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 ACCOUNTING PRACTICES TO ESTABLISH REGULATORY ASSETS AND LIABILITIES; (4) A SECURITIZATION FINANCING ORDER; AND (5) ALL OTHER REQUIRED APPROVALS AND RELIEF	))))))))	**CASE NO. 2023-00159**

TESTIMONY OF JOSHUA BILLS

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

October 2, 2023

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I. INTRODUCTIONS & QUALIFICATIONS

Q. Please state for the record your name and business address.

A. My name is Joshua Bills. My business address is 433 Chestnut Street, Berea, Kentucky, 40403.

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

A. I am testifying on behalf of Mountain Association, Appalachian Citizens' Law Center, Kentuckians for the Commonwealth, and Kentucky Solar Energy Society (collectively, "Joint Intervenors").

Q. By whom are you employed and in what position?

A. I am employed by Mountain Association as a Senior Energy Analyst.

Q. Please describe your current position.

A. Mountain Association for Community Economic Development, DBA Mountain Association is a Community Development Financial Institution ("CDFI") working with people in eastern Kentucky and Central Appalachia to create economic opportunity, strengthen democracy, and support the sustainable use of natural resources. Our energy programs work to strengthen the region's residents, small businesses, local governments, communities, and non-profits by helping to reduce energy costs and consumption, increase energy security, and build resilience in the face of climate change. Mountain Association has worked with hundreds of small commercial and nonprofit Kentucky Power Company ("Kentucky Power" or "the Company") customers over the last 15 years providing technical assistance and/or financing to access investments in energy efficiency and renewable energy, resulting in reduced customer operating expenses. We have also assisted contractors with technical trainings and equipment financing to grow their businesses.

I've been employed in energy-related work at Mountain Association since 2008. As a Senior Energy Analyst, I serve as Mountain Association's subject matter expert on commercial energy efficiency and renewable energy. Specific responsibilities include promoting and delivering energy analyses, technical assistance, and energy consulting services to enterprises and local governments in eastern Kentucky for implementing efficiency and renewable energy projects. Such assistance includes utility billing reviews to identify energy cost saving opportunities, supporting clients with project implementation, applying for grants and utility rebates (when available), and evaluating return on investment. Another function of my position is to actively engage in regulatory or legislative changes that could impact our energy sector work.

Q. Please describe your professional background.

A. In regards to my background, I have been involved in energy efficiency and renewable energy work in Kentucky for over 25 years. Prior to Mountain Association, I was a North American Board of Certified Energy Practitioners (NABCEP) Photovoltaic (PV) Installation Board Certified solar installer with over 100 renewable energy installations. My resume is attached to my testimony as Attachment JB-1.

My role upon starting at Mountain Association shifted focus to include commercial energy efficiency, as described earlier. I have been a Certified Energy Manager since 2011. My time is spent supporting enterprises with billing reviews, technical assistance, energy assessments, application assistance for clean energy grants, and educating and advocating for policy supporting opportunities for enterprises to save energy costs. I've worked with municipal, cooperative, and investor-owned utilities on net metering, community solar, and energy efficiency projects and policies, including the Berea solar farm, two net metering tariffs, and How$martKY™, an inclusive financing program based on the Pay As You Save, or PAYS®,[1] model.

Q. Please describe your educational background.

A. As for education, I obtained a Bachelor of Science in Mechanical Engineering from Washington University in St. Louis, and a Bachelor of Arts in Mathematics from Berea College.

Q. Have you previously filed expert witness testimony in other proceedings before this Commission or before other regulatory commissions?

A. Yes, I have previously filed testimony before this Commission in Kentucky Power's prior rate case, Case No. 2020-00174. In Case No. 2013-00287, I submitted testimony that the Commission construed as a public comment.

Q. What is the purpose of your testimony?

A. The purposes of my testimony are two-fold: (1) to propose a PAYS®[2] program and discuss the importance of accelerating investment in a cost-effective portfolio of DSM/EE Program, especially as customers face a significant rate increase; and (2) to raise certain issues that we have seen impacting the small commercial customers we work with in Kentucky Power Service Territory. These issues include the availability of federal

[1] PAYS® is registered to Energy Efficiency Institute, Inc. *See* Energy Efficiency Inst., Inc., *Pays® Essential Elements & Minimum Program Requirements* (updated July 20, 2021), https://www.eeivt.com/pays-essential-elements-minimum-program-requirements-2/.
[2] *See also Inclusive Utility Investment,* ENERGY STAR (last updated May 2023), https://www.energystar.gov/products/inclusive_utility_investment.

incentives for energy efficiency investments, and barriers to access those for customers taking service under NMS-II and COGEN/SPP I and II tariffs; issues regarding billing transparency for customers subject to a demand charge; and inequitable application of a demand charge to the smallest commercial customers.

II. SUMMARY OF RECOMMENDATIONS

Q. Please summarize Kentucky Power's requests in this proceeding that are relevant to your testimony.

A. Kentucky Power has proposed raising electric rates in order to increase annual revenues by nearly $94 million, which equates to a total increase across all classes of 13.54%.[3] Yet the Company has correctly recognized the "unique economic and financial challenge that [its] customers are facing,"[4] which include paying electric bills even at current base rates. The proposed base rate increases will clearly affect all rate classes. However, my testimony will highlight challenges for residential and small commercial customers in Kentucky Power territory.

Q. What challenges do you see residential and small commercial customers facing?

The resulting increase in average or typical electric bills, due to Kentucky Power's request, would have the largest impact felt first by Residential Service customers, and second by smaller enterprises receiving General Service. These classes would see

[3] Direct Testimony of Cynthia G. Wiseman, 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 Accounting Practices to Establish Regulatory Assets and Liabilities; (4) A Securitization Financing Order; and (5) All Other Required Approvals and Relief, Case No. 2023-00159, at 18: 3–6 (June 29, 2023) ("Wiseman Direct").
[4] *Id.* at 21:7–8.

increases of 18.3% and 12.8%, respectively.[5] The percentage increase by class is summarized in Table JB-1, below.

