COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE ANNUAL COST RECOVERY FILING FOR DEMAND SIDE MANAGEMENT BY DUKE ENERGY KENTUCKY, INC.	)))	CASE NO. 2025-00359

FILING OF THE ANNUAL STATUS REPORT, ADJUSTMENT OF THE DSM COST RECOVERY MECHANISM, AND AMENDED TARIFF SHEETS FOR GAS RIDER DSMR (SHEET NO. 62) AND ELECTRIC RIDER DSMR (SHEET NO. 78)

Now comes Duke Energy Kentucky, Inc. (Duke Energy Kentucky or the Company) with the consensus of the Residential Collaborative and the Commercial and Industrial Collaborative, and pursuant to prior Orders of the Kentucky Public Service Commission (Commission) relevant to Duke Energy Kentucky's Demand Side Management (DSM) strategy,[1] and hereby files its Annual Status Report, Adjustment of the DSM Cost Recovery Mechanisms for both gas and electric service (DSM Riders), and Amended Tariff Sheets for Gas Rider DSMR and Electric Rider DSMR (Application).

1. Pursuant to 807 KAR 5:001, Section 14(2), Duke Energy Kentucky is a Kentucky corporation that was originally incorporated on March 20, 1901, is in good

[1] *See,* November 4, 2004 Order in Case No. 2003-00367; February 14, 2005 Order in Case No. 2004-00389; April 4, 2006 Order in Case No. 2005-00402; May 15, 2007 Order in Case No. 2006-00426; May 14, 2008 Order in Case No. 2007-00369; May 12, 2009 Order in Case No. 2008-00473; March 22, 2010 Order in Case No. 2009-00444; June 7, 2011 Order in Case No. 2010-00445; April 13, 2012 Order in Case No. 2011-00448; June 29, 2012 Order in Case No. 2012-00085; April 11, 2013 Order in Case No. 2012-00495; March 28, 2014 Order in Case No. 2013-00395; May 7, 2015 Order in Case No. 2014-00388; April 4, 2016 Order in Case No. 2015-00368; March 28, 2017 Order in Case No. 2016-00382; September 13, 2018 Order in Case No. 2017-00427; October 2, 2019 Order in Case No. 2018-00370; April 29, 2020 Order in Case No. 2019-00406; April 9, 2021 Order in Case No. 2020-00371; December 22, 2021 Order in Case No. 2021-00313; December 27, 2021 Order in Case No. 2021-00424; June 13, 2023 Order in Case No. 2022-00251; March 7, 2023 Order in Case No. 2022-00398; November 23, 2023 Order in Case No. 2023-00269; January 11, 2024 Order in Case No. 2023-00354; December 30, 2024 Order in Case No. 2024-00264; and February 7, 2025 Order in Case No. 2024-00352.

standing and, as a public utility as that term is defined in KRS 278.010(3), is subject to the Commission's jurisdiction. Duke Energy Kentucky is engaged in the business of furnishing natural gas and electric services to various municipalities and unincorporated areas in Boone, Bracken, Campbell, Gallatin, Grant, Kenton, and Pendleton Counties in the Commonwealth of Kentucky. In addition, the Company has attached, as Appendix A, a certified Certificate of Existence dated October 31, 2025.

2. Duke Energy Kentucky's business address is 139 East Fourth Street, Cincinnati, Ohio 45202. The Company's local office in Kentucky is Duke Energy Erlanger Ops Center, 1262 Cox Road, Erlanger, Kentucky 41018. Duke Energy Kentucky's email address is KYfilings@duke-energy.com.

3. On October 6, 2025, the Residential Collaborative[2] and the Commercial & Industrial Collaborative[3] met to review the Application. Unless otherwise stated, the Residential Collaborative and the Commercial & Industrial Collaborative are jointly referred to herein as "Collaborative." The Collaborative has received the Company's proposal and had the opportunity to provide comments.

4. In addition to filing the annual status report in this Application, Duke Energy Kentucky respectfully requests a modification of Duke Energy Kentucky's DSM Riders to reflect the reconciliation of planned and actual expenditures, lost revenues, and shared savings.

[2] The Residential Collaborative members in attendance were Lawrence Cook (Office of the Kentucky Attorney General), Laura Pleiman (Boone County), Jock Pitts (People Working Cooperatively), Chris Baker (Kenton County School District) and Trisha Haemmerle (Duke Energy).

[3] The Commercial & Industrial Collaborative members in attendance were Lawrence Cook (Office of the Kentucky Attorney General) and Trisha Haemmerle (Duke Energy).

5. Pursuant to the Commission's Order dated September 13, 2018, in Case No. 2017-00427, the Company's portfolio of programs was approved. The Company requested and received approval to continue the approved portfolio with the commitment to file the annual cost recovery DSM filing and the annual amendment filing.[4] Since then, the Commission has continued to review and approve annual amendment and cost recovery filings each year on or about August 15 and November 15 respectively.[5] Pursuant to the Commission's Order dated February 21, 2024 in Case No. 2022-00251, the due date of the annual DSM cost recovery filing was modified from November 15th, to November 1st.[6] As a result, this Application, filed November 3, 2025,[7] serves as the annual true-up of the fiscal year ending June 30, 2025, of programs.

I. BACKGROUND

6. The Company's offering of DSM programs dates back nearly three decades.[8] Throughout the years, the Company has offered many enhancements to its portfolio with the purpose of increasing participation and providing customers with new and innovative opportunities to control their consumption and impact their utility bill. The portfolio of programs in place during the fiscal year ending June 30, 2025, and that is the subject of this

[4] *See generally, In the Matter of the Electronic Annual Cost Recovery Filing for Demand Side Management by Duke Energy Kentucky, Inc.*, Case No. 2017-00427, Order (Ky. P.S.C. Sept. 13, 2018).

[5] *See infra,* n. 7.

[6] *In the Matter of the Electronic Application of Duke Energy Kentucky, Inc. to Amend its Demand Side Management Programs*, Case No. 2022-00251, Order, p. 6 (Ky. P.S.C. Feb. 21, 2024).

[7] Since November 1, 2025 is a Saturday, this Application is being filed on the next day that is not a Saturday, Sunday, or legal holiday. *See* 807 KAR 5:001, Section 4(7)(b).

[8] *In the Matter of the Joint Application Pursuant to 1994 House Bill No. 501 For the Approval of Principles of Agreement, Demand Side Management, the Union Light Heat and Power Company, and for Authority for the Union Light Heat and Power Company to Implement Various Tariffs and Receive Incentives Associated the Demand Side Management Programs,* Case No. 1995-00312, Order (Ky. P.S.C. Dec. 1, 1995).

Application, was initially approved by the Commission's September 13, 2018, Order in Case No. 2017-00427, and modified in subsequent orders.

7. Like the Company's prior annual DSM filings, this Application specifically addresses the requirements in prior Commission Orders[9] and is being made consistent with the Commission's Order dated February 21, 2024, in Case No. 2022-251 directing Duke Energy Kentucky to file annual DSM applications no later than November 1st.[10] In the status and reconciliation portion of this report, expenses are reported for the fiscal year period July 1, 2024, through June 30, 2025.

8. In this Application, Duke Energy Kentucky also requests an Order approving the proposed adjustments to the DSM riders and the revised rate tariffs (Appendices D and E).

