LIMITATIONS EARLIER IN YOUR TESTIMONY?

A. As I discuss in detail above, relying on LIHEAP as a primary response to unaffordable low-income energy burdens in the KPC service territory is an unreasonable strategy. As I explain, due to LIHEAP's limited –and now highly uncertain—funding, and its status as a Block Grant program, expanding LIHEAP enrollment will not result in an expansion of LIHEAP funds being directed to KPC customers. However, I have proposed to expand the use of LIHEAP enrollment as the door through which low- and moderate-income customers may also access additional KPC assistance. Under this approach to determining program eligibility, it is the receipt of LIHEAP that qualifies customers for additional programs. Accordingly, by expanding participation in LIHEAP, even if LIHEAP funding does not correspondingly increase, the access to additional

affordability benefits will. Using this metric, therefore, will not only expand access to LIHEAP, but will expand overall access to assistance in a way that is meaningful.

Q. WHAT IS THE SECOND OUTCOME METRIC YOU PROPOSE?

A. The second outcome metric I recommend involves a suite of interrelated outcomes. One primary purpose of offering low-income assistance, identifying the customers who would qualify for that assistance, and then enrolling those identified low-income customers in the assistance programs for which they are eligible, is to improve the payment patterns of those low-income customers as bills are made affordable. While improved payment patterns are not the *exclusive* purpose of low-income bill payment assistance, they are *one* of the primary purposes of low-income assistance and protections. Given this purpose, the following outcome metrics are recommended by which to measure KPC collections performance:

- A reduction by 10% each year for three years in the absolute number of defaulted residential deferred payment arrangements. For purposes of this outcome, a "defaulted payment arrangement" is a payment arrangement from which the customer has been removed for nonpayment prior to completion of all of the payments required under the payment arrangement to retire the arrears made subject to the arrangement;

- A reduction by 10% each year for three years in the absolute number of residential nonpayment disconnections;

- A reduction by 10% each year for three years in the number of residential customers who have, since April 1 of a given year, had their service disconnected

for nonpayment and who, as of December 1 of that year, remain in their home with service not yet reconnected.

- A reduction by 10% each year for three years in the average monthly arrears, measured in "Bills Behind," for identified low-income customers not on agreement.

Q. WHY IS IT IMPORTANT TO CONSIDER EACH OF THESE METRICS IN COMBINATION WITH EACH OTHER?

A. It is important to consider the metrics I identify above in combination with each other in order to avoid incentivizing unwanted behavior. For example, if one only considered the rate of involuntary disconnections for nonpayment, KPC could minimize the disconnections while simply allowing arrears to accrue to ever increasing levels. In contrast, KPC could minimize the level of arrears by disconnecting a high number of accounts when past-due balances were low. Similarly, the extent to which disconnections are avoided by having KPC enter into deferred payment agreements is only meaningful if those payment arrangements do not frequently result in a default. If payment arrangements default, they result merely in postponing collection activity, not avoiding such activity. Accordingly, in choosing which metrics to measure, it is important to consider how each metric interacts with, and affects, each other metric.

Q. PLEASE EXPLAIN THE RATIONALE BEHIND MEASURING THESE "PAYMENT PERFORMANCE" METRICS FROM A LOW-INCOME PERSPECTIVE.

A. Offering low-income bill payment assistance is intended to improve the affordability of KPC bills to low-income customers. Unless one adopts, which I do not, the belief that low-income customers systematically fail to make timely and complete payments because they choose not to do so, even if capable of doing so, improving the

affordability of KPC bills to low-income customers should improve the bill payment patterns of the low-income customers that have been assisted. The low-income assistance addresses the payment difficulties of low-income customers who do not pay because they cannot afford to pay. As with the other outcomes metric discussed above, the metrics I propose in this section do not involve a micro-management of the activities which KPC chooses to pursue. To maximize the effectiveness of its low-income assistance in improving payment patterns, for example, KPC could choose to target its outreach and enrollment to those low-income customers with the greatest payment difficulties with which to begin. KPC may choose to target its outreach and enrollment to those customers with the lowest incomes (and thus the greatest unaffordability problems). It may choose to couple payment assistance with energy efficiency investments. It may choose to couple outreach on utility-funded assistance with outreach on LIHEAP assistance. In any case, the management decisions regarding what KPC will *do* should be left to the Company, with regulatory oversight limited to what those decisions are *accomplishing*. If KPC decisions on activities are not generating the desired outcomes, it is left to the Company to decide what needs to be modified.

Q. WHAT SPECIFIC PENALTY DO YOU PROPOSE SHOULD THE ABOVE PERFORMANCE METRICS NOT BE ACHIEVED?

A. Failure to achieve the proposed collection outcomes shall result in sanctions determined as follows: (1) a dollar amount equivalent to 15 basis points ROE reduction for noncompliance with a single improvement goal; (2) a dollar amount equivalent to 25 basis points ROE reduction for noncompliance with multiple improvement goals. The sanction does not result in a change to KPC's authorized ROE but is calculated to

produce a revenue reduction that is equivalent to the specified ROE reduction. Any ROE penalty, as specified herein, would be calculated for the calendar year following a noncompliance event, whereby the specified ROE penalty will be applied to the equity rate base as approved in KPC's most recent base rate case and grossed-up for income taxes (revenue requirement). Any resulting penalty amount will be deferred as a regulatory liability to be refunded to customers in KPC's next base rate case.

Q. PLEASE EXPLAIN WHY THE PROPOSED PERFORMANCE-BASED OUTCOMES METRICS SHOULD BE ADOPTED IN THIS RATE PROCEEDING.

A. Achieving the outcome metrics I have identified above has a variety of impacts on the utility. First, achieving the outcome metrics has an impact on KPC's cost-of-service. For example, to the extent that the needs of low-income customers are met (as measured by the recommended metrics):

- A number of business risks facing the Company are reduced. The risk of a spike in low-income nonpayment attributable to a fly-up in fuel prices is reduced. Similarly the risk of a spike in low-income nonpayment attributable to extreme weather, whether those extreme involve cold weather or hot weather, is also reduced. Reducing these risks helps enhance revenue as well as helps minimize costs.

- The rate of disconnections are reduced. Reducing the rate of disconnections not only reduces the costs associated with collection activities, but helps to preserve future revenue streams from customers who are not removed from the system.

- Both the dollar level of arrears and the age of arrears are reduced. This reduction will, by definition, reduce costs to the Company. Whether fewer dollars are in arrears, or whether dollars remain unpaid for fewer days, the Company will experience a reduced working capital requirement.

Second, by adequately meeting the needs of low-income customers, the Company improves the efficiency of its customer service operations. For example, by reducing the collection resources that are directed toward trying to collect outstanding balances from

customers who are *not* going to pay, reducing the rate of low-income nonpayment disconnections allows KPC to redirect those collection resources toward customers that *are* able to pay (because they can afford to pay). Moreover, the degree to which deferred payment arrangements are successfully completed is enhanced (thus enhancing revenue and decreasing expenses).

Third, the combined impacts of reduced costs, enhanced revenues, reduced risks, and more efficient operations, can all be viewed as an opportunity cost to the Company. To the extent that the Company reduces its costs and enhances its revenues, it earns a return that would have been foregone in the absence of an adequate treatment of low-income customers (as measured by achieving the outcome metrics I recommend above).

Part 5. Kentucky Power's Proposed Residential Block Rate Structure.

Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY.

A. In this section of my testimony, I respond to the Company's proposal to implement a two-tiered declining block rate structure for residential customers. My understanding of the two-tiered structure is based on the testimony of Company witness Wolffram, who states in relevant part: "customers who consume between 0-2,000 kWh in a month will be charged the Tier 1 charge of $26.00 per month, and customers who consume greater than 2,000 kWh in a month will be charged the Tier 2 charge of $40.00 per month." Witness Wolffram continues on to state that "the two-tiered customer charge is designed to work hand-in-hand with the Company's declining energy rates, where all customers are charged $0.15750 per kWh for the first 600 kWh of usage in a month and

$0.12606 for all usage in excess of 600 kWh."[108] I recommend that the Company's proposal be denied and that the existing structure of customer charge, along with the existing flat energy rate structure, be retained.

Q. DOES THE RESIDENTIAL RATE STRUCTURE PROPOSED BY WITNESS WOLFFRAM DISPROPORTIONATELY AFFECT LOW-INCOME CUSTOMERS BY INCREASING UNAFFORDABILITY?

A. The rate structure proposed by Kentucky Power will disproportionately increase bills to low-use customers. Kentucky Power provided the impact of its proposed rate hike, along with its changed rate structure, disaggregated by the level of metered energy in 100 kWh increments.[109] I have attached the data from that response as Exhibit RDC-2. The Company data clearly shows that low-use customers receive a substantially greater proportionate rate increase under the Company's proposal. As can be seen from the Company's data, customers with monthly consumption less than 800 kWh will receive a rate increase of 20% or more. The smallest bill increase imposed on these low-use customers (i.e., with usage less than 2,000 kWh) is 10.4% (comprised of a bill increase of $35.16 per month). In contrast, the largest bill impact for customers with usage exceeding 2,000 kWh is 14.4% (for customers with monthly usage between 2,000 and 2,100 kWh). As usage increases, and customers move further into the Tier 2 rates, the proposed

[108] Direct Testimony of Tanner S. Wolffram on behalf of Kentucky Power Company at 9 (Aug. 29, 2025) ("Wolffram Direct").
[109] JI 1-29.

percentage increase in bills becomes less and less. At a monthly consumption of 3,400 kWh, the bill increase is only 10.0%, a level never reached by low-use customers.

Q. HOW DO THESE USAGE LEVELS COMPARE TO ACTUAL CONSUMPTION BY KENTUCKY POWER RESIDENTIAL CUSTOMERS?

A. Kentucky Power residential customers rarely experience a monthly consumption of 2,000 kWh. Attached as Exhibit RDC-3 is data showing mean and median residential consumption, broken down by non-heating customers (10) and heating customers (20) for the months October 2023 through September 2025.[110] During this 24 month period, non-heating customers only experienced a median consumption of more than 1,000 kWh four times (July 2024: 1,130 kWh; August 2024: 1,083 kWh; July 2025: 1,167 kWh; August 2025: 1,174 kWh). These non-heating customers, in other words, will experience a bill increase of between 15% and 16% in the months of the ***smallest*** bill hikes at median consumption. These non-heating customers ***never*** experienced a median consumption greater than 2,000 kWh. In contrast, non-heating customers had a median consumption of less than 800 kWh (a bill increase of 20% or more) in 12 of the 24 months for which Kentucky Power provided data (with two additional months be so little in excess of 800 kWh that they would also experience a 20% bill increase).