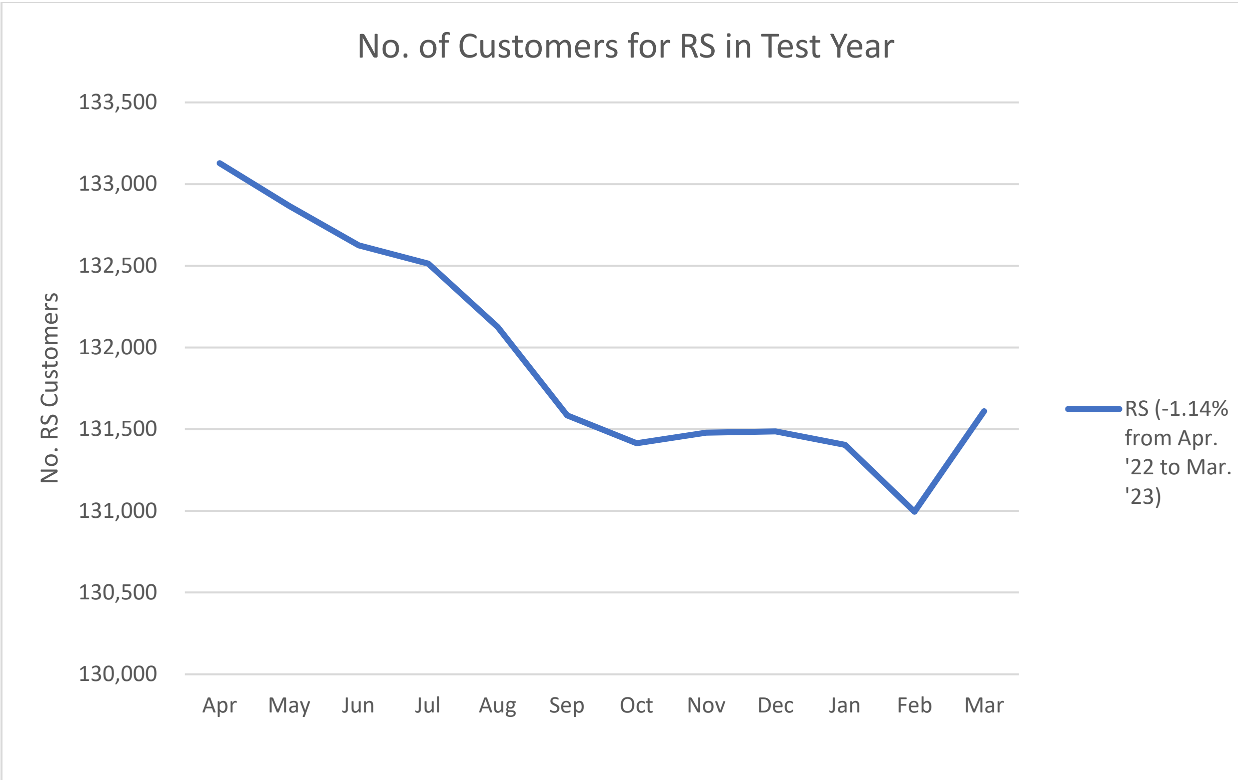
Table JB-1: Kentucky Power Proposed Increase by Rate Class

Electric Rate Class	Year End Adjusted # of Customers	Annual % Increase
Residential Service (RS)	131,610	18.3%
General Service (GS)	29,202	12.8%
Large General Service (LGS)	579	8.9%
Industrial General Service (IGS)	71	8.6%

Kentucky Power is also losing customers; the Company has seen a 1% drop in its customer count since between March 2020 and March 2023.[6] The group most affected by the proposed rate increases, RS, is also notable for loss in customers over the course of the test year.[7] Figure JB-1 shows the number of customers in the RS class for each month of the test year.

[5] Sec. II, Vol. 1, Application Filing Requirements, Ex. I.
[6] Wiseman Direct at 4:19–20.
[7] *See* Response of Kentucky Power Company to Commission Staff's First Request for Information, Case No. 2023-00159, Question 15 (July 13, 2023) ("KPCo Response to Staff Q1.15"), Attach. 3.

Figure JB-1



During the test year alone, Kentucky Power lost over 1% of its RS customers (1,518 in total). The dip in customers for the month of February 2023 is also notable, as it was also the month during the test year with the highest applied Fuel Adjustment Clause ($0.05047/kWh).[8]

Comparing customer classes, GS and LGS customers also experienced very slow or zero growth, as shown in Figure JB-2.[9]

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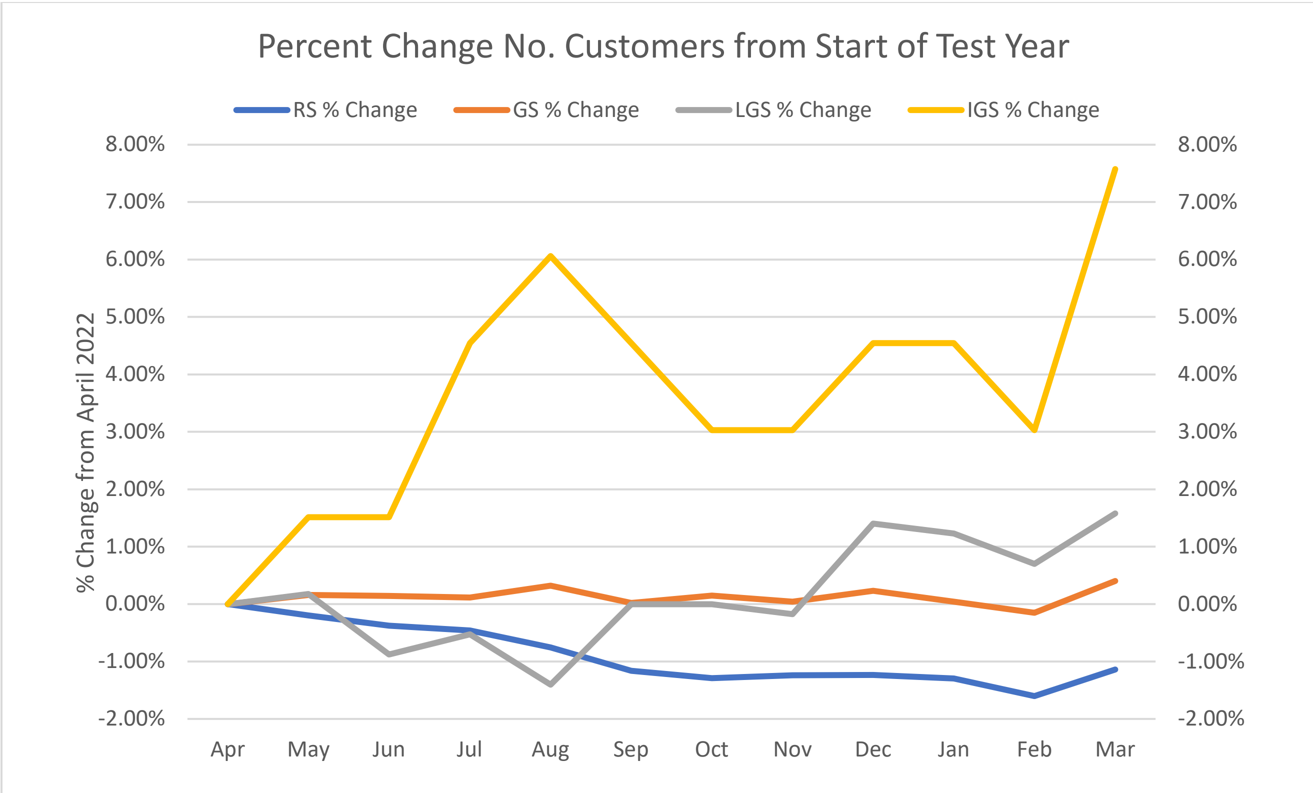
[8] Kentucky Power Company's Standard Fuel Adjustment Clause Schedules (Jan. 23, 2023), https://psc.ky.gov/PSCFAC/AEP-Kentucky%20Power%20Company/2022_KP.pdf.
[9] Data from KPCo Response to Staff Q1.15, Attach. 3.