II. DEFINITIONS

For the purposes of this Application, the following terms will have the following meanings:

9. **"DSM Revenue Requirements"** shall mean the revenue requirements associated with all Program Costs, Administrative Costs, Lost Revenues (less fuel savings), and the Shareholder Incentive.

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[9] *See,* November 20, 2003 Order in Case No. 2003-00367; February 14, 2005 Order in Case 2004-00389; April 4, 2006 Order in Case No. 2005-00402; May 15, 2007 Order in Case No. 2006-00426; May 14, 2008 Order in Case No. 2007-00369; March 22, 2010 Order in Case No. 2009-00444; June 7, 2011 Order in Case No. 2010-00445; April 13, 2012 Order in Case No. 2011-00448; April 11, 2013 Order in Case No. 2012-495; March 28, 2014 Order in Case No. 2013-00395; May 7, 2015 Order in Case No. 2014-00388; April 4, 2016 Order in Case No 2015-00368; March 28, 2017 Order in Case No. 2016-00382; September 13, 2018 Order in Case No. 2017-00427; October 2, 2019 Order in Case No. 2018-00370; April 29, 2020 Order in Case No. 2019-00406; April 9, 2021 Order in Case No. 2020-00371; December 22, 2021 Order in Case No. 2021-00313; December 27, 2021 Order in Case No. 2021-00424; June 13, 2023 Order in Case No. 2022-00251; March 7, 2023 Order in Case No. 2022-00398; November 23, 2023 Order in Case No. 2023-00269; January 11, 2024 Order in Case No. 2023-00354; December 30, 2024 Order in Case No. 2024-00264; and February 7, 2025 Order in Case No. 2024-00352.

[10] *In the Matter of Electronic Application of Duke Energy Kentucky, Inc. to Amend its Demand Side Management Programs*, Case No. 2022-00251, Order, p. 6 (Ky. P.S.C. Feb. 21, 2024).

10. **"Program Costs"** shall mean the costs incurred for planning, developing, implementing, monitoring, and evaluating the DSM programs that have been reviewed with the Collaborative.

11. **"Administrative Costs"** shall mean the costs incurred by or on behalf of the collaborative process and that are approved by the Collaborative, including, but not limited to, costs for consultants, employees, and administrative expenses.

12. **"Lost Revenues"** shall have the same meaning as "LR" as described in Rider DSM - Demand Side Management Cost Recovery Rider, Sheet No. 75 (Electric) and Rider DSM - Demand Side Management Cost Recovery Rider, Sheet No. 61 (Gas).

13. **"Shareholder Incentive"** shall have the same meaning as "PI" as described in Rider DSM - Demand Side Management Cost Recovery Rider, Sheet No. 75 (Electric) and Rider DSM - Demand Side Management Cost Recovery Rider, Sheet No. 61 (Gas).

14. **"DSM Cost Recovery Mechanism"** shall refer to Rider DSM - Demand Side Management Cost Recovery Rider, Sheet No. 75 (Electric) and Rider DSM - Demand Side Management Cost Recovery Rider, Sheet No. 61 (Gas).

III. STATUS OF PRIOR PORTFOLIO OF DSM PROGRAMS

15. Through June 30, 2025, Duke Energy Kentucky offered the following programs, the costs of which are recoverable through the DSM Cost Recovery Rider mechanism approved by the Commission in prior proceedings:

- Program 1: Residential Smart $aver® Energy Efficient Residences Program;
- Program 2: Residential Smart $aver® Energy Efficient Products

Program;[11]

- Program 3: Residential Energy Assessments Program (Residential Home Energy House Call);
- Program 4: Income Qualified Services Program;
- Program 5: Power Manager® Program;
- Program 6: Non-Residential Smart $aver® Program
- Program 7: PowerShare® Program;
- Program 8: Income Qualified Neighborhood Program;
- Program 9: Home Energy Report Program;
- Program 10: Business Energy Saver Program;
- Program 11: Non-Residential Pay for Performance;[12] and
- Program 12: Peak Time Rebate Pilot Program.

16. This section of the Application provides a brief description of each current program, a review of the status of each program, and information on any changes that may have been made to the programs. The following table provides a summary of the load impacts achieved and level of participation obtained during this filing period.

[11] The Smart $aver® Residential Energy Efficient Products Program and the Energy Efficient Residences Program are individual measures that are part of a single and larger program referred to and marketed as Residential Smart $aver®. For ease of administration and communication with customers the two measures have been divided into separate tariffs even though they are a single program.

[12] Marketed as Smart $aver® Performance.

	1	Summary of Load Impacts July 2024 Through June 2025		
Residential Programs		**Incremental Participation**	**kWh**	**kW**
Income Qualified Neighborhood		774	625,676	56
Income Qualified Services		162	222,494	48
Home Energy Report		64,456	12,138,294	3,506
Residential Energy Assessments		1,953	728,743	91
Residential Smart $aver®		22,013	1,243,683	221
Power Manager®	2	13,019	-	14,204
Peak Time Rebate Pilot Program		677	-	198
Total Residential		**103,054**	**14,958,889**	**18,324**
Non-Residential Programs		**Incremental Participation**	**kWh**	**kW**
Business Energy Saver		11,529,069	10,469,937	2,374
Smart $aver® Non-Residential		28,299	4,253,697	755
PowerShare®	3	9	-	8,993
Total Non-Residential		**11,557,377**	**14,723,634**	**12,122**
Total		**11,660,431**	**29,682,523**	**30,445**

1 - Impacts are net of free riders, without losses and reflected at the customer meter point.
2 - Cumulative number of controlled devices installed. Impacts reflect average capability over the contract period.
3 - Impacts reflect average capability over the contract period.

17. Results of the current cost-effectiveness test results for each of the programs are provided in Appendix B.

IV. PROGRAMS 1 AND 2: RESIDENTIAL SMART $AVER® ENERGY EFFICIENT RESIDENCES AND PRODUCTS PROGRAMS

18. The purpose of the Residential Smart $aver® Energy Efficient Residences portion of the Residential Smart $aver® Program is to offer customers prescriptive incentives for a variety of energy conservation measures designed to target the largest energy consumption equipment and increase energy efficiency in their homes. The program utilizes a network of participating contractors to encourage the installation of high efficiency equipment and the implementation of energy efficient home improvements with eligible customers. Equipment and services to be incentivized include:

- Installation of high efficiency air conditioning (AC) and heat pump (HP) systems;

- Implementation of attic insulation and air sealing services;
- Implementation of duct sealing services; and
- Installation of efficient heat pump water heaters.
- Installation of variable speed pool pumps

19. The Program includes a tier approach to the level of incentives available for HVAC system replacements based on the efficiency rating of the system, along with an optional additional incentive if a qualifying smart thermostat is included and installed with the replacement. A referral marketing component for eligible trade allies has also been added as a delivery channel to enhance customer experience as the customer is making an energy-efficient purchase decision. The Program continues to experience a steady demand from customers participating in the incentives. During the period July 2024 through June 2025, the Program approved 256 individual rebate applications.

20. Duke Energy Kentucky currently engages a vendor to administer this program. The program vendor provides services including application processing and fulfillment, data reporting, call center services, and IT support for program tools such as the trade ally portal which allows trade allies to register, check customer eligibility, and submit applications online. These Residential Smart $aver® services are jointly implemented with the Duke Energy Indiana, Duke Energy Carolinas, and Duke Energy Progress territories to reduce administrative costs and leverage promotion. The vendor has experience in delivering similar utility energy efficiency programs.