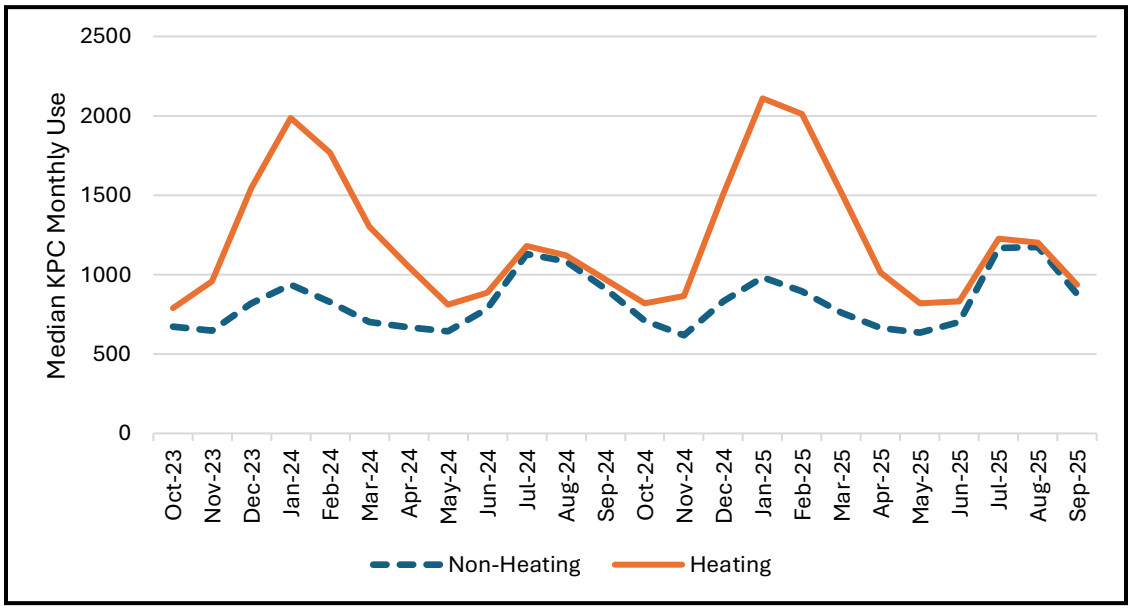
Similarly, heating customers only exceeded a median consumption of greater than 2,000 kWh in two months (January 2025: 2,110 kWh; February: 2,010 kWh). In every other month, the median residential heating consumption was less than 2,000 kWh, with the correspondingly proportionately higher bill increase. Even the non-heating Company residential customers had monthly median consumption as low as 789 kWh (October

[110] JI 1-29.

2023), 813 kWh (May 2024), 821 kWh (October 2024), 818 kWh (May 2025), and 830 kWh (June 2025), with bill increases near 20%.

The median usage by month is set forth in Figure 10 below. The Figure demonstrates how the change to the two-tiered structure proposed by Kentucky Power will not only frequently, but will routinely, impose disproportionately high bill increases on residential customers.

Figure 12. Median Residential Usage by Month (Heating and Non-Heating) (October 2023 – September 2025)



Q. EVEN IF TRUE AT MEDIAN CONSUMPTION, WON'T THERE BE CUSTOMERS WHO HAVE HIGH CONSUMPTION THAT EXCEEDS THE 2,000 KWH THRESHOLD?

A. No. Kentucky Power also provided data on what usage levels would exist at two higher increments of median consumption (125% of median; 150% of median). That data, by month for October 2023 through September 2025, is set forth in Exhibit RDC-4. That Exhibit shows that at 125% of median consumption, residential customers would

exceed the 2,000 kWh threshold in only three months (January 2024: 2,034 kWh; January 2025: 2,155 kWh; February 2025: 2,031 kWh). Even at 150% of median consumption, residential customers would exceed the 2,000 threshold in only four months (January, 2024; February 2024; January 2025; February 2025).

Q. WHAT DO YOU CONCLUDE?

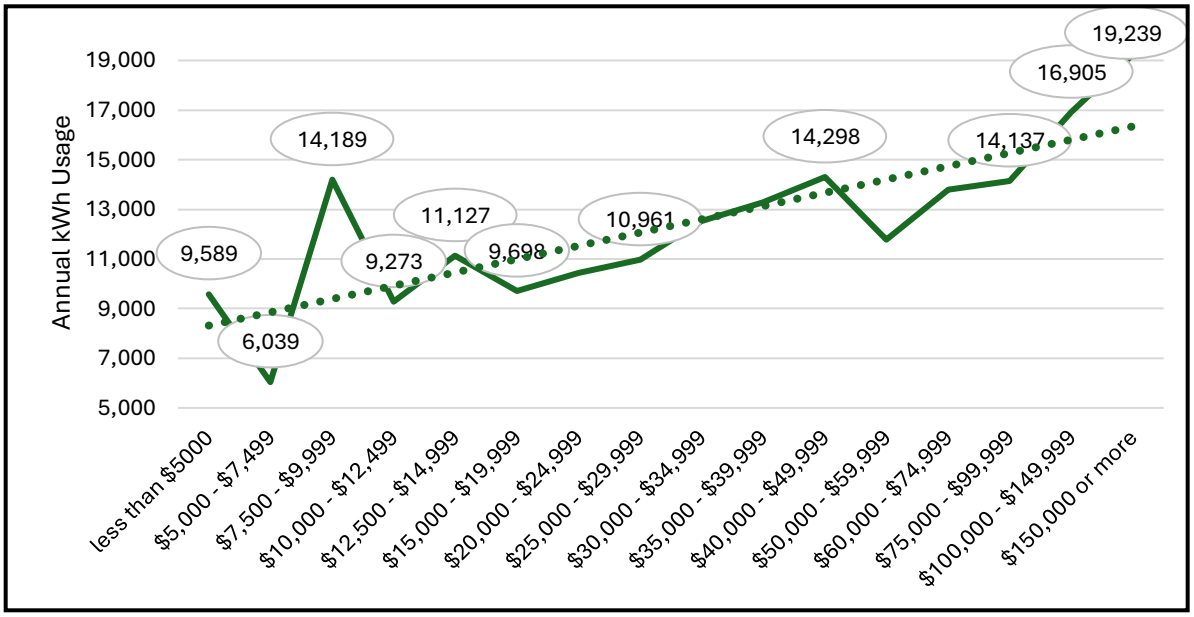
A. The Company's proposal to implement its two-tier rate structure is unreasonable. It imposes a substantially higher proportionate rate increase on customers with the lowest usage. In exchange, it affects few customers with usage exceeding 2,000 kWh per month. Given the relationship between low use and low-incomes, and the substantial affordability problems which already exist on the Company's system even given the existing rate structure, it would be unreasonable to exacerbate those affordability problems even more in the way the Company proposes.

Q. PLEASE EXPLAIN THE BASIS FOR YOUR CONCLUSION THAT THERE IS A RELATIONSHIP BETWEEN LOW-USE AND LOW-INCOME CUSTOMERS?

A. In reaching this conclusion, I have examined Kentucky data from the 2020 Residential Energy Consumption Survey (RECS) published by the Energy Information Administration of the U.S. Department of Energy 's (EIA/DOE). Figure 11 below shows the relationship between annual electricity use and income in Kentucky. There is a clear upward trend in electricity usage as income increases. The annual kWh usage for Kentucky customers with income $100,000 or more is anywhere from 50% to 100% higher than customers with annual incomes less than $20,000. Even customers with

income between $75,000 and $100,000 in Kentucky have an annual consumption (in kWh) noticeably more than customers with income less than $30,000.

Figure 13. Annual Electricity Usage by Income Range (Kentucky) (2020 RECS)

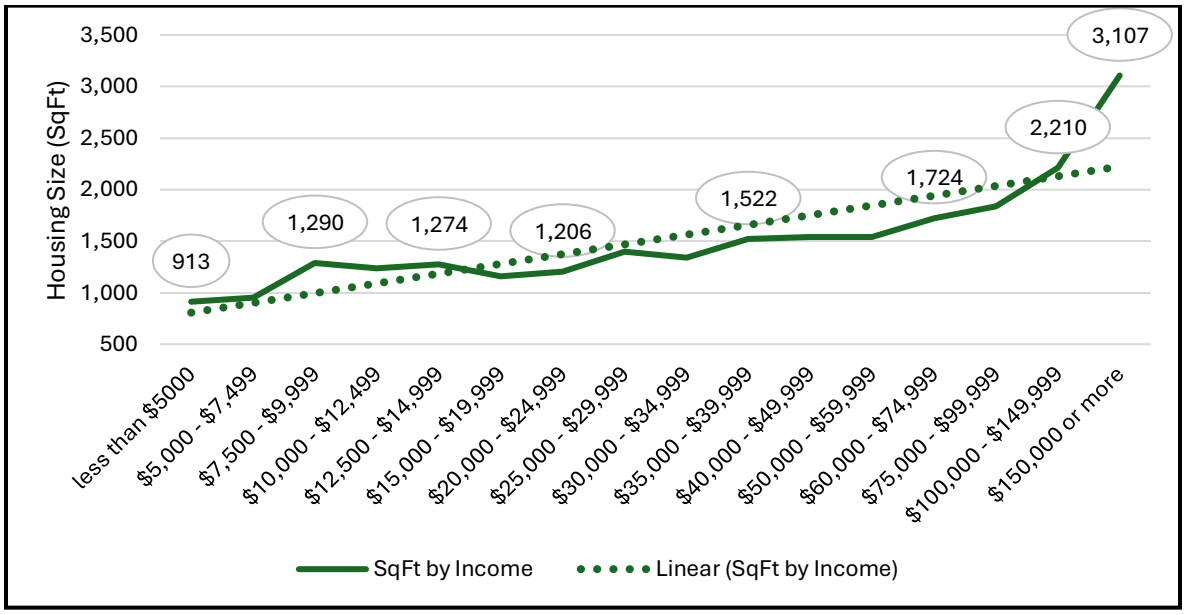


Q. DO YOU HAVE A REASONABLE EXPLANATION FOR WHY LOW-INCOME CUSTOMERS CAN BE EXPECTED TO HAVE LOWER ELECTRICITY CONSUMPTION?