Figure JB-2



The July 24, 2022 flood, with more than eight inches of rain in 48 hours, was nothing short of total devastation for many households and small businesses in Kentucky Power territory. A significant number of customers were lost, mostly smaller load customers—homes, small businesses, organizations, and houses of worship—that, if salvageable, would take many months to recover. GS customers experienced a loss of 87 meters between August and September billing (0.30%, or one out of every 335), while RS customers experienced loss of 540 customers between August and September billing (0.41%, or one out of every 245).[10] Although, by the test year's end in March 2023, the number of GS customers has recovered (24 more than August billing), unfortunately, the

[10] *Id.*

number of residential customers in that timeframe has recovered very little, sitting at 515 fewer customers than August billing.

In addition to the challenging economic circumstances that contribute to this customer loss, a declining residential customer base means fewer customers available to share the fixed costs of electric service. This situation surely feeds into Kentucky Power's requested rate increases of 18.3% for homes with RS service and 12.8% for enterprises with GS service, which will certainly exacerbate the challenge of keeping lights on and doors open.

III. KENTUCKY POWER NEEDS TO EQUIP THEIR CUSTOMERS TO MANAGE THEIR OWN ENERGY CONSUMPTION.

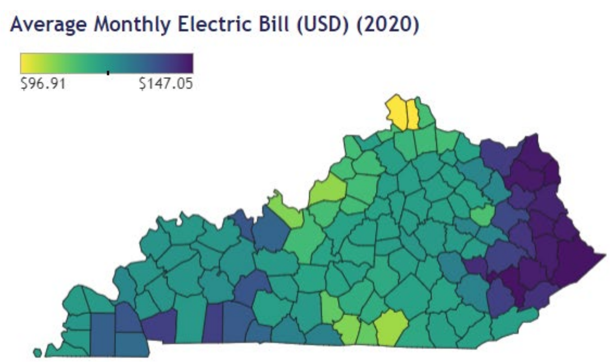
Q. Please describe the situation in Kentucky Power's service territory, based on your experience helping customers in the area who are trying to reduce the energy costs.

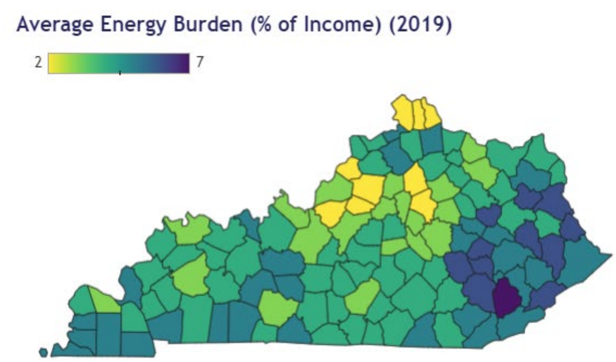
A. There are significant and persistent economic challenges in Kentucky Power's service territory. Many of these challenges are mentioned in the Company's testimony, including serving counties with unusually high unemployment rates and relatively low labor force participation rates.[11] Although the Company's testimony focuses on recent job declines and population loss,[12] eastern Kentucky's economic challenges go back much further. Indeed, all the counties served by Kentucky Power are federally recognized as "persistent poverty counties," meaning that 20% or more of the population was living in poverty

[11] Direct Testimony of Amanda C. Clark, 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 Accounting Practices to Establish Regulatory Assets and Liabilities; (4) A Securitization Financing Order; and (5) All Other Required Approvals and Relief, Case No. 2023-00159, at 4–5 (June 29, 2023) ("Clark Direct").
[12] *See, e.g.*, Wiseman Direct at 5 (describing job and population declines as "now long-term trend in the area . . . that began in the early 2000s.").

over the last 30 years, measured by the 1990 and 2000 decennial censuses and 5-year data series from the American Community Survey of the Bureau of the Census.[13] Kentucky Power already has the highest residential energy bills in the Commonwealth, reflecting an increase of over 33% since 2010,[14] and the highest energy burdens. The figures below reveal the near complete overlap between Kentucky Power service territory (above) and the state's counties with the highest energy bills and burdens (below, in blue).[15]

[13] Craig Benson, *Persistent Poverty in Counties and Census Tracts,* U.S. Census Bureau (May 9, 2023), https://www.census.gov/library/publications/2023/acs/acs-51.html.
[14] Evan Moser, *Kentucky Energy Profile,* Ky. Energy & Env't Cabinet, at 11–12, 30 (8th ed. 2023), https://eec.ky.gov/Energy/KY%20Energy%20Profile/Kentucky%20Energy%20Profile%202023.pdf.
[15] Kentucky Center for Statistics, *Kentucky Energy Affordability* (2020), https://kystats.ky.gov/Reports/Tableau/2022_EnergyDash (bottom color images).





Many residential customers already cannot afford their electric bills. In 2021, Kentucky Power Company disconnected over 8,100 customers for non-payment;[16] and in the

[16] Selah Goodson Bell, et al., *Powerless in the United States: How Utilities Drive Shutoffs and Energy Injustice*, Ctr. for Biological Diversity et al., at 26 (tbl. 7), https://www.biologicaldiversity.org/programs/energy-justice/pdfs/Powerless-in-the-US_Report.pdf (last accessed Oct. 2, 2023). American Electric Power Company's utility subsidiaries combined could have avoided disconnections for non-payment from 2020 through October 2022 with less than $40 million; AEP paid 105 times that amount in dividends over the same period ($4,156,900,000). *Id.* at 14 (tbl. 5).

twelve months ending June 2023, Kentucky Power Company sent 189,584 termination notices and reported 6,135 residential disconnections for nonpayment.[17]

We have yet to see significant movement or easy opportunities available for residential customers to take steps to save electricity costs—which is even more concerning now, with RS rate class facing a potential average 18.3% increase.

On a brighter note, we have seen opportunities embraced and electricity cost-saving measures implemented by many of the enterprises we work with that are GS and LGS customers. I'll get into those a little later in my testimony, but for now I'd like to point out that for many of the enterprises we have worked with in Kentucky Power service territory, their load reduction measures have not *reduced* billed costs significantly over time, but rather have protected them from increased costs from the multiple rate increases experienced in recent years.