21. The Program pays incentives based on the operating status of the equipment being replaced and the efficiency level of the new equipment as follows:

Replacement on Failure Incentive:

Replacement of measures which are not functioning and cannot be repaired are considered a Replacement On Failure (ROF). Incentives for ROF are determined by the Company in an amount not to exceed 50% of the installed cost difference between standard equipment or service and higher efficiency equipment or service. The Company may vary the incentive by type of equipment and differences in efficiency to induce customers to purchase greater levels of efficiency at the minimum necessary incentive amount. The Company may offer multiple levels of incentives corresponding to varied efficiency levels of equipment or service.

Early Replacement Incentive:

Replacement of measures which are functioning or can be repaired will be considered an Early Replacement (ER). Incentives for ER are determined by the Company based on an amount commensurate with the projected energy savings. The Company may vary the incentive by type of equipment and differences in efficiency to induce customers to purchase greater levels of efficiency.

22. The purpose of the Residential Smart $aver® Energy Efficient Products portion of the Residential Smart $aver® Program is to provide high efficiency options through various channels, along with other high efficiency products in new or existing residences, pool pumps, water measures for single family, and water measures for multifamily.

23. The Online Savings Store continues to enable customers to purchase high-efficiency products that will be shipped directly to their homes, via a shopping site hosted and managed by a third party, or through partnerships with major retailers. The program

offers a variety of energy efficiency measures to include smart thermostats, water savings measures, and small to medium appliances. The incentive levels vary by product type, and the customer pays the difference, including shipping. The program continues to explore other beneficial products and services for customers as well as price modeling to make it easy to save energy through engagement with the store.

Customer purchase limits are as follows:

- Smart thermostats, 2 total;
- Water measures, 3 total;
- Small appliance, dehumidifiers & air purifiers, limit 2 each total.

24. The Savings Store shopping site managed by a third-party vendor includes maintaining the Savings Store website, partnering with manufacturers on pricing, fulfilling all customer purchases, and supporting the program's call center. The Saving Store landing page provides information about the store, energy efficient products, and special pricing and discounts. Support features include a toll-free number, email, Live Chat, and Frequently Asked Questions. Customers may choose to browse the site before checking eligibility for incentives. Shipping and order confirmations are included in the email confirmation sent directly to the customer. Through 2024, the implementer has partnered with the Duke Energy team to enable enrollment in demand response at point of sale allowing eligible customers to benefit from the $75 Bring Your Own Thermostat rebate available.

25. Educational and product detail information is available on the Savings Store to help assist customers with their purchasing decisions. The information discusses application types and benefits of energy efficient products.

26. The Online Savings Store program carefully tracks towards budget by monitoring the Company's marketing activities to customers. During Fiscal Year July 2024 through June 2025, the program delivered 192 smart thermostats, 9 trim kits, 37 air purifiers, and 1 water measure.

27. Looking ahead and recognizing quantity of customers shopping on the online savings store has continued to fall, the program team is evaluating alternative Point of Sale options. This may potentially include a revamp of the online savings store but may expand to other Point of Sale channels. The expectation is that customers would find it more convenient if the program offered rebated products through established retail partnerships, both online and in-store, thus meeting customers where they are already shopping. While the program team puts the time into developing future partnerships, less effort will be put into promoting the existing online savings store. Regardless of the implementation channel, the program will continue to seek ways to cross promote and integrate relevant offers and enable customers to enroll in service options such as thermostat installation to help increase education on how to use for efficiency and to increase In Service Rates (ISR).

28. The Multifamily Energy Efficiency Program is an extension of the Residential Smart $aver® and allows Duke Energy Kentucky to use an alternative delivery channel which targets multifamily apartment properties. The measures were directly installed in permanent fixtures by the program vendor. The target audience for the program were property managers and owners who had properties served on an individually metered residential rate schedule. To receive new measures, apartments must have electric water heating.

29. The program helps property managers upgrade fixtures and save energy by offering water measures such as bath and kitchen faucet aerators, water saving showerheads, smart thermostats, and pipe wrap. These measures assist with reducing maintenance costs while improving tenant satisfaction by lowering energy bills. The property can purchase discounted smart thermostats for their apartments and have them installed by the program implementor for $100/thermostat.

30. The program implementer is responsible for all marketing and outreach for the program. This is primarily done through outbound calls and on-site visits to solicit initial interest in the program from property managers in the Company's service territory. Additionally, program information and supporting documents are available on the Duke Energy Kentucky web site for property managers to learn more about the program and request applications to participate in the program.

31. Beginning in 2025, the program was approved for the addition of new measures that included T8 Tube Lighting, Weatherstripping for both doors and windows, Caulking for both doors and windows, Domestic Hot Water (DHW) turndown and Filter Changes with Furnace Filter Whistles. This request was approved on December 30, 2024,[13] with implementation efforts beginning in Q1 2025.

32. A total of 8,149 measures were installed from July 1, 2024 - June 30, 2025. The program installed 1,122 kitchen and bath aerators, 333 standard showerheads, 993 feet of insulating pipe wrap, 2 T8 Tube Lights, 555 Furnace Filter Whistles, Weatherstripping 2,738 doors and windows and caulked 2,406 doors and windows.

[13] *See In the Matter of Electronic Application of Duke Energy Kentucky, Inc.*, Case No. 2024-00264, Application, pp. 5-6 (Aug. 15, 2024) (requesting these changes); *id.*, Order, pp. 3-4, 11 (Ky. P.S.C. Dec. 30, 2024).

33. The Save Energy and Water Kit (SEWK) program is designed to increase the energy efficiency of residential customers by offering customers low flow water devices and water heater pipe insulation wrap to install within their homes. The SEWK offer is available through a business reply card (BRC) or through direct email solicitation, enabling customers to request a kit and have it shipped directly to their homes. A website has been established to provide customers with additional information about the program and instructional videos to assist in the installation of items from the do it yourself (DIY) kit. Additionally, the online platform allows customers to upgrade the standard showerhead to either a wide spray or hand-held model for a discounted price.

34. The program focuses on offering kits to customers via email and BRC's. A new online platform became available in June 2023, allowing customers to upgrade their showerhead to a hand-held model for a discounted price. The wide spray showerhead is now the standard showerhead offered in the kits to allow for higher customer satisfaction and install service rates.

35. To be eligible, customers must have an electric water heater, have not already participated in SEWK or another Duke Energy Kentucky program offering water saving devices, and live in a single-family, owner-occupied home. Eligible customers, who respond to the BRC or email offer, will receive a kit free of charge. There are two kit sizes to accommodate homes with one or more full bathrooms. The kit size available to the customer is predetermined based on the square footage of the home. Customers in homes less than or equal to 1,500 square feet receive a one (1) bath kit. Customers in homes greater than 1,500 square feet receive a two (2) bath kit. During registration, customers can now choose whether they want 1 or 2 energy-efficient showerheads and specify their water

heating type. Those with gas or other heating methods can still buy a kit at a reduced price. The kits contain varying quantities of showerheads, two bath aerators, one kitchen aerator and insulated pipe tape.