A. Yes. While it is often argued that low-income customers could be expected to have higher than average consumption given that they live in older (and less efficient) homes and use older (and less efficient) appliances, this argument does not present an accurate picture of low-income usage. While, for these reasons, it might be expected that low-income households have a higher consumption <u>on a per square foot of housing</u> basis, these households also tend to live in much smaller homes. On a total usage basis, therefore, low-income households have disproportionately lower usage. This is <u>not</u> to say –and I do not assert—that <u>all</u> low-income households are low use customers. My conclusion, supported by the data below, is that low-income households will

disproportionately, and on average, have lower consumption. The relationship between income and housing unit size (in square feet) is set forth in Figure 12 below.

Figure 14. Square Feet of Housing by Income (Kentucky) (2020 RECS)



The first set of data demonstrating the basis for this conclusion is set forth in Table 19 below. This Table demonstrates that low-income households in Kentucky are heavily disproportionately over-represented in housing units which are apartments, whether in buildings with two-to-four units or in buildings with five or more units. Conversely, low-income Kentucky households are heavily under-represented in detached single-family homes. Consider, for example, that 7.2% of all households in Kentucky have income less than $10,000. In contrast, only 3.6% of households living in detached singled family homes have incomes less than $10,000. In contrast, 19.5% of all households living in apartments in buildings with five or more units, and 17.6% of households living in apartments in buildings with two-to-four units, have income less than $10,000. In contrast, while 19.1% of all Kentucky households have an annual income higher than $100,000, 24.1% of households with incomes this high live in single

family detached homes. Compared to the 24.1% of households with income $100,000 or more, only 8.2% of households at that income level live in apartments with five or more units.

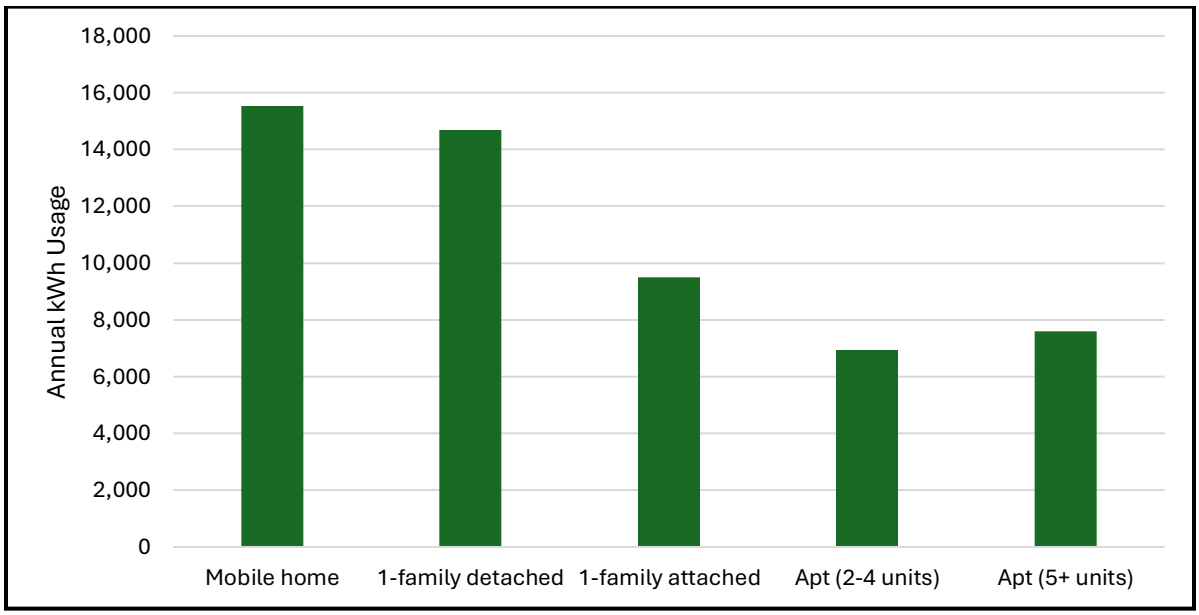
Table 19. Housing Unit Type by Income (Kentucky) (2020 RECS)

	Mobile home	1-family detached	1-family attached	Apt (2-4 units)	Apt (5+ units)	Grand Total
less than $5000	2.5%	1.6%	2.8%	12.2%	12.0%	3.5%
$5,000 - $7,499	0.0%	0.9%	8.4%	5.4%	3.8%	1.7%
$7,500 - $9,999	7.0%	1.1%	6.7%	0.0%	3.7%	2.0%
$10,000 - $12,499	6.4%	2.3%	8.3%	5.7%	2.4%	3.0%
$12,500 - $14,999	3.3%	2.1%	0.0%	5.4%	5.8%	2.7%
$15,000 - $19,999	6.9%	3.4%	0.0%	4.6%	12.7%	4.6%
$20,000 - $24,999	6.5%	3.3%	5.9%	22.6%	2.7%	4.6%
$25,000 - $29,999	13.7%	3.8%	13.2%	0.0%	13.3%	5.7%
$30,000 - $34,999	10.0%	7.1%	2.1%	0.0%	3.5%	6.3%
$35,000 - $39,999	9.7%	5.0%	11.5%	11.4%	0.0%	5.3%
$40,000 - $49,999	17.4%	6.1%	6.7%	0.0%	7.3%	6.7%
$50,000 - $59,999	3.1%	10.3%	14.3%	9.1%	15.0%	10.4%
$60,000 - $74,999	4.9%	12.1%	7.7%	14.8%	2.3%	10.4%
$75,000 - $99,999	3.4%	17.0%	2.3%	8.8%	7.5%	14.0%
$100,000 - $149,999	0.0%	16.1%	7.7%	0.0%	3.3%	12.3%
$150,000 or more	5.2%	8.0%	2.2%	0.0%	4.9%	6.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

This data is significant in that, as Figure 15 below shows, the electricity usage in apartments, whether those apartments are in buildings with 2 – 4 units, or in buildings

with five or more units, have much lower electricity usage. Given the extent to which Kentucky's low-income households inhabit those low-use buildings, it is reasonable to find, also, that the electricity consumption of those units will reflect that lower consumption.

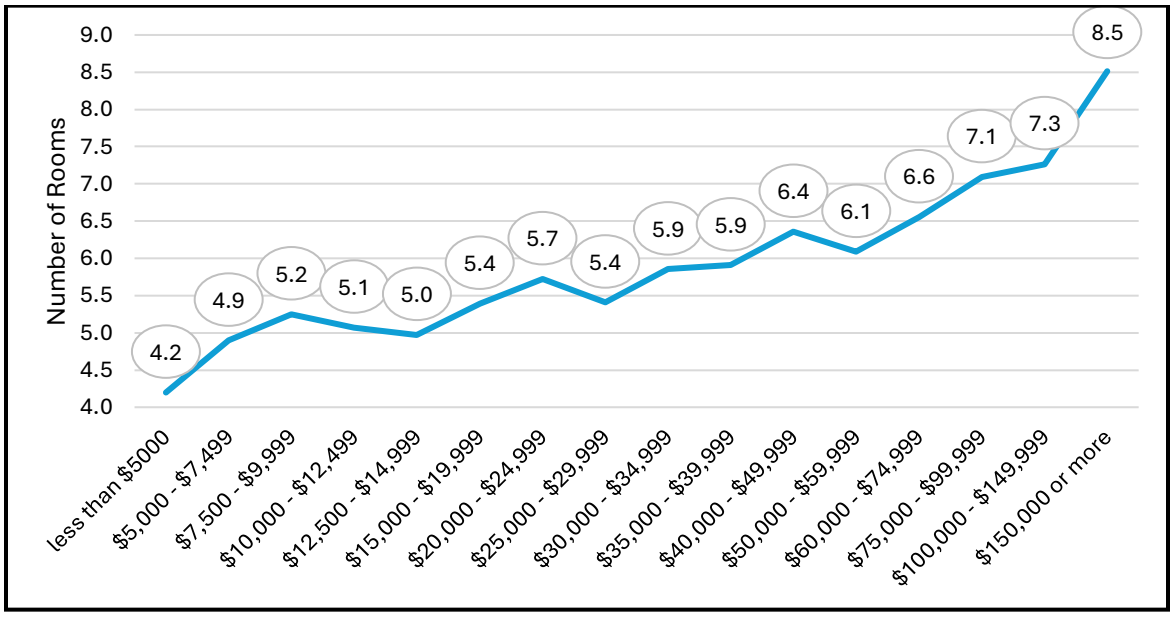
Figure 15. Annual Electricity Usage by Housing Unit Type (Kentucky) (2020 RECS)



A different, yet related, way to examine the reason why Kentucky low-income households have lower electricity consumption is to examine the relationship between income and the number of rooms in the housing units with low-income households occupy. The data is set forth in Figure 16 below. There is a clear upward trend in the size of housing units (measured by the number of rooms) as incomes increase. When the incomes of Kentucky households increase to $150,000 or more, the average number of rooms in the housing units occupied by such households increases to 8.5 rooms per unit. Even when Kentucky incomes are between $75,000 and $100,000, the housing units occupied by these households, on average, have more than seven rooms. In contrast,

households with an annual income of $15,000 or less live in housing units with an average of five rooms or less.