Q. Has Kentucky Power proposed any programs to address the impact of this proposed rate hike on low-income customers?

A. Ms. Cobern's testimony describes the Company's requested changes to programs serving low-income customers, which include raising the renewable energy adjustment (REA) surcharge on residential bills in order to increase the number of customers served by its Home Energy Assistance (HEA) Programs, which include the Home Energy Assistance in Reduced Temperatures (HEART) and Temporary Heating Assistance in Winter

[17] Case No. 2019-00366, Investigation of Home Energy Assistance Programs Offered by Investor-Owned Utilities Pursuant to KRS 278.285(4), Kentucky Power Company Appendix B 2023 Annual Report on Home Energy Assistance Programs (Ky. PSC Aug. 15, 2023) ("KPCo 2023 Annual HEA Report"), KPCO_R_KPSC_A_6_Attachment1 tab "A_6", https://psc.ky.gov/pscecf/2019-00366/mmcaldwell@aep.com/08152023125323/Closed/KPCO_R_KPSC_A_6_Attachment1.xlsx.

(THAW) Programs, and extending the deadline for bill payment from 15 days to 21 days of the mailing date of the bill.[18] I support both proposals and agree that extending the deadline for bill payment will put Kentucky Power closer in line with other investor-owned electric companies. The Company also proposes to provide low-income customers with a bill credit of 50% of the savings from its Distributed Solar Garden proposal. I support this component of the Company's proposal, which Joint Intervenors' witness Andrew McDonald addresses in his testimony.

Q. Do you believe the programs proposed by the Company are sufficient to meet the needs of KPC customers?

A. While I support expanding HEA programs and recognize that raising the REA surcharge and Company match from $0.30 to $0.40 on each monthly RS bill will provide short-term relief to approximately 1,000 additional low-income customers,[19] I also recognize that these programs, as well as the Company's proposed RS seasonal provision, are quick fixes that only address symptoms experienced in winter months. They are not solutions that address the need for customers to make long-term year-round systemic changes through efficiency and customer-sited generation. Indeed, quick fixes can naturally lead to unintended dependency instead of fundamental changes. I do not believe the Company's proposals are sufficient to meet the significant needs of Kentucky Power's customers. The HEA programs and the RS seasonal provision do not target the root of the

[18] See Direct Testimony of Stevi N. Cobern, 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 Accounting Practices to Establish Regulatory Assets and Liabilities; (4) A Securitization Financing Order; and (5) All Other Required Approvals and Relief, Case No. 2023-00159, at 2:18–3:1 (June 29, 2023) ("Cobern Direct").
[19] *Id.* at 5:3–7.

problem because they do not equip customers to lower their energy consumption and therefore lower their bills over time.

It is worth noting that the customers receiving assistance from Kentucky Power's HEA Programs have higher electric bills than residential customers do as a whole. From July 2022 to June 2023, the average monthly bills for HEA Program participants were $202.37, whereas average monthly bills were $170.70 for all residential customers.[20] Moreover, Company data shows that hundreds of customers receiving assistance from the HEA Programs experienced monthly bills higher than $500 this past winter.[21] Company witness Cobern acknowledges the role that inadequate weatherization measures, less efficient appliances, and improper building envelopes play in exacerbating the financial strain for low- and moderate-income households, and the role that energy efficiency improvements can play to reduce customer bills, especially for those with mobile homes, older homes, and electric resistance heat or inefficient heat pumps.[22] Ms. Cobern cites the Company's Targeted Energy Efficiency ("TEE") Program, which provides supplemental funding to Kentucky Housing Corporation's Weatherization Assistance Program for low-income customers, as one of the Company's measures to help its customers manage their energy usage.[23]

[20] KPCo 2023 Annual HEA Report, Attach. KPCO_R_KPSC_A_6_Attachment1 tabs "A_6" & "A_7," *supra* n.17 (totals provided are the average of reported average monthly bill amounts).
[21] *See* KPCo Response to Staff Q.2.12(c), Attach. 2. For example, when searching the "THAW" tab, column labeled "BILL_AMT_JAN23" highest to lowest, in January 2023, 210 customers enrolled in the THAW program had monthly bills greater than $500 and household energy consumption exceeding 3,000 kWh.
[22] Cobern Testimony at 8:7–20.
[23] Response of Kentucky Power Company to Joint Intervenors' Initial Request for Information, Case No. 2023-00159, Question 1.21 (Aug. 28, 2023) ("KPCo Response to JI Q1.21"); Cobern Testimony at 9:18–21 (describing the Company's financial support for weatherization assistance through the TEE Program).

Weatherization assistance for low-income customers is critical, yet only a very small number of customers are served by the Company's TEE Program. On average, between 2019 and 2022, 67 customers per year were served.[24] Moreover, there does not appear to be an adequate link between the HEA Programs and the TEE Program. Only a very small number of the customers enrolled in the Company's HEA Programs received weatherization assistance through the TEE Program; out of the approximately 2700 customers who received assistance from the HEA Programs in the 2022-2023 program year, only 12 also received weatherization support from the TEE Program.[25]

Q. What would better enable customers to control their energy consumption?

A. In the face of yet another increase in electric rates, Kentucky Power customers need robust targeted programs to empower many more of them to save energy. They also need reduced barriers to implementing customer-sited distributed energy resources (DERs). I will discuss examples of each in this testimony.

Q. Do you recommend the Commission take any action regarding this issue?

A. Yes, before approving any rate increase or considering approval of new investment in generation, transmission, and distribution assets, the Commission should direct the Company to accelerate investment in a cost-effective portfolio of DSM/EE Programs. The portfolio should pursue all potentially cost-effective strategies, be the result of collaborative stakeholder processes, and include an inclusive utility investment program that incorporates the PAYS® essential elements and program requirements.[26]

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[24] KPCo Response to JI Q2.3(a).
[25] *Id.* at JI Q2.3(b).
[26] *See* Energy Efficiency Inst., Inc., *Pays® Essential Elements & Minimum Program*

Implementing an inclusive utility investment program can be an effective complement to market-rate programs offering customers rebates and incentives by helping to overcome financial barriers to reducing energy waste and improving energy efficiency.[27]

Q. Can you explain how an inclusive utility investment program such as PAYS® helps to overcome financial barriers to efficiency gains?

A. With an inclusive utility investment program, the utility makes capital investments directly in energy efficiency, load control, and/or storage improvements in their customers' homes and businesses. For some customers, access to the upfront capital needed to make efficiency upgrades to their home is a significant barrier, which inclusive utility investment helps them to overcome.