36. The SEWK program is an invitation-only program where customers are prequalified and then directly solicited for participation. This allows the program to carefully track performance against budget and adjust marketing efforts as needed. From July 1, 2024, to June 30, 2025, the program shipped 1,271 kits containing 3,813 kitchen and bath aerators, 1,675 standard showerheads, 153 wand showerheads, and 7,626 feet of insulating pipe wrap, for a total of 13,267 measures.

37. Looking ahead to 2026, the program will offer new finishes of the existing measures and additional showerheads with different spray patterns to help increase customer satisfaction and in service rates.

V. PROGRAM 3: RESIDENTIAL ENERGY ASSESSMENTS PROGRAM

38. The primary goal for Home Energy House Call (HEHC) is to empower customers to better manage their energy usage and cost. Duke Energy Kentucky partners with several key vendors to administer the program in which an energy specialist completes a 60 to 90-minute walk through assessment of the home and analyzes energy usage to identify energy savings opportunities. The Building Performance Institute (BPI) building certified energy specialist discusses behavioral and equipment modifications that can save energy and money with the customer. The program targets Duke Energy Kentucky residential customers that own a single-family residence that has electric water heater and/or electric heat, or central air. The energy specialist analyzes energy usage, checks air infiltration, examines insulation levels, checks appliances, and inspects the heating/cooling

system(s). The report focuses on building envelope improvements as well as low-cost and no-cost improvements to save energy. At the time of the home audit, the customer receives a free efficiency kit containing a variety of energy saving measures including a low flow shower head, low flow faucet aerators, water heater pipe wrap and weather stripping. The auditors will install these measures, if approved by the customer, so the customer can begin saving immediately, and to help insure proper installation and use. Example recommendations might include the following:

- Turning off vampire load equipment when not in use;
- Turning off lights when not in the room;
- Using energy efficient lighting in light fixtures;
- Using a smart thermostat to better manage heating and cooling usage;
- Replacing older equipment with more energy efficient equipment; and
- Adding insulation and sealing the home.

39. The program primarily targets through online channels, electronic mail, and direct mail to acquire the participation for this program.

40. The program offers additional measures that include a blower door test, handheld low-flow showerheads, and smart thermostats. The program ended the fiscal year of July 1, 2024, to June 30, 2025, completing 523 assessments and installed 32 smart thermostats, 42 additional bathroom aerators, 15 specialty showerheads, 913 feet of pipe insulation and 1 blower door audit.

41. Expanded virtual offerings started February 5, 2024. These offerings are

focused on serving single-family renters and condo/townhomes/manufactured homeowners and renters. These customers must have electric service provided by Duke Energy Kentucky to participate in the program.

The additional types of energy assessment include:

1. Web-based – Customers complete an online questionnaire to evaluate their homes efficiency.
2. Phone Assisted – Customers collaborate with the vendor customer support specialist and complete an energy evaluation during a schedule phone appointment.
3. Virtual – Customers collaborate with the vendor energy advisor, who performs computer assisted, onsite home evaluation.

42. The new virtual, phone and web-based audits allow customers to learn more about energy savings options and recommendations for their home and receive a free energy-efficiency kit based on the path (channel) they choose. The kits will ship to the home after the audits are complete.

43. Virtual and phone audits kits consist of water saving measures including a low-flow showerhead, kitchen and bath aerators, weather stripping, pipe wrap, and a furnace filter whistle. The web-based audit kit consists of faucet bathroom aerators, weather stripping, pipe wrap, refrigerator thermometer, and furnace filter whistle.

44. Customers receive a detailed assessment report, based on visual and questionnaire responses, providing extra saving recommendations for how they can opt to take advantage of other products and services to improve their homes efficiency. Eligible customers may choose the path or channel that best fits their schedule and desire to learn

more about their home's efficiency.

45. From July 1, 2024, through June 30, 2025, the program performed 38 phone audits, 56 virtual audits and 345 web audits.

46. Program team is currently exploring adding additional measures to the program. These include expanded finishes (colors) for current water measures to meet customer needs, furnace filter whistles, smart power strips, and added air sealing measures. Program is also looking at providing these measures as needed to customers to increase in service rates and realize additional savings. The Program received approval to add measures offered to customers[14] and those offers began July 1, 2025.

VI. PROGRAM 4: INCOME QUALIFIED SERVICES PROGRAM

Weatherization

47. The Weatherization program portion of Income Qualified Services is designed to help income-qualified customers that are below 200 percent of the federal poverty level to reduce their energy consumption and lower their energy cost. The program works with local weatherization agencies using Federal DOE/LIHEAP funds as well as other community outreach initiatives for participation. The program provides the agencies with incentives for installing energy efficient measures in qualified customers' homes. Agencies also educate customers on their energy usage and other opportunities that can help reduce energy consumption and lower energy costs. The program has provided weatherization services to the following number of customers:

[14] *See In the Matter of Electronic Application of Duke Energy Kentucky, Inc. to Amend its Demand Side Management Programs*, Case No. 2023-00269, Order, pp. 3-4, p. 9 (Ky. P.S.C. Nov. 20, 2023).

Fiscal Year	Customers Served
1999 - 2000	251
2000 - 2001	283
2001 - 2002	203
2002 - 2003	252
2003 - 2004	252
2004 - 2005	130
2005 - 2006	232
2006 - 2007	252
2007 - 2008	265
2008 - 2009	222
2009 - 2010	199
2010 - 2011	234
2011 - 2012	220
2012 - 2013	228
2013 - 2014	143
2014 - 2015	203
2015 - 2016	162
2016 - 2017	166
2017 - 2018	127
2018 – 2019	120
2019 – 2020	99
2020 - 2021	81
2021 - 2022	127
2022 - 2023	145
2023 -2024	93
2024-2025	104

48. The program is structured so that homes needing the most work, and having the highest energy use per square foot, receive the most funding. The program accomplishes this by placing each home into one of two "Tiers." For each home, the field auditor uses the National Energy Audit Tool (NEAT) to determine which specific measures are cost effective for that home.

The tier structure is defined as follows:

	Therm / square foot	**kWh use/ square foot**	**Investment Allowed**
Tier 1	0 < 1 therm / ft2	0 < 7 kWh / ft2	Up to $600
Tier 2	1 + therms / ft2	7 + kWh / ft2	All SIR* ≥ 1.5 up to $4K

*SIR = Savings - Investment Ratio

Tier One Services

49. Tier 1 services are provided to customers through weatherization agencies. Customers are considered Tier 1 if: Use less than 1 therm per square foot per year or at less than 7-kilowatt hour (kWh) per square foot per year, based on a year's usage of Company supplied fuels. Square footage of the dwelling is based on conditioned space only, whether occupied or unoccupied. It does not include unconditioned or semi-conditioned space (non-heated basements). The total program dollars allowed per home for Tier One services is $900.00 per home. Tier One services are as follows:

- Furnace / Heating system Tune-up & Cleaning
- Furnace repairs up to $600; greater than can be replaced
- Venting check & repair
- Water Heater Wrap and Pipe Wrap
- Cleaning of refrigerator & freezer coils, adjust temp settings
- Cleaning of dryer vents & filters
- Energy Efficient Light Bulbs
- Low-flow shower heads and aerators
- Weather-stripping doors & windows
- CO Monitors & Smoke Detectors, check and replace batteries, change location of monitor. May add up to two monitors on each floor of living

space.