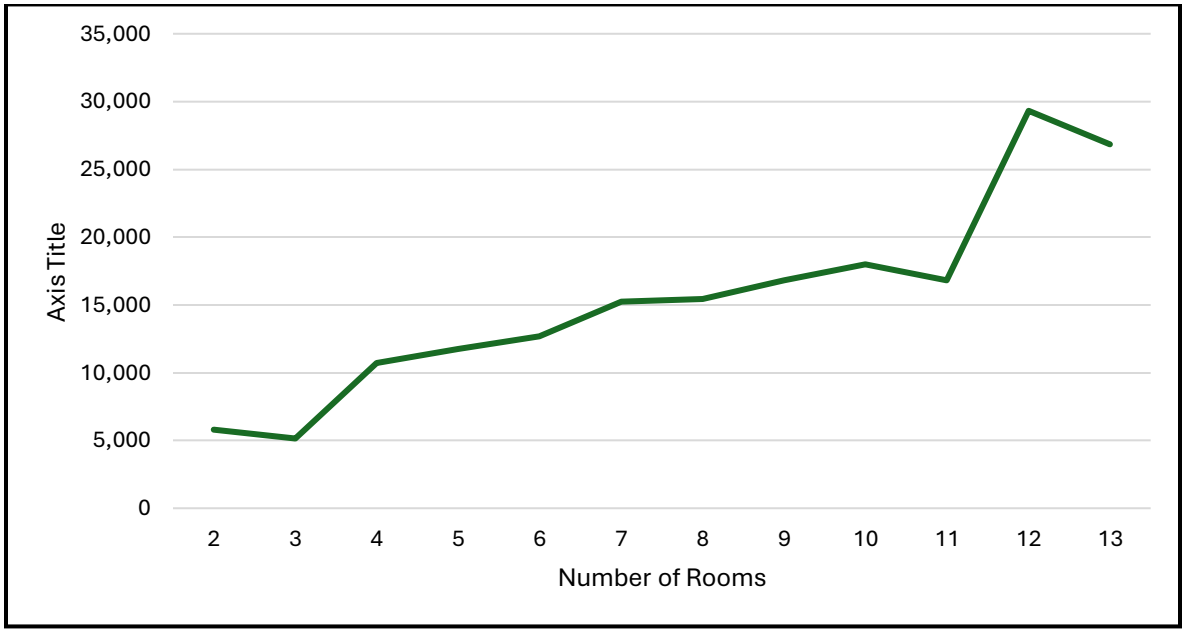
Figure 16. Average Total Rooms by Income Range (Kentucky) (2020 RECS)



The relationship between income and the number of rooms in a housing unit is seen in Figure 17 below. Clearly, in Kentucky, as the number of rooms in a housing unit increases, the average annual kWh usage increases as well. Or, stated conversely, as the number of rooms in a housing unit decreases, the average annual kWh usage declines as well. Since it is evident that those smaller homes are disproportionately occupied by

lower-income households, it is reasonable to find that the electricity usage experienced by lower-income households is lower as well.

Figure 17. Annual Electricity Usage by Number of Rooms in Housing Unit (Kentucky) (2020 RECS)



Q. HAVE YOU EXAMINED DATA SPECIFIC TO THE COMPANY'S SERVICE TERRITORY?

A. The Census Bureau does not directly report data on housing size (in square feet). Nonetheless, the Census does report data on housing characteristics which relate to the size of housing and which allow me to make certain conclusions. In particular, I check to see whether a resident of a mobile home has a substantial impact on the data. For purposes of Census reporting, a resident who owns their mobile home, but rents the lot on which it is located, is counted as a "tenant." In contrast, a mobile home resident who owns both their mobile home and the lot on which their mobile is located is counted as a "home owner." I know from Census data that in the Company's service territory, low-income households are highly disproportionately renters. While 5.6% of owners have

income less than $10,000, nearly three times that many of renters have income that low (15.6%). While 11.0% of owners have annual income between $10,000 and $20,000, more than twice that many renters do (25.4%). Only by the time incomes get as high as $20,000 to $35,000, does the proportion of owners (16.4%) begin to level out with the proportion of renters (19.9%) in the Company's service territory.

This distribution is significant in that mobile homes do not make a more substantial contribution to total rental housing units in the Company's service territory than they make to owner-occupied housing. Of the total number of owner-occupied housing units in the Company's service territory, 26.9% represent owner-occupied mobile homes. In contrast, of the total number of tenant-occupied housing units, 25.6% represent mobile homes. While mobile homes comprise a substantial proportion of total housing units in the Kentucky Power service territory, in other words, their distribution indicates that they would not make a substantial difference in the relative energy use of owners and tenants (or a substantial difference in the relative energy use of higher income and lower income households).

Q. PLEASE RESPOND TO THE COMPANY'S ARGUMENT THAT MOVING TO ITS TWO-TIERED RATE STRUCTURE FOR FIXED MONTHLY CUSTOMER CHARGES IN PARTICULAR WILL INCENTIVIZE CUSTOMERS TO REDUCE THEIR CONSUMPTION TO LESS THAN 2,000 KWH IN ORDER TO AVOID THE INCREASED FIXED CUSTOMER CHARGE?

A. Company witness Wolffram argues, without offering any supporting data or any empirical support, that "the two-tiered customer charge, coupled with the declining energy rate, provide incentives to higher usage customers to lower their usage to under

2,000 kWh per month in order to receive the lower customer charge."[111] The data presented in Exhibit RDC-2, which I discuss above, shows the fallacy of that argument.

Q. HAVE YOU EXAMINED THE CONSERVATION INCENTIVES WHICH THE COMPANY CLAIMS WILL EXIST UNDER ITS PROPOSED TWO-TIERED RATE STRUCTURE?

A. Yes. Before I begin, however, let me note the following. First, if a customer's use is already below 2,000 kWh in a month, the two-tiered rate structure offers no conservation incentives. The customer is already receiving the lower fixed customer charge. Second, if the customer's use is so far above 2,000 kWh in a given month that no reasonable amount of energy efficiency will reduce that usage below 2,000 kWh, again, no incentive will exist because the change in Tiers resulting in a reduced fixed customer charge cannot be reached even given energy efficiency investments.

Given those observations, consider the data set forth in Exhibit RDC-5 (four pages). That Exhibit presents as follows:

- Page 1 sets forth, at both existing and proposed rates, the monthly bill levels from 100 kWh to 5,000 kWh as provided by KPC.[112] The last column shows whether the new proposed rates yield a gain or a loss to customers at each usage level (and by how much). A negative number indicates that the proposed rates yield a higher bill.

- Page 2 shows the bill reduction which would occur at each usage level if a customer succeeded in reducing their consumption by 100 kWh in a given month. These bill reductions are, however, *only* one-month reductions. As I discussed in detail above, however, not only at median monthly use, but at 125% and 150% of median monthly use, it is unusual for the Company's monthly use to exceed 2,000 kWh. On page 2, the last column shows the additional bill reduction that would be gained if the Company's two-tiered rate structure were adopted. A negative

[111] Wolffram Direct at 9.
[112] JI 1-57.

number indicates that the extent of the bill reduction achieved through a 100 kWh savings would be greater under existing rates (and by how much).

- Page 3 shows the same analysis except it assumes a usage reduction of 500 kWh rather than 100 kWh. Again, the last column shows the additional reduction that would occur under the Company's proposed rate structure. A negative number again shows that the Company's proposed rate structure would generate a smaller bill reduction than the existing rate structure would (and by how much).

- Page 4 shows a similar, but not identical, analysis. This analysis compares the bill reduction at existing and proposed rates if the customer would succeed in reducing their use to 2,000 kWh in a given month. The 2,000 kWh is significant in that it is the threshold where the Company's rate structure changes. Column 3 shows whether a customer would achieve a greater or lesser bill reduction under the Company's proposed rate structure. A positive number shows that the Company's proposed rate structure would save more money (and by how much). The last column, however, shows the percentage usage reduction that a customer would need to achieve in order to reduce their monthly usage to 2,000 from each usage level.

Q. WHAT DO YOU FIND?

A. Based on Exhibit RDC-5, I find the following:

- Without any usage reduction, bills at existing rates will be substantially less than bills at proposed rates. At the monthly use of between 800 and 1,000 kWh, at proposed rates, bills will increase by roughly $31 in the month. (Exhibit 5, page 1).

- Given a usage reduction of 100 kWh, bill reductions will be virtually identical between existing and proposed rates (with the exception of a reduction from 2,100 kWh to 2,000 kWh). For all bill usage above 2,100, however, adoption of the Company's proposed rate structure will generate an additional monthly bill reductio of $0.40 or less. (Exhibit 5, page 2).

- Given a usage reduction of 500 kWh in a month, a monthly bill reduction occurs which is noticeably greater under the Company's proposal only for customers with consumption of 2,100 kWh to 2,500 kWh. This occurs because a 500 kWh reduction would reduce the customer's consumption below the 2,000 threshold at which the rate structure changes from Tier 1 to Tier 2. Note, however, that as I discuss above, in the 24 months of October 2023 through September 2025, median usage almost never fell between 2,000 and 2,500 kWh.

- In instances where customers can reduce their usage to 2,000 kWh in a month, they can receive a bill reduction of between roughly $16 (2,100: $15.95) and $27 (2,500 kWh: $26.88). However, in order to reduce usage to 2,000, the percentage bill reduction would need to be 26% on 2,700 usage; need to be greater than 40%

at 3,400 kWh; and would need to be 50% at 4,000 kWh. Increasing the percent reduction from 39.4% (3,300 kWh) to 48.7% (3,900 kWh) would yield an additional bill reduction of less than $2.50 in the month of reduction. In other months, achieving an incremental usage reduction under the Company's proposed rates generates a *de minimis* bill reduction compared to what would have been achieved under the existing rate structure.

Q. DO YOU HAVE A BASIS TO CONCLUDE THAT LOW-INCOME CUSTOMERS WILL FALL WITHIN THE POPULATION OF CUSTOMERS WHO WILL NOT PURSUE ENERGY EFFICIENCY INVESTMENTS UNDER THE NEW RATE STRUCTURE?

A. Yes. In my discussion below, I explain why low-income customers have a need for external assistance in making energy efficiency investments. Primarily, low-income households cannot generate substantial energy savings through changes in day-to-day behavior or decision-making. What is necessary, instead, is a financial investment in improving the housing infrastructure and appliances used by low-income households. Due to market barriers, that present particular investment impediments, low-income households are prevented from investing in energy efficiency. These market barriers impact low-income households differently, and more extensively, than residential households generally. These market barriers impede the availability of energy efficiency to low-income customers, even if such efficiency would be an effective, and cost-effective mechanism to use in controlling home energy costs. These market barriers prevent low-income customers from realizing the bill reductions generated by energy efficiency without outside assistance.