For example, a household might be ready and motivated to upgrade their electric resistance heating system but may not have access to the kind of cash it takes to make that upgrade. Kentucky Power could choose to make an investment in that energy-saving upgrade (as opposed to buying or generating and delivering energy) by paying those

Requirements (updated July 20, 2021), https://www.eeivt.com/pays-essential-elements-minimum-program-requirements-2/ ("A program based on PAYS® has these essential elements: A fixed monthly tariffed charge assigned to a location, not to an individual customer; Payment on the utility bill with utility cost recovery on the same terms as their other essential utility services; and Independent certification that products are appropriate and savings estimates exceed payments in both the near and long terms.").

[27] Cf. Case No. 2022-00392, Electronic Application of Kentucky Power Company for: (1) Approval of Continuation of Its Targeted Energy Efficiency Program; (2) Authority to Recover Costs and Net Lost Revenues, and to Receive Incentives Associated with the Implementation of Its Demand-Side Management Programs; (3) Acceptance of Its Annual DSM Status Report; and (4) All Other Required Approvals and Relief, Kentucky Power Company's Notice of Filing Market Potential Study at 3, 4 (Ky. PSC Aug. 11, 2023) ("KPCo 2023 Market Potential Study") ("The gap between economic potential and [Maximum achievable potential] MAP/[Realistically achievable potential] RAP represents market barriers to prospective program participants, both financial and non-financial, to achieving the full amount of economic potential.").

upfront costs and then recovering that investment through a fixed charge on the metered bill.

To be effective, the program model requires clear parameters and protections. First and foremost, the installed improvements pursued must deliver measurable savings that will *reduce* the metered bill's energy charge to an amount greater than the fixed charge intended to recover the utility's investment. That requirement is essential, both for participant- and system-wide cost-effectiveness.

Q. How would Kentucky Power Company develop a program that is adequately protective and valuable to customers and the system overall?

A. Kentucky Power does not have to go it alone, nor reinvent any wheels.[28] Kentucky Power should engage with their stakeholders in a participatory process to develop an inclusive utility investment program that addresses the biggest burdens for participants, all customers, and the company itself.

In terms of program design, I would encourage Kentucky Power to consider alignment with the full DSM/EE Portfolio, targeting participation, applicability beyond efficiency, quality control, and scale.

As I mentioned, a PAYS® program can complement other DSM/EE programs and should be considered as part of a DSM/EE portfolio planning process. Incorporating a PAYS® program alongside rebate and incentive programs will help increase market-rate program participation.

[28] *Id.*at 37 (the same "program archetypes with basic program go-to-market strategies and incentives, *e.g*. rebates, direct-install, marketplace, etc. for Kentucky Power's service territory" are already identified and can be accessed by a broader pool of customers with DSM/EE programs complemented by a PAYS or similar tariff on bill financing).

Kentucky Power should also engage local organizations in the stakeholder process, including those doing flood relief work. By partnering with local groups—from the design phase all the way to implementation—the Company can best understand customer needs and opportunities to align the utility's program with other efforts and strands of funding.

Q. What do you mean by targeting participation?

Program design can be targeted or tailored to prioritize high value savings potential. For example, Kentucky Power could mitigate winter exposure to wholesale energy price risk with programs directed at single-family households and manufactured housing[29] with electric resistance heating or propane heating. Those homes present opportunities to reduce coincidental peak demand and reduce wholesale power cost exposure with a core set of measures that will also make the homes healthier, safer, and more comfortable. Optional measures that could be packaged appropriately for each home could include:

- Upgrading resistance and propane heat to efficient heat pump systems, central or ductless (with minimum HSPF of 8.8), and with inclusion of smart thermostats;
- Whole-home weatherization and air sealing;

[29] Investment in manufactured housing should be limited to structures that are no more than forty years old, or similarly protective benchmark. By applying a reasonable limit to the age of manufactured homes, Kentucky Power can ensure that it is investing in homes constructed after passage of the 1976 Manufactured Home Construction and Safety Standards and can be expected to have economic lives that continue at least as long as the installed measures.

- Upgrading to ENERGY STAR-certified windows appropriate for our region[30];
- Replacing resistance water heaters with more efficient heat pump water heaters where able;
- Installing smart appliances and/or load control;
- Customer-sited solar and battery DERs[31]; and
- Customer-sited electric vehicle charging infrastructure.[32]

This mix of measures would align with a Home Energy Improvement Program considered in Kentucky Power Company's Market Potential Study ("MPS").[33] As contemplated in the MPS, a Home Energy Improvement Program would offer financial incentives and energy audits. Even with incentives, some customers may not be able to bear the upfront costs of new HVAC equipment, or be able to also afford attic insulation, duct insulation, and air sealing to reduce *wasted* heating energy.[34] A PAYS® program helps those customers achieve energy savings that otherwise would have been missed or delayed.

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[30] *See* ENERGY STAR, *What Makes it Energy Star?*, https://www.energystar.gov/products/residential_windows_doors_and_skylights/key_product_criteria (last accessed Oct. 2, 2023).
[31] Batteries have the potential to further reduce home electric bills under RS-TOD or Residential Demand (RSD) with TOD components.
[32] For customers who have switched from gas power vehicles to electric vehicles, include the cost for implementing customer's EV charging infrastructure, namely to install an accessible, level 2 EV charging outlet, and give the customer the option to incorporate charging on RS-LM-TOD separately metered provision (with service charge for the separate meter at $4.30 per month) by adding EV charging to the currently approved electric thermal storage space heating and water heating loads allowed with the $4.30 separate metering provision in RS-LM-TOD.
[33] KPCo 2023 Market Potential Study at 40–41 (explaining modeled program design for Home Energy Improvement Program).
[34] *See, e.g.*, Cobern Direct at 8 (noting prevalence of households with inadequate weatherization measures, contributing to higher usage and bills).

A PAYS® program, especially one inclusive of both residential and small commercial customers, could also be leveraged to help meet peak demand and strengthen the ability to achieve hour-by-hour energy. The program could support investment in measures that increase site-specific resiliency, with potential to be aggregated into a Virtual Power Plant (VPP), as is also discussed in Joint Intervenors' witness Andrew McDonald's testimony. For example, San Diego Gas & Electric has implemented a pilot VPP program to reduce energy demand and put electricity back on the grid during peak hours, "all through leveraging the capabilities of customer-owned smart thermostats, rooftop solar, energy storage and other connected resources such as water pumps."[35] With the "internet of things," direct load control capable appliances can be an additional resource.[36] With energy storage, larger commercial projects can offer wider community benefits with focus on hospitals, emergency shelters, and households with critical medical devices. With storage, it is important that the VPP deployment be limited to a portion of the battery storage in order to leave some room available, if needed, for backup power.