- Limited structural corrections that affect health, safety, and energy up to $150; and,
- Energy Education

Tier Two Services

50. Duke Energy Kentucky will provide Tier Two services to a customer if they use at least 1 therm or at least 7 kWh per square foot per year based on the annual usage of Duke Energy Kentucky supplied fuels.

Tier Two services are as follows:

- All Tier One services; plus
- Additional cost-effective measures (with SIR $\geq$ 1.5) based upon the results of the NEAT audit. Through the NEAT audit, the agency can determine if energy saving measures pay for themselves over the life of the measure as determined by a standard heat loss/economic calculation (NEAT audit) utilizing the cost of gas and electric as provided by Duke Energy Kentucky. Such items can include but are not limited to attic insulation, wall insulation, crawl space insulation, floor insulation, and sill box insulation. Safety measures applying to the installed technologies can be included within the scope of work considered in the NEAT audit if the SIR is greater than 1.5 including the safety changes; and
- Replacement of the heating system if cannot be repaired.

Regardless of placement in a specific tier, Duke Energy Kentucky provides energy

education to all customers in the program.

51. Refrigerator replacement is also a component of this program. To determine replacement, the program weatherization provider performs a two-hour meter test of the existing refrigerator unit. If it is a high-energy consuming refrigerator, as determined by this test, the unit is replaced. Replacing with a new Energy Star® qualified refrigerator, with an estimated annual usage of 400 kWh, results in overall savings to the average customer typically more than 1,000 kWh per year.

Refrigerators tested and replaced:

Year	Refrigerators Tested	Refrigerators Replaced
2002 – 2003	116	47
2003 – 2004	163	73
2004 – 2005	115	39
2005 – 2006	116	52
2006 – 2007	136	72
2007 – 2008	173	85
2008 – 2009	153	66
2009 – 2010	167	92
2010 – 2011	112	76
2011 – 2012	107	64
2012 – 2013	206	69
2013 – 2014	112	37
2014 – 2015	42	24
2015 – 2016	60	22
2016 – 2017	92	54
2017 - 2018	48	18
2018 – 2019	43	12
2019 – 2020	66	15
2020 - 2021	19	15
2021 - 2022	32	17
2022 - 2023	35	18
2023 - 2024	23	16
2024-2025	37	21

The existing refrigerator being replaced is removed from the home and recycled in an environmentally appropriate manner to ensure that the units are not used as a second refrigerator in the home or do not end up in the secondary appliance market.

52. Proper safety protocols are being adhered to with PPE being worn to ensure everyone's safety, if the customer requests.

Payment Plus

53. The Payment Plus portion of Low-Income Services program is designed to impact participants' behavior (*e.g.*, encourages utility bill payment and reducing arrearages) and to generate energy conservation impacts.

The program is made up of three components:

- Energy Education & Budget Counseling – to help customers understand how to control their energy usage and how to manage their household bills, a combined education/counseling approach is used.
- Weatherization – to increase the energy efficiency in customers' homes, participants are required to have their homes weatherized as part of the normal Residential Conservation and Energy Education (low-income weatherization) program unless weatherized in past program years; and,
- Bill Assistance – to provide an incentive for these customers to participate in the education and weatherization, and to help them get control of their bills. Payment assistance credits are provided to each customer once they complete each aspect of the program. The credits are: $200 for participating in the EE counseling, $150 for participating in the budgeting counseling, and $150 for participating in the Residential Conservation and Energy Education program (weatherization services). If all the requirements are completed, a household could receive up to a total of $500 towards their arrearage.

Some customers do not complete all three steps or may have already had weatherization services completed prior to the program.

54. This program is normally offered throughout the year to accommodate various class size, and various locations to serve all customers.

55. Duke Energy Kentucky utilizes a community action agency to recruit customers to participate in the Payment Plus program. The Payment Plus program is designed to help income-qualified customers that are below 200 percent of the federal poverty level to reduce their energy consumption and lower their energy cost. Using a list of customers provided by Duke Energy Kentucky, the agency sends a letter describing the program to eligible customers. Included in this letter are various dates, times, and locations of scheduled classes. The courses are designed to accommodate customers with varied schedules and widespread locations. The customer contacts the agency to register for a course. Make-up courses are also offered to those customers who may have missed their initial scheduled time.

56. For the period of July 1, 2024, to June 30, 2025, 163 participants attended energy education counseling. Of those 163, 163 participants also received budget counseling, and 21 participants' homes were weatherized.

VII. PROGRAM 5: POWER MANAGER® PROGRAM

57. The purpose of the Power Manager® program is to reduce demand by controlling residential air conditioning usage during periods of peak demand, high wholesale price conditions and/or generation emergency conditions during the summer months. It is available to residential customers with central air conditioning. Duke Energy Kentucky attaches a load control device to the outdoor unit of a customer's air conditioner.

This enables Duke Energy Kentucky to cycle the customer's air conditioner off and on under appropriate conditions.

58. Customers selecting the option that moderately cycles their air conditioner, receive a $25 credit at installation. Customers selecting the longer cycling option receive a $35 credit at installation.

59. Customers also receive annual credits during the months of May - September depending on the program they signed-up for. Customers that signed up for the moderate control option receive an annual event credit of $2.40 per month for each year they are on the program and customers that signed up for the longer control option receive an annual event credit of $3.60 per month each year they remain on the program.

60. Duke Energy Kentucky continues to use load control devices manufactured for new installations and replacement of existing load control devices. The load control devices have built-in safeguards to prevent the "short cycling" of the air-conditioning system. The air-conditioning system will always run the minimum amount of time required by the manufacturer. Cycling simply causes the air-conditioning system to run less, which is no different than what it does on milder days. Additionally, the indoor fan will continue to run and circulate air during the cycling event.

61. The Company continued its primary Power Manager® marketing during the past fiscal year through outbound telephone calling. Providing customers with an opportunity to ask questions before deciding to participate has proven to be a significant attribute in making this the most effective sales channel.

62. Ongoing Evaluation, Measurement, and Verification (EM&V) is conducted through a sample of Power Manager® customers, using AMI data to determine the kW

impact during an event. Operability studies are also used to measure the performance of Power Manager® load control devices in Kentucky. In addition, Duke Energy Kentucky has reviewed the statistical sampling requirements of PJM Interconnection, LLC (PJM) for demand response resources of this type. The Duke Energy Kentucky studies comply with all PJM requirements.

63. There was one Economic Power Manager® event that took place from July 2024 through June 2025 event season.

64. The Company is also offering Bring Your Own Thermostat (BYOT). BYOT is a residential Demand Response (DR) customer option leveraging customers "Smart" two-way communicating thermostats instead of traditional load control switches that are installed by the utility. It is intended for customers who have already purchased, installed, and registered a smart thermostat in their home, allowing the utility to avoid the hardware and installation costs associated with traditional direct load control programs. The utility can verify how many thermostats are operable and online at any given time, and determine which thermostats are participating in DR events as opposed to opting out. Duke Energy has partnered with a third-party vendor who has contracts with multiple thermostat manufacturers to offer demand response through aggregation of the different thermostat models. After successfully enrolling, participants receive a one-time $75 incentive. In addition, participants receive a $25 incentive each year following the anniversary of their enrollment in the program. Rewards are limited to one per service address. Since September1, 2024, 2,467 customers have joined the BYOT program.