Q. PLEASE EXPLAIN WHAT YOU MEAN WHEN YOU DISCUSS "MARKET BARRIERS" BELOW.

A. I For these purposes, I define a "market barrier" as a market condition which stands as an obstacle to the implementation of cost-effective energy efficiency

investments. A commonly recognized "market barrier," for example, is inadequate knowledge. Consumers may not make efficiency investments because they do not understand the economics of the investment return. In particular, in my testimony, I will further discuss "low-income market barriers" below.[113] These are market barriers that either uniquely, or disproportionately, impede low-income households from investing in cost-effective energy efficiency. One such low-income market barrier that I will discuss below is the lack of investment capital for low-income customers. As I will discuss, it makes no difference if an energy efficiency investment is "cost-effective" if the household has insufficient money to make the investment in the first instance.

Q. IS THERE A WAY TO ASSESS THE NEED FOR INVESTMENT IN ENERGY EFFICIENCY MEASURES FOR LOW-INCOME HOUSEHOLDS?

A. Yes. Nearly one third (28.2%) of housing units within the Company's service territory were built before 1970, the year when building codes were first adopted.[114] A substantial portion of those older housing units are inhabited by low-income households. These units are in need of energy efficiency investments.

Q. DOES A HOUSEHOLD'S LOW-INCOME STATUS IMPEDE THEIR ABILITY TO INVEST IN ENERGY EFFICIENCY?

A. Yes. I presented detailed data in my testimony above regarding the prevalence of low-incomes in the KPC service territory. The very fact that a household has a low-income is probably the primary market barrier impeding if not completely preventing the low-income customer's ability to invest in energy efficiency. If a household lacks the

[113] Throughout my testimony below, unless I note explicitly to the contrary, I will use the phrases "low-income" and "income-qualified" interchangeably.

[114] American Community Survey (5-year data), Table B25034 (2023).

funds to invest in efficiency improvements, the cost-effectiveness of those investments—even in the medium term—becomes irrelevant. The fact that these households are *low-income* households is a factor which, unto itself, presents additional market barriers. One consequence of the income status of many Company customers involves the inability of these households to afford even cost-effective energy efficiency improvements. As might be expected, households with annual incomes at or below $10,000 or $15,000 tend to have extremely low liquidity. The payback period for any particular energy efficiency measure becomes irrelevant if the household does not have the investment capital with which to begin. I documented the significant extent of low-incomes in the Company's service territories in my testimony above.

For our purposes here, the importance of these low income lies in the extent to which they impede investments in appliance replacements. It is often cost-effective for a consumer to spend more money for a more energy efficient new appliance. For example, if a less efficient refrigerator costs $600 and the more efficient refrigerator costs $800, it may well be cost-effective for the customer to pay the $200 difference to purchase the more efficient appliance. As I demonstrated in detail earlier in my testimony, however, a reliance on such purchase decisions will, by definition, exclude households that are not in the market to purchase a new appliance. It is unlikely many low-income households have recently spent $600 for a new refrigerator.

Additionally, low-income households tend to have very high implicit discount rates (also sometimes known as hurdle rates or internal rates of return). In a report for the Electric Power Research Institute, Cambridge Systematics found that the implicit discount rate for low-income households ranged up to the 80 – 90 percent level. This

translates into a payback period of roughly one year. Requiring efficiency investments to be justified by a hurdle rate of 90% or more will almost entirely exclude low-income households from the energy efficiency market.

Q. CAN YOU MEASURE THE LACK OF INVESTMENT CAPITAL BY LOW-INCOME CUSTOMERS?

A. Yes. One way to measure the lack of investment capital for low-income households is to consider the percentage of household income that is devoted exclusively to their housing costs. If a household is required to devote a disproportionate proportion of income to housing, they will have fewer dollars of income remaining to invest in discretionary expenditures such as energy efficiency investments. I examined housing costs as a percentage of income for the zip codes which the Company reports comprise its service territory. As I discuss above, the general rule in the housing industry is that if a household spends more than 30% of their annual income on housing costs, they are over-burdened.

I find that 48% of homeowners with annual income between $10,000 and $20,000 have shelter burdens of more than 40% in the Company service, somewhat more 55% have shelter burdens of greater than 35% of income. In contrast, when incomes increase to between $20,000 and $35,000, the percentage of homeowners with burdens greater than 40% falls to 26%, while the percentage with burdens greater than 35% falls to 37%. By the time annual incomes increase to between $35,000 and $50,000 , the percentage of

homeowners who are over-burdened fall into single digits (3% over 40% burden; 7% over 35% burden).

The extent to which low-income renters in the Company's service territory are over-burdened with housing costs shows a similar pattern. Tenants with annual income between $10,000 and $20,000 have shelter burdens exceeding 40% of income in 35% of the cases, while 42% of tenants in this income range have shelter burdens exceeding 35% of annual income. By the time tenant incomes increase to between $20,000 and $35,000, the proportion with shelter burdens exceeding 40% falls to 17%, and the percent which have burdens exceeding 35% falls to 21%. For tenants with income between $35,000 and $50,000, the percentage who are over-burdened again dramatically falls (6% with burdens exceeding 40%; 11% with burdens exceeding 35%).

Based on this data, I conclude that low-income households disproportionately face the market barrier of having insufficient income to investment in energy efficiency. The Company's use of its two-tiered rate structure will offer no "incentive" effect when these customers do not have the resources to pursue energy efficiency in the first instance.

Q. WHAT DO YOU CONCLUDE AND RECOMMEND?

A. I conclude that low-income households face substantial market barriers which impede them from making investments in energy efficiency measures out of their own resources. As a result, not only will the Company's two-tiered rate structure disproportionately adversely harm low-income customers, but in addition, these customers are the least capable of investing in the very energy efficiency that Company witness Wolffram asserts is what the rate structure is intended to promote. I recommend

that the Company's proposed increase to its fixed customer charge, along with the move to its two-tiered rate structure, be disapproved.

Q. DOES THIS COMPLETE YOUR DIRECT TESTIMONY?

A. Yes, it does.

Exhibit RDC-1
Roger Colton
Fisher, Sheehan & Colton
Public Finance and General Economics
Belmont, MA
* * * * * * * * * * * * * * * * * * * *

EDUCATION:

J.D. (Order of the Coif), University of Florida (1981) (licensed in Iowa)

M.A. (Regulatory Economics), McGregor School, Antioch University (1993)

B.A. Iowa State University (1975) (journalism, political science, speech)

PROFESSIONAL EXPERIENCE:

Fisher, Sheehan and Colton, Public Finance and General Economics: 1985 – present.

As a co-founder of this economics consulting partnership, Colton provides services in a variety of areas, including regulatory economics, poverty law and economics, public benefits, fair housing, community development, energy efficiency, utility law and economics (energy, telecommunications, water/sewer), government budgeting, and planning and zoning.

Colton has testified in state and federal courts in the United States and Canada, as well as before regulatory and legislative bodies in more than forty (40) states. He is particularly noted for creative program design and implementation within tight budget constraints.

PROFESSIONAL AFFILIATIONS:

Past Chair:	Belmont Zoning By-law Review Working Committee (climate change)
Member:	Board of Directors, Massachusetts Rivers Alliance
Columnist:	Belmont Citizen-Herald
Producer:	Belmont Media Center: BMC Podcast Network
Host:	Belmont Media Center: Belmont Journal
Member:	Belmont Town Meeting
Vice-chair:	Belmont Light General Manager Screening Committee

Past Chair: Belmont Goes Solar
Coordinator: BelmontBudget.org (Belmont's Community Budget Forum)
Coordinator: Belmont Affordable Shelter Fund (BASF)
Past Chair: Belmont Solar Initiative Oversight Committee
Past Member: City of Detroit Blue Ribbon Panel on Water Affordability
Past Chair: Belmont Energy Committee
Member: Massachusetts Municipal Energy Group (Mass Municipal Association)
Past Chair: Housing Work Group, Belmont (MA) Comprehensive Planning Process
Past Chair: Board of Directors, Belmont Housing Trust, Inc.
Past Chair: Waverley Square Fire Station Re-use Study Committee (Belmont MA)
Past Member: Belmont (MA) Energy and Facilities Work Group
Past Member: Belmont (MA) Uplands Advisory Committee
Past Member: Advisory Board: Fair Housing Center of Greater Boston.
Past Chair: Fair Housing Committee, Town of Belmont (MA)
Past Member: Aggregation Advisory Committee, New York State Energy Research and Development Authority.
Past Member: Board of Directors, Vermont Energy Investment Corporation.
Past Member: Board of Directors, National Fuel Funds Network
Past Member: Board of Directors, Affordable Comfort, Inc.
Past Member: National Advisory Committee, U.S. Department of Health and Human Services, Administration for Children and Families, Performance Goals for Low-Income Home Energy Assistance.
Past Member: Editorial Advisory Board, International Library, *Public Utility Law Anthology*.
Past Member: ASHRAE Guidelines Committee, GPC-8, *Energy Cost Allocation of Comfort HVAC Systems for Multiple Occupancy Buildings*
Past Member: National Advisory Committee, U.S. Department of Housing and Urban Development, Calculation of Utility Allowances for Public Housing.
Past Member: National Advisory Board: Energy Financing Alternatives for Subsidized Housing, New York State Energy Research and Development Authority.

PROFESSIONAL ASSOCIATIONS:

National Association of Housing and Redevelopment Officials (NAHRO)
National Society of Newspaper Columnists (NSNC)
Association for Enterprise Opportunity (AEO)
Iowa State Bar Association
Energy Bar Association
Association for Institutional Thought (AFIT)
Association for Evolutionary Economics (AEE)

Society for the Study of Social Problems (SSSO)
Association for Social Economics

BOOKS

Colton, *et al.,* ***Access to Utility Service***, National Consumer Law Center: Boston (4th edition 2008).

Colton, *et al.*, ***Tenants' Rights to Utility Service***, National Consumer Law Center: Boston (1994).

Colton, ***The Regulation of Rural Electric Cooperatives***, National Consumer Law Center: Boston (1992).

BOOK CHAPTERS

Colton (2018). The equities of efficiency: distributing energy usage reduction dollars, Chapter in Energy Justice: US and International Perspectives (Edited by Raya Salter, Carmen Gonzalez and Elizabeth Ann Kronk Warner), Edward Elgar Publishing (London, England).