In addition to the residential-targeted measures listed earlier, many of which also apply to business, faith-based, mission-based, and municipal customers, there are also targeted commercial measures that could be included in an inclusive utility investment program:

- Hard-wired LED and other efficient commercial lighting fixtures and controls;

[35] SDG&E News Release, *SDG&E Pioneers Virtual Power Plant to Help Ease Strain on the Power Grid During Extreme Heat*, SDGE (Aug. 28, 2023), https://www.sdgenews.com/article/sdge-pioneers-virtual-power-plant-help-ease-strain-power-grid-during-extreme-heat. *See also* SDGE, *Shelter Valley Virtual Power Plant Pilot Project*, https://www.sdge.com/major-projects/shelter-valley-virtual-power-plant-pilot-project (last accessed Oct. 2, 2023).

[36] *See* Poushali Pal et al., *IoT-Based Real Time Energy Management of Virtual Power Plant Using PLC for Transactive Energy Framework*, 9 IEEE Access 97643–60 (2021), https://ieeexplore.ieee.org/document/9466870.

- Refrigeration waste heat recovery for space and water heating;
- Solar alone or with battery storage for load shifting, thus reducing demand charges; and
- Charging infrastructure for electric vehicles, particularly including school buses, commercial fleets, and bi-directional chargers.[37]

Q. What would make a PAYS® program, or similar program, adequately protective for all involved?

A. There are several things you can bake into program design to make sure the program is successful from the perspective of participants, all customers, and the Company. I mentioned the importance of ensuring that the investment costs are less than the value of energy savings. It is also important to have access to a robust network of contractors, capable of quality work that delivers real savings. To that end, Kentucky Power could also consider playing a role in workforce development.

In terms of participation, the option could be open to all residential and commercial customers (with appropriate measure mixes for each). Within the residential class, participation can include both homeowners and renters—providing everyone with access to capital for energy savings. The more critical qualifiers should be simply whether a structure is retrofit-ready (i.e., structurally sound with no visible health or safety concerns) and whether savings can be cost-effectively achieved.

[37] P.S.C. KY. No. 12, 1st Rev. Sheet (No. 7-3), Kentucky Power Company, Load Management Time of Day Provision, Tariff Codes 223 and 225 General Services, at 51-52 (effective Aug. 1, 2021), https://psc.ky.gov/tariffs/Electric/Kentucky%20Power%20Company/Tariff.pdf (PAYS® upgrade could include the EV charger and electrical work necessary to install with customer having the option of including as separately metered Load Management Time-Of-Day Provision (Tariff Code 223 and 225)).

Q. Do you have any comments on the potential scale of a program?

A. Yes, and this is another important detail. I would recommend Kentucky Power consider at least a ten- to twelve-year commitment of meaningful energy efficiency investment on the customer side of the meter. Continuing evaluation of the program and mid-term updates would certainly also be warranted, and the minimum ten-year commitment is important for workforce development in particular. Just as customer participation needs to be ramped up over time, some certainty for contractors helps to build the workforce needed to scale programs.[38] If Kentucky Power could begin with reaching 150 to 200 participants in year one, with annual increases of 10–20%, a program could reach 5,000 participants by 2033.

[38] *See, e.g.*, KPCo 2023 Market Potential Study at 37 (observing that "markets in the Kentucky Power service territory may not react immediately and/or the program may require time to mature operations").

Table JB-3. Possible Participation Targets

Year	Participants
1	200
2	240
3	288
4	346
5	415
6	498
7	597
8	717
9	860
10	1,032
Total Participants	5,193

Q. Has this been done anywhere else?

A. Yes, here in Kentucky some of our rural electric distribution cooperatives invest in behind-the-meter energy savings through the How$mart! Program, also known as the Kentucky Energy Retrofit Rider. Regulated utilities in Missouri, Georgia, and Arkansas have approved tariffs based on PAYS®, and PAYS® programs have also been implemented in North Carolina, New Hampshire, California, and Tennessee.

Q. How would this benefit customers participating in the program?

A. Participating customers should see all the ordinary benefits of improving home efficiency, starting with reduced energy usage and reduced monthly bills. Homes can be made healthier, safer, and more comfortable, helping to maintain and improve property values. Money saved on utility bills can be spent elsewhere in the local economy.

Participants get these benefits without incurring debt or assuming a loan, instead returning the utility's investment gradually over time with reduced energy usage.

Q. How would this benefit ratepayers as a whole?

A. With utility investment in energy savings, the entire system benefits. The cheapest, cleanest kilowatt hour is the one that does not need to be generated and delivered. Well designed and implemented programs can defer and reduce the need for new supply-side capital investments and reduce exposure to wholesale energy prices. This can translate into a rate decrease for all customers, as was the experience of Ouachita Electric Cooperative with a similar program:

> We wrote a tariff to collect on-bill, sent that to the public service commission in the fall of 2015, and it was approved in 2016 without any changes. After the first year, we had invested in almost $3 million in local member homes. With weatherization and HVAC, we're averaging an 18% reduction in demand across all members. Some are as high are as 30-40%. Adding solar moves the savings up to 70-80%. Overall, our cost of power has decreased. For every residential project completed, we're seeing a 1.5 to 2 MW reduction for peak demand. Because we've done 700 projects and added solar, we've reduced our summer peak by about 30%. These, and other factors, all contributed to OEC implementing a 4.5% rate decrease on February 1, 2020.[39]

A PAYS® or similar tariff inclusive utility investment program makes it newly possible for some customers to access energy savings potential today, reducing system energy and capacity needs.

[39] Southeast Energy Efficiency Alliance, *A Tale of Two Tariffs: Ouachita Electric Cooperative and Roanoke Electric Cooperative* (Mar. 16, 2020), https://www.seealliance.org/a-tale-of-two-tariffs-ouachita-electric-cooperative-and-roanoke-electric-cooperative/.

Q. How would this benefit the economy and create jobs in Kentucky Power service territory?

A. There would be direct and indirect benefits for our economy. Direct employment effects of energy efficiency investments are mostly in the construction industry, followed by work in product design and manufacturing fields, and professional services.[40] In 2016, Environmental Entrepreneurs (E2) and E4TheFuture observed that "most energy efficiency workers are at small companies with 25 or fewer employees," spanning installation (40%), trade and distribution (26%), professional services and more.[41] Within the energy sector, efficiency investments have a notably high employment multiplier.[42] Along with recognizing "a critical need for the Company to assist with efforts to maintain existing customers and further develop the region's economy,"[43] the workforce development and job sustaining benefits of utility-sponsored DSM/EE programs must be remembered. In terms of direct spending on energy services, helping customers achieve energy savings provides more economic benefits to the region than any supply-side generation option.

Q. Why is it important to do this now?

A. Reducing energy waste and increasing energy efficiency is always an important and rewarding place to start in system planning. Right now, for Kentucky Power and their

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[40] *See, e.g.*, Marilyn Brown et al., *Estimating Employment from Energy Efficiency Investments*, 7 MethodsX at 100955 (June 2020), https://www.sciencedirect.com/science/article/pii/S2215016120301758, attached to my testimony as Exhibit JB-2.