65. BYOT is marketed to customers through participating device manufacturers who offer utility branded marketing and enrollment services. One of the significant

advantages of Smart Thermostats is two-way communication. Agreements with the aggregation vendor and their thermostat partners allow them to send marketing messages to device owners inviting them to participate in their utility's DR program. Marketing communication may include, but are not limited to, messages within the manufacturers smart phone application, co-branded email, and text messages. Interested customers are then directed to enroll electronically through the various marketing channels. In addition to the thermostat manufacturer communication, the company may use many other channels, such as the utility's website and social media.

VIII. PROGRAMS 6: NON-RESIDENTIAL SMART $AVER® PROGRAM

66. The Smart $aver® Non-residential Incentive Program provides incentives to commercial and industrial consumers for installation of high efficiency equipment in applications involving new construction, retrofit, and replacement of failed equipment. Incentives are provided based on Duke Energy Kentucky's cost effectiveness modeling to assure cost effectiveness over the life of the measure.

67. Commercial and industrial consumers can have significant energy consumption but may lack knowledge and understanding of the benefits of high efficiency alternatives. The program provides financial incentives to help reduce the cost differential between standard and high efficiency equipment, offer a quicker return on investment, save money on customers' utility bills that can be reinvested in their business, and foster a cleaner environment. In addition, the program encourages dealers, manufacturers and distributors (or market providers) to stock and provide these high efficiency alternatives to meet increased demand for the products. The Program provides incentives through prescriptive measures, custom measures, assessment/technical assistance, and energy-

saving certifications.

68. Prescriptive Measures: The program promotes prescriptive incentives for the following technologies – lighting, HVAC, pumps, variable frequency drives, food services, and process equipment. The eligible measures, incentives, and requirements for both equipment and customer eligibility are listed in the applications posted on Duke Energy's website.

69. Custom Measures: The Smart $aver® Custom Program is designed for customers with electrical energy-saving projects involving more complicated, emerging, or alternative technologies or measures not covered by the Non-Residential Smart $aver® Prescriptive Program. The intent of the Program is to encourage the implementation of energy efficiency projects that would not otherwise be completed without the Company's technical or financial assistance. Unlike the Non-Residential Smart $aver Prescriptive Program, the Program requires a project-specific calculation of energy and demand savings and/or project-specific measurement of savings. A preliminary review of project calculations is offered for all projects and is encouraged for projects that are expected to have a significant incentive payment, involves technology that is challenging to estimate savings, and/or involves a facility with very unique or unpredictable operations. Custom Calculation Tools are provided to assist applicants with the application, and technical expertise is available to smooth the process for customers. A vendor performs technical reviews of custom applications. All other Program implementation and analysis is performed by Duke Energy employees or direct contractors.

70. The program has developed multiple approaches to reaching a very broad and diverse audience of business customers. In 2024-2025, this consisted of incentive

payment applications, with paper and online options, instant incentives offered through the Online Business Savings Store as well as incentives through a midstream channel of distributors and an upstream channel of manufacturers. This will help to promote the purchase of energy-saving products at the point of sale for qualifying customers and measures.

71. The program works closely with Trade Allies (TA) to promote the program to our business customers at the critical point in time when customers are considering standard or high efficiency equipment options. The Smart $aver® trade ally outreach team provides training and technical support to the TA network. The outreach team also recruits new TAs to participate in the program. TA company names and contact information appears on the TA search tool located on the Smart $aver® website. This tool was designed to help customers who do not already work with a TA, to find someone in their location who can serve their needs. The Company continues to look for ways to engage the TAs in promotion of the program as well as more effective targeting of TAs based on market opportunities.

72. Duke Energy Kentucky continues to evaluate changes to existing measures, to take into consideration changes to market conditions and energy efficiency standards, and the addition of measures to offer customers additional options for energy savings. Any future measure changes will be presented to the Commission in accordance with the applicable review and approval processes and procedures.

73. For the 2024-2025 fiscal year, Smart $aver® incentive funds were readily available for most of the period due to lower participation during the fiscal year. Projects are able to utilize a program prequalification feature to reserve incentive funds. During the reporting period of July 2024 through June 2025, the Kentucky Smart $aver® Non-

Residential program provided either Prescriptive or Custom incentives to 180 total customers.

74. The internal marketing channel is comprised of assigned Large Business Account Managers, Local Government and Community Relations Managers, Business Energy Advisors and Trade Ally Outreach Managers, who all identify potential opportunities as well as distribute program collateral and informational material to customers and TAs. In addition, the Economic and Business Development groups also provide a channel to customers who are new to the service territory. Additionally, the program deployed a robust Account Based Marketing (ABM) strategy and then a Segment Marketing to provide levels of personalized engagement to clusters of similar type accounts. This is a highly customized approach that focuses on specific companies and their decision-makers. We are pursuing a data-driven approach to gathering actionable insights on harder-to-reach markets. Our initial focus is targeting education, manufacturing, and retail segments. Upon refinement, we will develop a comprehensive campaign for greater awareness that will integrate additional programs and customer solutions.

IX. PROGRAM 7: POWERSHARE® PROGRAM

75. PowerShare® is the brand name given to Duke Energy Kentucky's Peak Load Management Program (Rider PLM, Peak Load Management Program KY.P.S.C. Electric No. 2, Sheet No. 77). Rider PLM was approved pursuant as part of the settlement agreement in Case No. 2006-00172. In the Commission's Order in Case No. 2006-00426, approval was given to include the PowerShare® program within the DSM programs. The PLM program is voluntary and offers customers the opportunity to reduce their electric costs by managing their electric usage during the Company's peak load periods. Customers

and the Company will enter into a service agreement under Rider PLM, specifying the terms and conditions under which the customer agrees to reduce usage. There are two product options offered for PowerShare® - CallOption® and QuoteOption®:

- CallOption®:
  - A customer served under a CallOption® product agrees, upon notification by the Company, to reduce its demand;
  - Each time the Company exercises its option under the agreement, the Company will provide the customer a credit for the energy reduced;
  - For the 2024/2025 program year, there was one type of event;
    - Emergency events are implemented due to reliability concerns. Participants are required to curtail during emergency events.
  - In addition to the energy credit, customers on the CallOption® will receive an option premium credit;
  - For the 2024/2025 PowerShare® programs associated with the fiscal year of this filing, there were two enrollment choices for customers relative to CallOption. The first choice, "Summer Period," required participants to be able to curtail during the months of June through October 2024 and May 2025, with a maximum event length of 12 hours and no maximum number of curtailment events. The second choice, "Annual", requires participants to be able to curtail during the full contract term of June 2024 through May 2025, with a maximum event length of 12 hours during the months of June

through October 2024 and May 2025, and with a maximum event length of 15 hours during the months of November 2024 through April 2025 and no maximum number of curtailment events. Resources with a limited number of curtailment events are no longer eligible for registration and therefore hold no value with PJM.

- Only customers able to provide a minimum of 100 kW load response qualify for CallOption®.