JOURNAL PUBLICATIONS

65 publications in industry and academic journals, primarily involving utility regulation and affordable housing. (list available upon request)

TECHNICAL REPORTS

200 technical reports for public-sector and private-sector clients (list available upon request)

JURISDICTIONS IN WHICH EXPERT WITNESS PROVIDED

.		Maine	7.		Tennessee	3.	Montana
.		New Hampshire	8.		Kentucky	4.	Colorado
.		Vermont	9.		Ohio	5.	New Mexico
.		Massachusetts	0.		Indiana	6.	Arizona
.		Rhode Island	1.		Michigan	7.	Utah
.		Connecticut	2.		Wisconsin	8.	Idaho
.		New Jersey	3.		Illinois	9.	Nevada
.		Maryland	4.		Minnesota	0.	Washington
.		Pennsylvania	5.		Iowa	1.	Oregon
0.	D.C.	Washington	6.		Missouri	2.	California
1.		Virginia	7.		Kansas	3.	Hawaii
2.		North Carolina	8.		Louisiana		**Canadian Provinces**
3.		South Carolina	9.		Arkansas	.	Nova Scotia
4.		Florida	0.	Court)	Texas (Federal	.	Ontario
5.		Alabama	1.		South Dakota	.	Manitoba
6.		Mississippi	2.		North Dakota	.	British Columbia

Exhibit RDC-2

Metered Energy	Current Bill	Current Fixed %	Current Volumetric %	Proposed Bill	Proposed Fixed %	Proposed Volumetric %	Bill Increase	% Change
100	$ 38.50	**51.9%**	**48.1%**	$ 49.02	**53.0%**	**47.0%**	$ 10.52	27.3%
200	$ 54.35	**36.8%**	**63.2%**	$ 68.75	**37.8%**	**62.2%**	$ 14.40	26.5%
300	$ 70.21	**28.5%**	**71.5%**	$ 88.47	**29.4%**	**70.6%**	$ 18.26	26.0%
400	$ 86.06	**23.2%**	**76.8%**	$ 108.18	**24.0%**	**76.0%**	$ 22.13	25.7%
500	$ 101.91	**19.6%**	**80.4%**	$ 127.91	**20.3%**	**79.7%**	$ 26.00	25.5%
600	$ 117.77	**17.0%**	**83.0%**	$ 147.63	**17.6%**	**82.4%**	$ 29.86	25.4%
700	$ 133.62	**15.0%**	**85.0%**	$ 163.87	**15.9%**	**84.1%**	$ 30.25	22.6%
800	$ 149.47	**13.4%**	**86.6%**	$ 180.09	**14.4%**	**85.6%**	$ 30.62	20.5%
900	$ 165.32	**12.1%**	**87.9%**	$ 196.32	**13.2%**	**86.8%**	$ 31.00	18.7%
1,000	$ 181.18	**11.0%**	**89.0%**	$ 212.56	**12.2%**	**87.8%**	$ 31.38	17.3%
1,100	$ 197.03	**10.2%**	**89.8%**	$ 228.78	**11.4%**	**88.6%**	$ 31.75	16.1%
1,200	$ 212.88	**9.4%**	**90.6%**	$ 245.01	**10.6%**	**89.4%**	$ 32.13	15.1%
1,300	$ 228.74	**8.7%**	**91.3%**	$ 261.25	**10.0%**	**90.0%**	$ 32.52	14.2%
1,400	$ 244.59	**8.2%**	**91.8%**	$ 277.47	**9.4%**	**90.6%**	$ 32.88	13.4%
1,500	$ 260.44	**7.7%**	**92.3%**	$ 293.71	**8.9%**	**91.1%**	$ 33.27	12.8%
1,600	$ 276.30	**7.2%**	**92.8%**	$ 309.93	**8.4%**	**91.6%**	$ 33.64	12.2%
1,700	$ 292.15	**6.8%**	**93.2%**	$ 326.16	**8.0%**	**92.0%**	$ 34.02	11.6%
1,800	$ 307.99	**6.5%**	**93.5%**	$ 342.40	**7.6%**	**92.4%**	$ 34.41	11.2%
1,900	$ 323.85	**6.2%**	**93.8%**	$ 358.62	**7.2%**	**92.8%**	$ 34.77	10.7%
2,000	$ 339.70	**5.9%**	**94.1%**	$ 374.85	**6.9%**	**93.1%**	$ 35.16	10.4%
2,100	$ 355.56	**5.6%**	**94.4%**	$ 406.64	**9.8%**	**90.2%**	$ 51.08	14.4%
2,200	$ 371.40	**5.4%**	**94.6%**	$ 422.86	**9.5%**	**90.5%**	$ 51.46	13.9%
2,300	$ 387.27	**5.2%**	**94.8%**	$ 439.10	**9.1%**	**90.9%**	$ 51.83	13.4%
2,400	$ 403.11	**5.0%**	**95.0%**	$ 455.33	**8.8%**	**91.2%**	$ 52.22	13.0%
2,500	$ 418.97	**4.8%**	**95.2%**	$ 471.55	**8.5%**	**91.5%**	$ 52.58	12.5%
2,600	$ 434.81	**4.6%**	**95.4%**	$ 487.79	**8.2%**	**91.8%**	$ 52.98	12.2%
2,700	$ 450.68	**4.4%**	**95.6%**	$ 504.02	**7.9%**	**92.1%**	$ 53.34	11.8%
2,800	$ 466.52	**4.3%**	**95.7%**	$ 520.24	**7.7%**	**92.3%**	$ 53.72	11.5%
2,900	$ 482.38	**4.1%**	**95.9%**	$ 536.48	**7.5%**	**92.5%**	$ 54.10	11.2%

Metered Energy	Current Bill	Current Fixed %	Current Volumetric %	Proposed Bill	Proposed Fixed %	Proposed Volumetric %	Bill Increase	% Change
3,000	$ 498.23	4.0%	96.0%	$ 552.70	7.2%	92.8%	$ 54.48	10.9%
3,100	$ 514.09	3.9%	96.1%	$ 568.93	7.0%	93.0%	$ 54.84	10.7%
3,200	$ 529.93	3.8%	96.2%	$ 585.17	6.8%	93.2%	$ 55.24	10.4%
3,300	$ 545.80	3.7%	96.3%	$ 601.39	6.7%	93.3%	$ 55.60	10.2%
3,400	$ 561.64	3.6%	96.4%	$ 617.63	6.5%	93.5%	$ 56.00	10.0%
3,500	$ 577.49	3.5%	96.5%	$ 633.86	6.3%	93.7%	$ 56.37	9.8%
3,600	$ 593.34	3.4%	96.6%	$ 650.08	6.2%	93.8%	$ 56.74	9.6%
3,700	$ 609.20	3.3%	96.7%	$ 666.33	6.0%	94.0%	$ 57.13	9.4%
3,800	$ 625.05	3.2%	96.8%	$ 682.56	5.9%	94.1%	$ 57.51	9.2%
3,900	$ 640.90	3.1%	96.9%	$ 698.78	5.7%	94.3%	$ 57.87	9.0%
4,000	$ 656.76	3.0%	97.0%	$ 715.02	5.6%	94.4%	$ 58.26	8.9%
4,100	$ 672.61	3.0%	97.0%	$ 731.25	5.5%	94.5%	$ 58.64	8.7%
4,200	$ 688.46	2.9%	97.1%	$ 747.48	5.4%	94.6%	$ 59.02	8.6%
4,300	$ 704.32	2.8%	97.2%	$ 763.71	5.2%	94.8%	$ 59.39	8.4%
4,400	$ 720.17	2.8%	97.2%	$ 779.94	5.1%	94.9%	$ 59.77	8.3%
4,500	$ 736.02	2.7%	97.3%	$ 796.17	5.0%	95.0%	$ 60.15	8.2%
4,600	$ 751.87	2.7%	97.3%	$ 812.40	4.9%	95.1%	$ 60.53	8.0%
4,700	$ 767.73	2.6%	97.4%	$ 828.62	4.8%	95.2%	$ 60.89	7.9%
4,800	$ 783.58	2.6%	97.4%	$ 844.86	4.7%	95.3%	$ 61.28	7.8%
4,900	$ 799.43	2.5%	97.5%	$ 861.09	4.6%	95.4%	$ 61.66	7.7%
5,000	$ 815.29	2.5%	97.5%	$ 877.32	4.6%	95.4%	$ 62.04	7.6%

Exhibit RDC-3

Residential USAGE Statistics

Row Labels		Sum of BKWH_OCT23	Sum of BKWH_NOV23	Sum of BKWH_DEC23	Sum of BKWH_JAN24	Sum of BKWH_FEB24	Sum of BKWH_MAR24
Mean		2,458	2,714	4,147	5,245	4,707	3,513
	10	763	756	1,071	1,305	1,165	909
	20	866	1,029	1,643	2,118	1,906	1,389
All Residential		829	929	1,434	1,822	1,636	1,214
Median		2,212	2,458	3,666	4,551	4,042	3,098
	10	674	648	821	936	828	704
	20	789	959	1,546	1,988	1,770	1,302
All Residential		749	851	1,299	1,627	1,444	1,092

Sum of BKWH_APR24	Sum of BKWH_MAY24	Sum of BKWH_JUN24	Sum of BKWH_JUL24	Sum of BKWH_AUG24	Sum of BKWH_SEP24	Sum of BKWH_OCT24
2,917	2,435	2,844	3,827	3,671	3,157	2,572
796	729	895	1,249	1,203	1,022	803
1,119	881	992	1,298	1,241	1,078	902
1,002	825	957	1,280	1,227	1,057	866
2,639	2,211	2,523	3,471	3,316	2,831	2,314
669	644	784	1,130	1,083	911	711
1,052	813	888	1,179	1,123	970	821
918	754	851	1,162	1,110	950	782