[41] Sarah Lechmann et al., *Energy Efficiency Jobs in America*, Environmental Entrepreneurs (E2) & E4TheFuture (Dec. 2016), https://www.e2.org/wp-content/uploads/2016/12/EnergyEfficiencyJobsInAmerica_FINAL.pdf.

[42] Marilyn Brown, et al., Exhibit JB-2, *supra* n.40.

[43] Wiseman Direct at 8–9.

customers, significant investment in energy savings is important to address some of root issues challenging us all. Kentucky Power Company is asking for a significant rate increase, with a demonstrated need for more energy and capacity resources. Before customers are asked to pay even more for more Company capacity, we need to see investment in energy savings.

IV. CHALLENGES FOR KENTUCKY POWER'S GS AND LGS CUSTOMERS

Q. What has been your experience working with small commercial customers in Kentucky Power service territory?

A. We have witnessed firsthand the struggles facing small commercial customers seeking to improve operations and reduce electric expenses. Many have too many competing demands to give time and resources to making lasting efficiency improvements. Many have been unclear on how to prioritize and evaluate energy saving opportunities in part due to having the fixed service charge, the energy charge, and the demand charge lumped together on their bills. Assisting commercial customers often involves as much explaining the separate components that make up "Rate Billing" as it does identifying energy saving opportunities. Simply understanding demand charges can often lead to simple low- to no-cost solutions that these customers can implement day one on their path to even further savings.

Q. Are there any issues regarding GS and LGS customers that you would like to raise with the Commission?

A. Yes. There are three issues that we regularly come across with Kentucky Power Customers that I would like to raise with the Commission: (1) certain issues regarding publicizing and accessing significant incentives recently made available with passage of the Inflation Reduction Act (IRA) in 2022, including increased funding for USDA Rural Energy for the Americas Program (REAP) and the direct-pay option for eligible nonprofits to access applicable energy investment tax credits; (2) some problems with Kentucky Power billing statements that create a lack of transparency; and (3) inequitable application of the demand charge to smaller GS customers. I will address each issue in my testimony below.

A. Opportunities for REAP Grants and Direct-Pay for Kentucky Power Customers

Q. Please describe your experience working with commercial customers receiving USDA REAP grants in Kentucky Power service territory.

A. We have worked with commercial customers packaging USDA REAP grant applications for many years, and REAP has become even more of an essential tool for supporting small businesses in Eastern Kentucky today. The last 14 months since the floods of 2022 have been exceptionally challenging for many GS and LGS customers. A number of enterprises lost virtually everything. Many have not fared as well as one example we have owner's permission to highlight: Isom IGA, a grocery store and LGS customer in Letcher County. Isom IGA lost nearly everything, with more than six feet of muddy water filled the entire building. It took over eight months of hard work, with no sales, to get the store in shape to reopen in April 2023.

We had worked with the grocery store over the previous decade to support efficiency measures including LED lighting, an upgrade to the refrigeration rack system with waste heat recovery to supplement space heating, and rooftop solar installation in 2020.[44]

[44] *See*, Ariel Fugate, *Isom IGA – Isom, Kentucky*, Mountain Association (Aug. 17, 2020), https://mtassociation.org/energy/isom-iga-isom-ky/.

Kentucky Power Commercial Energy Rebates supported many of those upgrades before their elimination on January 1, 2018.[45] Many of the upgrades, including rooftop solar, were supported in part by USDA REAP grants.

Not all was lost; fortunately, the lighting fixtures escaped damage, as did the rooftop solar, which incidentally provided welcome bill relief while the store renovations took place. For over two months, early in the recovery, the store was a net energy producer, up until December 2022, when usage drained down the earlier credits gained. Unfortunately, all of the store's refrigeration cases had to be replaced, and the refrigeration rack system had to be refurbished, but that did open up the opportunity to add water heating to the waste heat recovery system, which was formerly space heating only. Some of these post-flood improvements were made possible in part with the even larger incentives in the USDA REAP grant program made available in 2023.

The passage of the IRA is an historic opportunity, especially for rural small businesses. With its passage, REAP has been provided over $2 billion to support renewable energy systems and energy efficiency improvement with grants for agricultural producers and rural small business owners through 2031. On March 1, 2023, USDA announced the availability of $1 billion under the REAP program for the next six quarterly competitions.[46] This has resulted in an increase in the subsidy cap, an opportunity for many more projects to be funded and an increase in the subsidy per project from 25

[45] Case 2017-00097, Electronic Investigation of the Reasonableness of the Demand Side Management Programs and Rates of Kentucky Power Company, Order at 16 (Ky. PSC Jan. 18, 2018).

[46] Notice of Solicitation of Applications for the Rural Energy for America Program for Fiscal Years 2023 and 2024, 88 Fed. Reg. 19,239 (Mar. 31, 2023), https://www.govinfo.gov/content/pkg/FR-2023-03-31/pdf/2023-06376.pdf.

percent to 50 percent of the implementation costs. We suggest Kentucky Power make this information accessible on their website to share this significant opportunity.

Q. Please describe your experience working with nonprofit customers implementing solar projects as a result of IRA expansion of clean energy tax credits through elective pay, otherwise known as "direct pay."

A. The IRA's "elective pay," often called "direct pay," provision is a means by which tax-exempt and government entities can, for the first time, take advantage of tax credits for building clean energy projects like rooftop solar. This has unlocked the opportunity for many mission-based organizations, places of worship, local governments, and school districts in the Company's service territory that are interested in pursuing solar to now implement solar with good financial return. Presently we have seven nonprofit clients in our pipeline actively implementing solar projects that are Kentucky Power GS or LGS service customers. Most of these are expected to be in operation in 2023. We are aware of other solar projects in KPC territory that have gone out to bid that are being pursued by local government agency offices and public schools.

Q. Are there any additional changes you recommend Kentucky Power make so that customers can take advantage of REAP funding and direct pay?

A. With this USDA funding opportunity for both for-profit and non-profit enterprises, we are seeing a lot of applications for commercial solar implementation. Most are pursuing interconnections under the NMS-II rider, but we are also seeing some larger projects pursuing interconnection under COGEN/SPP I and II tariffs.

For three-phase customers, many have three-phase service types that Kentucky Power does not allow interconnection with, and historically the Company has required the customer to pay for delivery system upgrades to an approved interconnectable three-phase or single-phase service in order to interconnect DERs. This can increase the project implementation cost by $5,000 or more. Often it is an unexpected expense. Unfortunately, we are seeing some RFPs for solar projects—at locations with this issue—that do not identify this need in the request. It often is overlooked, sometimes with no contingency in place, until later in the implementation phase. I understand that these three-phase services, which Kentucky Power interprets as incompatible with secondary side generation, can be less expensive infrastructure to provide—*e.g.*, providing three-phase service in building where only two-phase distribution is available.