- QuoteOption®:
  - Under the QuoteOption® products, the customer and the Company agree that when the average wholesale market price for energy during the notification period is greater than a pre-determined strike price, the Company may notify the customer of a QuoteOption® event and provide a price quote to the customer for each event hour;
  - The customer will decide whether to reduce demand during the event period. If they decide to do so, the customer will notify the Company and provide an estimate of the customer's projected load reduction;
  - Each time the Company exercises the option, the Company will provide the participating customer who reduces load an energy credit;
  - There is no option premium for the QuoteOption® product since customer load reductions are voluntary; and
  - Only customers able to provide a minimum of 100 kW load response

qualify for QuoteOption®.

PowerShare® 2024-2025 Summary

76. Duke Energy Kentucky's customer participation goal for 2024 was to retain all customers that currently participate and to promote customer migration to the CallOption® program. The table below displays monthly account participation levels for July 2024 through June 2025, as well as MWs enrolled in the program.

Kentucky PowerShare® Participation Update				
	CallOption®		QuoteOption®	
Month	Enrolled Customers*	Summer Capability**	Enrolled Customers*	Summer Capability**
Jul-24	9	9.337	0	0
Aug-24	9	9.337	0	0
Sep-24	9	9.337	0	0
Oct-24	9	9.337	0	0
Nov-24	9	9.337	0	0
Dec-24	9	9.337	0	0
Jan-25	9	9.337	0	0
Feb-25	9	9.337	0	0
Mar-25	9	9.337	0	0
Apr-25	9	9.337	0	0
May-25	9	9.337	0	0
Jun-25	9	8.7***	0	0

*Enrolled Customers represents the number of parent accounts participating.

**Summer Capability is consistent with the associated program year. Numbers reported are adjusted for losses.

***Estimated Summer capability

(Note that Duke Energy Kentucky has signed nine contracts for the 2025/2026 PowerShare® CallOption® Program. Measured and verified MW values for the summer of 2024 will be available and presented in the update filing.)

77. During the July 2024 through June 2025 period, there was one PowerShare® CallOption® or QuoteOption® event. There was a curtailment test performed to meet PJM

requirements. The table below summarizes event participation:

Duke Energy Kentucky - PowerShare CallOption and QuoteOption Economic, Emergency, and Test Events July 2024 - June 2025 Activity - Reduction Values in MWs							
Date	Event Hours (EDT)	Event Type	Event Participants	Participants Reducing Load Partially or Fully	Average Hourly Load Reduction Expected - At the Meter	Average Hourly Load Reduction - At the Meter	Average Hourly Load Reduction - At the Plant
11/12/2024	2 pm to 4 pm	PJM Test	1	1	2.594	2.642	2.708

(Note that for the summer period of June 2024 through September 2024, zero PowerShare® events have been called. The annual, required, PJM two-hour curtailment test event was conducted on November 12, 2024, at 2 pm.)

X. PROGRAM 8: INCOME QUALIFIED NEIGHBORHOOD PROGRAM

78. The Duke Energy Kentucky Neighborhood Energy Saver (NES) Program takes a non-traditional approach to serve income-qualified areas of the Duke Energy Kentucky service territory through the direct installation of energy efficiency measures in customer homes. This customer-facing program allows for direct engagement in a familiar setting to reduce energy consumption with the installation of energy efficient measures. In addition, Duke Energy Kentucky uses this opportunity to educate and work with customers to efficiently manage and lower their energy bills. Examples of direct installed measures include energy efficient light bulbs, water heater and pipe wrap, low flow shower heads/faucet aerators, window and door air sealing and a year supply of HVAC filter replacements.

79. Income qualified neighborhoods are identified for the program if at least 50 percent of the households are at or below 200 percent of the federal poverty guidelines. Duke Energy Kentucky analyzes census and internal data to select and prioritize neighborhoods that have the greatest need and propensity to participate. While the goal is to serve neighborhoods

where most residents are income qualified, the program is available to all Duke Energy Kentucky customers within the selected neighborhood boundary. This program is available to both homeowners and renters occupying single family and multi-family dwellings in the target neighborhoods that have electric service provided by Duke Energy Kentucky.

80. Community-based kick-off events are held in targeted neighborhoods. Kick-off events have featured local community leaders, community-based organization representatives, local weatherization program managers, the installation vendor, and the technical crew. The Duke Energy Kentucky program manager and vendor provide attendees detailed information about NES along with a tentative neighborhood schedule.

81. The purpose of the kick-off event has been to rally the neighborhood around energy efficiency and educate customers on actions they can take to help lower their energy bills and save energy. Additionally, attendees have had the opportunity to meet technical staff and view measures. Within days, or a few weeks, following the kick-off event, customers are contacted by the technical crew to receive the free in-home energy assessments (walk-through) and the appropriate energy saving measures are installed if the customer elects to have the work completed. Direct mail marketing and call center support supplement community-based outreach efforts to raise awareness for the program and schedule in-home energy assessments.

82. For fiscal year 2024-2025, with a participation goal of 600 homes, Duke Energy Kentucky completed 619 homes within the service territory. Duke Energy Kentucky continues to collaborate with organizations such as the Northern Kentucky Community Action Commission, People Working Cooperatively and other local agencies, businesses, and government-backed programs to rally around efforts of the NES program. Duke Energy

Kentucky's NES program provides residents with information about the service and helps leverage additional services available in their communities. The program has been well-received, and neighbors regularly share the benefits of their experience with others.

83. Duke Energy Kentucky has expanded the NES program by adding NES 2.0.[15] In addition to the current 16 measures offered to customers, Duke Energy will qualify customers in the neighborhood for NES 2.0 measures, which include attic insulation, air sealing, duct sealing, and smart thermostats to address customers high energy use. Eligibility of the revised measures (NES 2.0) will be made available to customers that the Company deems a high-energy user. For fiscal year 2024-2025, the Company has completed 28 attic insulation, 42 air sealing, and 41 duct sealing installations and 44 Smart Thermostats for customers with high energy use.

84. Duke Energy Kentucky continues to work with communities and determines which areas can benefit from participating in the program. Currently there is a minimum number of household structures necessary to define a neighborhood. A neighborhood size is approximately 500 – 1,500 households. However, Duke Energy Kentucky can and will adjust street boundaries to create a neighborhood that fits the income qualifications if necessary.

XI. PROGRAM 9: HOME ENERGY REPORT PROGRAM

85. The Home Energy Report (HER) compares household electric usage to similar neighboring homes and provides recommendations and actionable tips to lower energy consumption. The report also informs a customer of the Company's other energy efficiency programs when applicable. These normative comparisons are intended to induce customers

[15] *In the Matter of Electronic Application of Duke Energy Kentucky, Inc. to Amend its Demand Side Management Programs*, Case No. 2021-00313, Application, pp. 6-7 (Aug. 16, 2021); *id.*, Order, p. 8 (Ky. P.S.C. Dec. 22, 2021).

to adopt more efficient energy consumption behavior. HER is delivered in printed and email form. The reports are distributed up to 12 times per year (up to 8 printed reports and up to 12 electronic reports annually if the customer provides their email address). Currently, to qualify to receive the report, customers must be living in a single metered, single-family home with 13 months usage history.

86. The HER program, originally an opt out program, was changed to an opt in program beginning in 2019-2020, the next fiscal term following the Commission's September 13, 2018, Order. The Company provides information on every report as to how a customer may update their information or request to stop receiving the reports. From July 1, 2024, to June 30, 2025, the HER program had two participants who decided to opt-out of the program after receiving reports. As of June 30, 2025, there were 64,456 Kentucky HER participants receiving reports.