Sum of BKWH_NOV24	Sum of BKWH_DEC24	Sum of BKWH_JAN25	Sum of BKWH_FEB25	Sum of BKWH_MAR25	Sum of BKWH_APR25	Sum of BKWH_MAY25
2,462	4,176	5,596	5,346	4,139	2,832	2,436
703	1,085	1,386	1,310	1,041	780	720
919	1,648	2,265	2,176	1,662	1,081	889
840	1,443	1,945	1,860	1,436	971	827
2,261	3,604	4,816	4,531	3,517	2,565	2,207
618	831	982	896	761	663	637
865	1,510	2,110	2,010	1,515	1,014	818
778	1,263	1,724	1,625	1,241	888	752

Sum of BKWH_JUN25	Sum of BKWH_JUL25	Sum of BKWH_AUG25	Sum of BKWH_SEP25
2,626	3,952	3,931	3,082
811	1,287	1,295	997
929	1,342	1,323	1,053
886	1,322	1,313	1,032
2,315	3,601	3,569	2,732
701	1,167	1,174	879
830	1,227	1,202	936
784	1,207	1,193	917

Exhibit RDC-4

Row Labels	Sum of BKWH_OCT23	Sum of BKWH_NOV23	Sum of BKWH_DEC23	Sum of BKWH_JAN24	Sum of BKWH_FEB24	Sum of BKWH_MAR24
100% Median	**749**	**851**	**1,299**	**1,627**	**1,444**	**1,092**
1	749	851	1,299	1,627	1,444	1,092
125% Median	**936**	**1,064**	**1,624**	**2,034**	**1,805**	**1,365**
1.25	936	1,064	1,624	2,034	1,805	1,365
150% Median	**1,124**	**1,277**	**1,949**	**2,441**	**2,166**	**1,638**
1.5	1,124	1,277	1,949	2,441	2,166	1,638
50% Median	**375**	**426**	**650**	**814**	**722**	**546**
0.5	375	426	650	814	722	546
75% Median	**562**	**638**	**974**	**1,220**	**1,083**	**819**
0.75	562	638	974	1,220	1,083	819

Row Labels	Sum of BKWH_OCT23	Sum of BKWH_NOV23	Sum of BKWH_APR24	Sum of BKWH_MAY24	Sum of BKWH_JUN24	Sum of BKWH_JUL24
100% Median	**749**	**851**	**918**	**754**	**851**	**1,162**
1	749	851	918	754	851	1,162
125% Median	**936**	**1,064**	**1,148**	**943**	**1,064**	**1,453**
1.25	936	1,064	1,148	943	1,064	1,453
150% Median	**1,124**	**1,277**	**1,377**	**1,131**	**1,277**	**1,743**
1.5	1,124	1,277	1,377	1,131	1,277	1,743
50% Median	**375**	**426**	**459**	**377**	**426**	**581**
0.5	375	426	459	377	426	581
75% Median	**562**	**638**	**689**	**566**	**638**	**872**
0.75	562	638	689	566	638	872

Row Labels	Sum of BKWH_OCT23	Sum of BKWH_NOV23	Sum of BKWH_AUG24	Sum of BKWH_SEP24	Sum of BKWH_OCT24	Sum of BKWH_NOV24
100% Median	**749**	**851**	**1,110**	**950**	**782**	**778**
1	749	851	1,110	950	782	778
125% Median	**936**	**1,064**	**1,388**	**1,188**	**978**	**973**
1.25	936	1,064	1,388	1,188	978	973
150% Median	**1,124**	**1,277**	**1,665**	**1,425**	**1,173**	**1,167**
1.5	1,124	1,277	1,665	1,425	1,173	1,167
50% Median	**375**	**426**	**555**	**475**	**391**	**389**
0.5	375	426	555	475	391	389
75% Median	**562**	**638**	**833**	**713**	**587**	**584**
0.75	562	638	833	713	587	584

Row Labels	Sum of BKWH_OCT23	Sum of BKWH_NOV23	Sum of BKWH_DEC24	Sum of BKWH_JAN25	Sum of BKWH_FEB25	Sum of BKWH_MAR25
100% Median	**749**	**851**	**1,263**	**1,724**	**1,625**	**1,241**
1	749	851	1,263	1,724	1,625	1,241
125% Median	**936**	**1,064**	**1,579**	**2,155**	**2,031**	**1,551**
1.25	936	1,064	1,579	2,155	2,031	1,551
150% Median	**1,124**	**1,277**	**1,895**	**2,586**	**2,438**	**1,862**
1.5	1,124	1,277	1,895	2,586	2,438	1,862
50% Median	**375**	**426**	**632**	**862**	**813**	**621**
0.5	375	426	632	862	813	621
75% Median	**562**	**638**	**947**	**1,293**	**1,219**	**931**
0.75	562	638	947	1,293	1,219	931

Row Labels	Sum of BKWH_OCT23	Sum of BKWH_NOV23	Sum of BKWH_APR25	Sum of BKWH_MAY25	Sum of BKWH_JUN25	Sum of BKWH_JUL25
100% Median	**749**	**851**	**888**	**752**	**784**	**1,207**
1	749	851	888	752	784	1,207
125% Median	**936**	**1,064**	**1,110**	**940**	**980**	**1,509**
1.25	936	1,064	1,110	940	980	1,509
150% Median	**1,124**	**1,277**	**1,332**	**1,128**	**1,176**	**1,811**
1.5	1,124	1,277	1,332	1,128	1,176	1,811
50% Median	**375**	**426**	**444**	**376**	**392**	**604**
0.5	375	426	444	376	392	604
75% Median	**562**	**638**	**666**	**564**	**588**	**905**
0.75	562	638	666	564	588	905

Row Labels	Sum of BKWH_OCT23	Sum of BKWH_NOV23	Sum of BKWH_AUG25	Sum of BKWH_SEP25
100% Median	**749**	**851**	**1,193**	**917**
1	749	851	1,193	917
125% Median	**936**	**1,064**	**1,491**	**1,146**
1.25	936	1,064	1,491	1,146
150% Median	**1,124**	**1,277**	**1,790**	**1,376**
1.5	1,124	1,277	1,790	1,376
50% Median	**375**	**426**	**597**	**459**
0.5	375	426	597	459
75% Median	**562**	**638**	**895**	**688**
0.75	562	638	895	688

Exhibit RDC-5

Block Rates (RDC-2) (JI-1-57)

Monthly Usage	Total Bill at Existing Rates	Total Bill (Proposed Rates)	Gain (Loss) Over Existing (no saving)
100	$38.50	$49.02	($10.52)
200	$54.35	$68.75	($14.40)
300	$70.21	$88.47	($18.26)
400	$86.06	$108.18	($22.12)
500	$101.91	$127.91	($26.00)
600	$117.77	$147.63	($29.86)
700	$133.62	$163.87	($30.25)
800	$149.47	$180.09	($30.62)
900	$165.32	$196.32	($31.00)
1000	$181.18	$212.56	($31.38)
1100	$197.03	$228.78	($31.75)
1200	$212.88	$245.01	($32.13)
1300	$228.74	$261.25	($32.51)
1400	$244.59	$277.47	($32.88)
1500	$260.44	$293.71	($33.27)
1600	$275.30	$309.93	($34.63)
1700	$292.15	$326.16	($34.01)
1800	$307.99	$342.40	($34.41)
1900	$323.85	$358.62	($34.77)
2000	$339.70	$374.85	($35.15)
2100	$355.56	$406.64	($51.08)
2200	$371.40	$422.86	($51.46)
2300	$387.27	$439.10	($51.83)
2400	$403.11	$455.33	($52.22)
2500	$418.97	$471.55	($52.58)
2600	$434.81	$487.79	($52.98)
2700	$450.68	$504.02	($53.34)
2800	$466.52	$520.24	($53.72)
2900	$482.38	$536.48	($54.10)
3000	$498.23	$552.70	($54.47)
3100	$514.09	$568.93	($54.84)
3200	$529.93	$585.17	($55.24)
3300	$545.80	$601.39	($55.59)
3400	$561.64	$617.63	($55.99)
3500	$577.49	$633.86	($56.37)
3600	$593.34	$650.08	($56.74)
3700	$609.20	$666.33	($57.13)
3800	$625.05	$682.56	($57.51)
3900	$640.90	$698.78	($57.88)
4000	$656.76	$715.02	($58.26)
4100	$672.61	$731.25	($58.64)
4200	$688.46	$747.48	($59.02)
4300	$704.32	$763.71	($59.39)
4400	$720.17	$779.94	($59.77)
4500	$736.02	$796.17	($60.15)
4600	$751.87	$812.40	($60.53)
4700	$767.73	$828.62	($60.89)
4800	$783.58	$844.86	($61.28)
4900	$799.43	$861.09	($61.66)
5000	$815.29	$877.32	($62.03)