To address this issue, Kentucky Power needs to do two things. First, the Company should identify incompatible three-phase service types on web or marketing materials regarding customer installation of generation equipment or customer-dispatchable resources like interconnected batteries or bi-directional EV chargers. Second, any new customer inquiring about or being offered incompatible three-phase service needs to be informed that such service would need to be replaced if secondary side resource is pursued at some point by the customer.

B. Transparency in Customer Billing Statements

Q. Please describe the issue you have observed with regard to customers' billing statements?

A. In my work with small commercial customers, we regularly review bills to identify baseline use and help identify some areas to focus on for energy saving improvements. With Kentucky Power bills we see service charge and energy charge combined to one fee on RS bills. For GS and LGS, we see service charge, energy charge and demand charges as a combined sum on the bills, rather than reporting each of those charges separately.[47]

Q. Why is combining these charges detrimental to customers?

A. This is a problem because there is a lack of transparency around customer bills, and it is difficult for customers to determine how their use of energy and peak power impact their bill totals, making the lack of transparency especially detrimental for customers subject to a demand charge. While it is technically possible for customers to review the tariff and identify the separate charges themselves (*i.e.*, by looking up the Kentucky Power tariff and calculating out the charges for the metered readings on the bill by applying the energy and demand rates), this is a cumbersome extra step that many customers do not have the time or familiarity with the tariffs necessary to complete.

If commercial customers are not able to quickly discern what charge on their bill is related to the total amount of energy used (the energy charge), along with the peak spike in average 15-minute power draw (the demand charge), then they are missing critical information about how their behavior and usage impacts their bill amount.

Without this information presented in an easy-to-read format, they may miss out on some easy changes or easily implemented efficiency measures they can make to respond effectively to the price signals presented. Seeing energy charge separate from demand charge on each bill can tell someone quickly where to focus first, because often reducing

[47] *See* Response of Kentucky Power Company to Joint Intervenors' First Supplemental Discovery Requests, Case No. 2023-00159, Questions 2.18–2.20 (Sept 25, 2023) ("KPCo Response to JI Q2. 2.18–2.20"). On Large General Service customer bills, Service, Energy, Demand, and Excess Reactive Charges are reported as one combined charge. KPCo Response to JI Q2.20(a).

demand is an easy first step that rewards with savings that foster further measures to save more.

We see many of Kentucky Power Company's GS and LGS meters can display a date stamp that coincides with the day of the current billing cycle so far for which highest measured peak demand has occurred. This is good information for customers to have. On their website, in addition to information about energy savings, the Company should also have information about demand charges, steps one can take to reduce them, and information on reading one's electric meter.

Q. To your knowledge, is the Company aware of this issue?

A. Yes. In July, my colleague Chris Woolery and I met informally with Company representatives and raised this issue with them.

Q. Are you aware of any developments after this conversation?

A. The Company shared, in response to information requests from Joint Intervenors, that its staff were unaware of any reason that the charges are displayed this way on customer bills.[48] Moreover, the Company stated that its customer billing support team concluded that it was possible to separate out the demand charges on bills for GS and LGS customers, and could even implement this change starting with the effective date of the new rates following the conclusion of this case.[49]

I am grateful for the Company's willingness to look into resolving this issue and look forward to continuing to work with them towards informative and transparent billing practices. Ideally, the rate and amount would be in the description portion of the line, so

[48] KPCo Response to JI Q2.18(b).
[49] KPCo Response to JI Q2.18(c).

one does not have to jump to the meter read section and know the tariff amount, *e.g.*, for an example LGS Customer:

"Base Demand Charge ($7.90 x 121.44 kW) 959.38"

Or for an example GS Customer:

"Base Demand Charge [$6.61 x (78.50 kW-10.00 kW)] 452.79"

Kentucky Power should also be able to offer data meter pulses to the GS and larger customers so those customers can capture interval demand reads with their own monitoring equipment, in order to capture every 15-minute demand read, as opposed to just the date stamp that Kentucky Power revenue meter might display. Other investor-owned utilities in Kentucky offer this service for a nominal fee.

C. Other Concerns with the General Service (GS) Tariff

Q. Have you observed any problems for these customers taking service under Kentucky Power's GS Tariff?

A. Yes, I have observed some problems with the GS tariff that have impacted small commercial customers, small churches, community centers, and legal services, to name a few. In addition to historically not having service, energy and demand charges separated on their bills, prior to 2017 many of them were in a now retired class of customers, Small General Service (SGS), which did not have a demand charge.

In 2017, SGS customers were merged with Medium General Service (MGS) customers to make a new GS rate class. In this shift, Kentucky Power took some measures to address challenges for customers newly subject to the demand charge, including: 1) only applying demand charge to the meter read portion above 10 kW each month, 2) contacted former

SGS customers to discuss mitigating the new demand charge, and 3) not automatically replacing meters or reprograming meters serving former SGS customers so that the meters would be capable of reading monthly peak demands, especially if those customers did not reach 4,450 kWh of energy use in any month.

This third item has been the cause of some dissatisfaction for GS customers who do have meters capable of measuring demand and paying for demand, even with use below 4,450 kWh in any month. They feel they are unfairly targeted because they happen to have a meter capable of measuring demand, while others with just as much limited energy use, but not already equipped with a meter capable of measuring demand, may have demand above 10kW some months but are not being charged.

Q. What do you recommend regarding the application of a demand charge to some small commercial customers?

A. There are some customers with usage under 4,450 kWh per month who are being subjected to the demand charge solely because they at some point had a demand meter installed, while their peers are not. For equitable application, I recommend GS customers with usage under 4,450 kWh each month not be subjected to demand charges.

V. RECOMMENDATIONS

Q. Please summarize your recommendations for the Commission regarding Kentucky Power's requests in this case?

A. My recommendations are as follows:

- Implement an inclusive utility investment program;

- Accelerate investment in a cost-effective portfolio of DSM/EE programs;
- Share on the Company website information for incentives available for customer investments in efficiency and DER, such as USDA REAP, and remove barriers to participation for customers taking service under NMS-II and COGEN/SPP I and II tariffs;
- Increase billing transparency by separating out the demand charge on customer bills; and
- Apply demand charges only to customers with monthly usage above 4,450 kWh.

Q. Does this conclude your testimony?

A. Yes, it does.

VERIFICATION

The undersigned, Joshua Bills, 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.

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Subscribed and sworn to before me by Joshua Bills this 2nd day of October, 2023.

____
Notary Public

My commission expires: 4/17/2027

JASMINE M. BUSH
NOTARY
ID KYNP70836
MY COMMISSION
EXPIRES
4/17/2027
PUBLIC
STATE AT LARGE, KY.