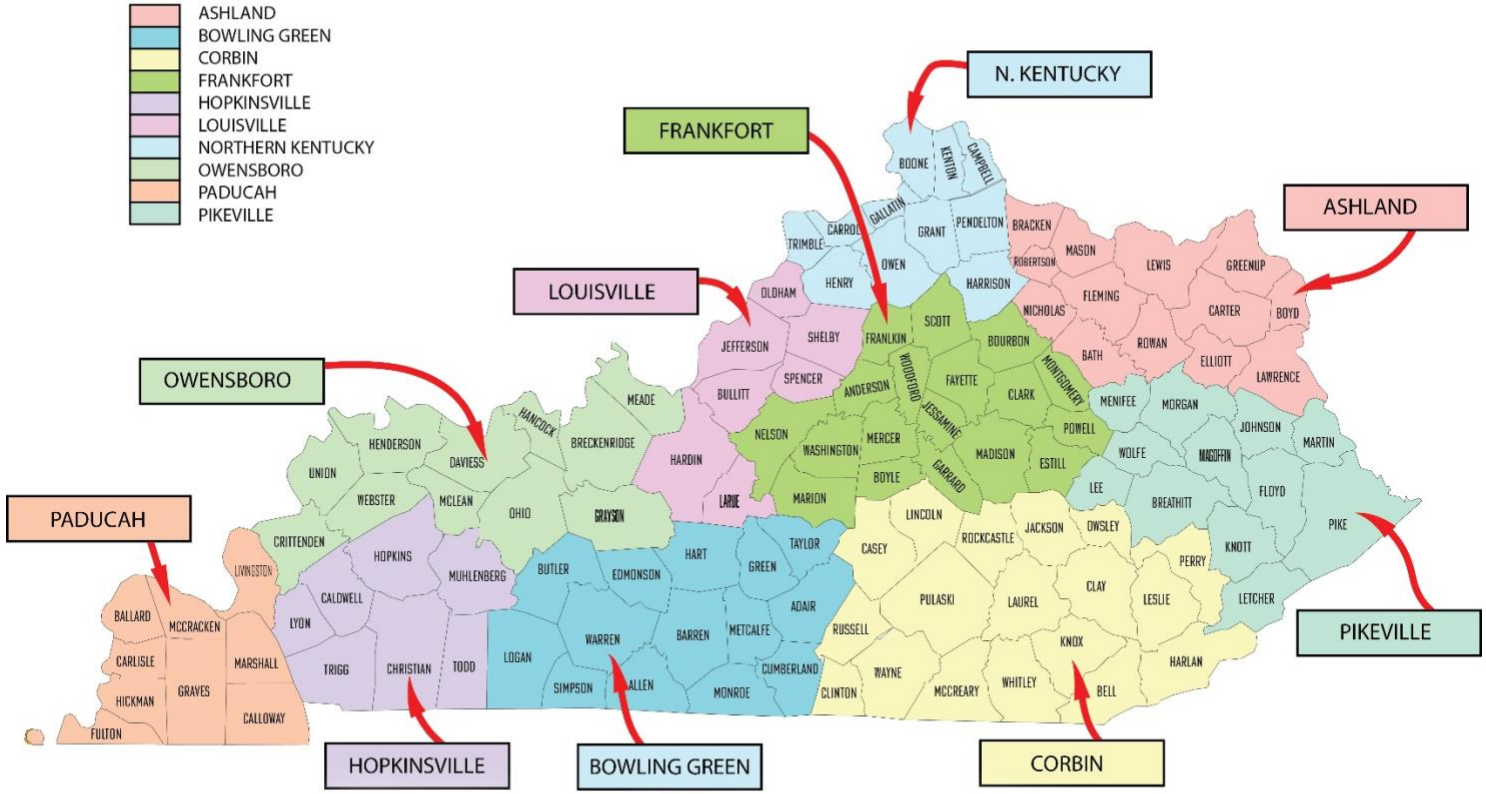
Monthly Usage	Bill reduction (100 kWh savings) (existing rates)	Bill Reduction (100 kWh savings) (proposed rates)	Gain (Loss) (100 kWh savings)
100	xxx	xxx	xxx
200	$15.85	$19.73	$3.88
300	$15.86	$19.72	$3.86
400	$15.85	$19.71	$3.86
500	$15.85	$19.73	$3.88
600	$15.86	$19.72	$3.86
700	$15.85	$16.24	$0.39
800	$15.85	$16.22	$0.37
900	$15.85	$16.23	$0.38
1000	$15.86	$16.24	$0.38
1100	$15.85	$16.22	$0.37
1200	$15.85	$16.23	$0.38
1300	$15.86	$16.24	$0.38
1400	$15.85	$16.22	$0.37
1500	$15.85	$16.24	$0.39
1600	$14.86	$16.22	$1.36
1700	$16.85	$16.23	($0.62)
1800	$15.84	$16.24	$0.40
1900	$15.86	$16.22	$0.36
2000	$15.85	$16.23	$0.38
2100	$15.86	$31.79	$15.93
2200	$15.84	$16.22	$0.38
2300	$15.87	$16.24	$0.37
2400	$15.84	$16.23	$0.39
2500	$15.86	$16.22	$0.36
2600	$15.84	$16.24	$0.40
2700	$15.87	$16.23	$0.36
2800	$15.84	$16.22	$0.38
2900	$15.86	$16.24	$0.38
3000	$15.85	$16.22	$0.37
3100	$15.86	$16.23	$0.37
3200	$15.84	$16.24	$0.40
3300	$15.87	$16.22	$0.35
3400	$15.84	$16.24	$0.40
3500	$15.85	$16.23	$0.38
3600	$15.85	$16.22	$0.37
3700	$15.86	$16.25	$0.39
3800	$15.85	$16.23	$0.38
3900	$15.85	$16.22	$0.37
4000	$15.86	$16.24	$0.38
4100	$15.85	$16.23	$0.38
4200	$15.85	$16.23	$0.38
4300	$15.86	$16.23	$0.37
4400	$15.85	$16.23	$0.38
4500	$15.85	$16.23	$0.38
4600	$15.85	$16.23	$0.38
4700	$15.86	$16.22	$0.36
4800	$15.85	$16.24	$0.39
4900	$15.85	$16.23	$0.38
5000	$15.86	$16.23	$0.37

Monthly Usage	Bill reduction (500 kWh savings) (existing rates)	Bill Reduction (500 kWh savings) (proposed rates)	Gain (Loss) (500 kWh savings)
100	xxx	xxx	xxx
200	xxx	xxx	xxx
300	xxx	xxx	xxx
400	xxx	xxx	xxx
500	xxx	xxx	xxx
600	$79.27	$98.61	$19.34
700	$79.27	$95.12	$15.85
800	$79.26	$91.62	$12.36
900	$79.26	$88.14	$8.88
1000	$79.27	$84.65	$5.38
1100	$79.26	$81.15	$1.89
1200	$79.26	$81.14	$1.88
1300	$79.27	$81.16	$1.89
1400	$79.27	$81.15	$1.88
1500	$79.26	$81.15	$1.89
1600	$78.27	$81.15	$2.88
1700	$79.27	$81.15	$1.88
1800	$79.25	$81.15	$1.90
1900	$79.26	$81.15	$1.89
2000	$79.26	$81.14	$1.88
2100	$80.26	$96.71	$16.45
2200	$79.25	$96.70	$17.45
2300	$79.28	$96.70	$17.42
2400	$79.26	$96.71	$17.45
2500	$79.27	$96.70	$17.43
2600	$79.25	$81.15	$1.90
2700	$79.28	$81.16	$1.88
2800	$79.25	$81.14	$1.89
2900	$79.27	$81.15	$1.88
3000	$79.26	$81.15	$1.89
3100	$79.28	$81.14	$1.86
3200	$79.25	$81.15	$1.90
3300	$79.28	$81.15	$1.87
3400	$79.26	$81.15	$1.89
3500	$79.26	$81.16	$1.90
3600	$79.25	$81.15	$1.90
3700	$79.27	$81.16	$1.89
3800	$79.25	$81.17	$1.92
3900	$79.26	$81.15	$1.89
4000	$79.27	$81.16	$1.89
4100	$79.27	$81.17	$1.90
4200	$79.26	$81.15	$1.89
4300	$79.27	$81.15	$1.88
4400	$79.27	$81.16	$1.89
4500	$79.26	$81.15	$1.89
4600	$79.26	$81.15	$1.89
4700	$79.27	$81.14	$1.87
4800	$79.26	$81.15	$1.89
4900	$79.26	$81.15	$1.89
5000	$79.27	$81.15	$1.88

Monthly Usage	Bill Reduction (savings to 2000) (existing rates)	Bill Reduction (savings to 2000) (proposed rates)	Gain (Loss) (savings to 2000)	Pct kWh Reduction Needed to Achieve 2000
100	xxx	xxx	xxx	xxx
200	xxx	xxx	xxx	xxx
300	xxx	xxx	xxx	xxx
400	xxx	xxx	xxx	xxx
500	xxx	xxx	xxx	xxx
600	xxx	xxx	xxx	xxx
700	xxx	xxx	xxx	xxx
800	xxx	xxx	xxx	xxx
900	xxx	xxx	xxx	xxx
1000	xxx	xxx	xxx	xxx
1100	xxx	xxx	xxx	xxx
1200	xxx	xxx	xxx	xxx
1300	xxx	xxx	xxx	xxx
1400	xxx	xxx	xxx	xxx
1500	xxx	xxx	xxx	xxx
1600	xxx	xxx	xxx	xxx
1700	xxx	xxx	xxx	xxx
1800	xxx	xxx	xxx	xxx
1900	xxx	xxx	xxx	xxx
2000	xxx	xxx	xxx	xxx
2100	$15.86	$31.79	$15.93	4.8%
2200	$31.70	$48.01	$16.31	9.1%
2300	$47.57	$64.25	$16.68	13.0%
2400	$63.41	$80.48	$17.07	16.7%
2500	$79.27	$96.70	$17.43	20.0%
2600	$95.11	$112.94	$17.83	23.1%
2700	$110.98	$129.17	$18.19	25.9%
2800	$126.82	$145.39	$18.57	28.6%
2900	$142.68	$161.63	$18.95	31.0%
3000	$158.53	$177.85	$19.32	33.3%
3100	$174.39	$194.08	$19.69	35.5%
3200	$190.23	$210.32	$20.09	37.5%
3300	$206.10	$226.54	$20.44	39.4%
3400	$221.94	$242.78	$20.84	41.2%
3500	$237.79	$259.01	$21.22	42.9%
3600	$253.64	$275.23	$21.59	44.4%
3700	$269.50	$291.48	$21.98	45.9%
3800	$285.35	$307.71	$22.36	47.4%
3900	$301.20	$323.93	$22.73	48.7%
4000	$317.06	$340.17	$23.11	50.0%
4100	$332.91	$356.40	$23.49	51.2%
4200	$348.76	$372.63	$23.87	52.4%
4300	$364.62	$388.86	$24.24	53.5%
4400	$380.47	$405.09	$24.62	54.5%
4500	$396.32	$421.32	$25.00	55.6%
4600	$412.17	$437.55	$25.38	56.5%
4700	$428.03	$453.77	$25.74	57.4%
4800	$443.88	$470.01	$26.13	58.3%
4900	$459.73	$486.24	$26.51	59.2%
5000	$475.59	$502.47	$26.88	60.0%

Exhibit RDC-6

TAX PAYER SERVICE CENTERS



VERIFICATION

The undersigned, ROGER D COLTON being first duly sworn, deposes and says that HE has personal knowledge of the matters set forth in the foregoing testimony and that the information contained therein is true and correct to the best of HIS information, knowledge, and belief, after reasonable inquiry.

Subscribed and sworn to before me by Roger Colton this 17th day of Nov., 2025.

Notary Public

My commission expires: 11/1/2030

NEDAL A. AZZAM
Notary Public
Commonwealth of Massachusetts
My Commission Expires November 01, 2030