87. The HER program was approved to return to an opt-out program design beginning in 2024[16] with an aim to add multifamily customers to the program for the first time and deliver usage insights and personalized tips to a larger audience and increase program cost effectiveness. The updated program design request includes an increase of up to 8 and 6 paper reports sent to each single-family and multifamily customer per year, respectively, if a customer has not opted out of paper reports. As of June 30, 2025, there are 55,188 single-family and 9,268 multifamily participants in the HER program.

88. The Company has designed an interactive portal and enabled email technology to further engage with customers with the intention of increasing the level of engagement with customers and hence their efficiency. This portal is available online and

[16] *See In the Matter of the Electronic Application of Duke Energy Kentucky, Inc. to Amend its Demand Side Management Programs*, Case No. 2023-00269, Order, pp. 4, 9 (Ky. P.S.C. Nov. 20, 2023).

through mobile channels. Historically, single-family participants have a higher propensity to engage with the interactive website and increase their energy-efficiency, as evident by prior HER EM&V evaluations. EM&V evaluations also show that Multifamily participants using the HER website do not increase their energy efficiency, statistically speaking, versus those Multifamily participants in the regular program receiving only email and/or paper reports. As of June 30, 2025, there were 3,023 Duke Energy Kentucky single-family and 451 multifamily HER customers enrolled in the interactive portal.

89. The Company also offers the HER program in the Duke Energy mobile app. Customers who have opted into the mobile program are now able to see their Home Energy Report monthly comparisons and usage disaggregation on the Duke Energy mobile app.

90. The Company has designed notifications to inform customers of opportunities to save energy including but not limited to encouraging efficient customer behaviors during system peak days and/or times of excessive individual consumption.

XII. PROGRAM 10: BUSINESS ENERGY SAVER PROGRAM[17]

91. The purpose of Duke Energy Kentucky's Business Energy Saver program (BES) is to reduce energy usage through the direct installation of energy efficiency measures within qualifying non-residential Duke Energy Kentucky customer facilities. BES consists of two Program options, Small Business Energy Saver (SBES) and SmartPath. The BES Program energy efficiency measures address major end-uses in lighting, refrigeration, process, and HVAC applications.

92. All aspects of the SBES option are administered by a single Company-

[17] Small Business Energy Saver and SmartPath are individual sets of measures that are part of a single and larger program referred to as Business Energy Saver beginning July 1, 2023.

authorized vendor. The SBES participants receive a free, no-obligation energy assessment of their facility followed by a recommendation of energy efficiency measures to be installed in their facility along with the projected energy savings, costs of all materials and installation, and up-front incentive amount from Duke Energy Kentucky. Upon receiving the results of the energy assessment, if the customer decides to move forward with the proposed energy efficiency project, the customer makes the final determination of which measures will be installed. The energy efficiency measure installation is then scheduled at a convenient time for the customer, and the measures are installed by electrical subcontractors of the Duke Energy Kentucky-authorized vendor.

93. The SBES option is designed as a pay-for-performance offering, meaning that the Duke Energy Kentucky-authorized vendor administering the SBES option is compensated for kWh energy savings produced through the installation of energy efficiency measures.

94. The SBES option is available to existing Duke Energy Kentucky non-residential customer accounts with an actual average annual electric demand of 180 kW or less.

95. The SmartPath option is available to all eligible non-residential customer accounts. SmartPath is built upon the traditional SBES turnkey model, minimizing barriers to customer participation by allowing customers to implement energy efficiency upgrades at little to no upfront costs. The program is implemented by a qualified Trade Ally network who completes energy assessments, develops proposals, implements the turnkey projects, and handles all paperwork on the customer's behalf. SmartPath informs customers of financing options that the customer may pursue independent of the program.

96. For the July 2024 to June 2025 period, 38 BES projects were completed in Duke Energy Kentucky, which was fewer projects than the projected volume, but those 38 projects resulted in savings of over 10,469,936 kWh or 233% of the filed plan. Most of the savings, 9,656,521 kWh, were generated by 7 projects completed through the SmartPath option. Due to success of the SmartPath option, funding was shifted from other nonresidential programs to cover the increased participation and savings.

97. While LED lighting measures, not impacted by the federal standard changes, are expected to remain the primary driver of kWh savings in BES for the foreseeable future, the Company has been actively working with the vendor and Trade Allies to implement initiatives focused on increasing refrigeration, process, and HVAC measure adoption.

98. Duke Energy Kentucky will continue to evaluate the opportunity to add incentivized measures suitable for the business market to the approved program which fit the direct install program model. The Company would ultimately like to ensure that all business customers are given the opportunity to maximize their energy savings by being offered a comprehensive energy efficiency project through the BES Program wherever possible.

XIII. PROGRAM 11. SMART $AVER® PERFORMANCE

99. The purpose of this program is to encourage the installation of high efficiency equipment in new and existing non-residential establishments. The program will provide incentive payments based on measured savings, to offset a portion of the higher cost of energy efficient installations that are not offered under either the Smart $aver® Non-Residential programs. The types of measures covered by the program include retro-

commissioning and projects with some combination of unknown building conditions or system constraints, coupled with uncertain operating, occupancy, or production schedules. The specific type of measures and the schedule of measurement and payments will be established in advance and may be unique to the Customer.

100. There was zero participation in the program during the fiscal year. The Company will continue to market the program in the 2025-2026 period and it will be available to qualifying customers as needed.

XIV. PROGRAM 12. PEAK TIME REBATE (PTR) PILOT PROGRAM

101. The PTR pilot program offers participating customers the opportunity to lower their electric bill by reducing their electric usage during Company-designated peak load periods known as Critical Peak Events (CPE). The Company has branded the program to customers under the name Peak Time Credits and describes CPEs to participants as Peak Day events.

102. The PTR pilot program launched on July 27, 2020, initially as 2-year pilot which was subsequently extended. The Company designates July 27, 2020, through July 31, 2021, as the first year of the pilot. The second year of the pilot is August 1, 2021, through July 31, 2022. The third year of the pilot is August 1, 2022, through July 31, 2023.The fourth year of the pilot is August 1, 2023, through July 31, 2024. The fifth year of the pilot was August 1, 2024, through July 31, 2025. An EM&V report for the original 2-year pilot was submitted to the Commission in Case No. 2022-00251.

103. The Commission required continuation of the pilot program and suggested eleven modifications and authorized the Company to adjust the initial budget for any

specific programmatic or research elements.[18]

104. A landing page with new creative which helps explain the details of the program design and provide frequently asked questions (FAQs) about the program was updated. Customer inquiries and enrollments are being handled by a specialized department servicing the program. As of June 30, 2025, 677 participants were active in the program. Increased marketing efforts have subsequently increased enrollment to over 1,000 participants. Almost all program attrition results from customers moving out of the enrolled premises. The Company continues to evaluate additional means to increase participation and peak load reductions achieved through the PTR offering in the future.

105. The table below displays the dates CPEs were implemented during year 5 of the pilot.

CPE Dates Since August 1, 2024:

CPE Date
8/6/2024
8/27/2024
8/28/2024
1/15/2025
1/22/2025
6/24/2025
6/25/2025
6/26/2025
7/24/2025
7/29/2025

[18] *In the Matter of the Electronic Application of Duke Energy Kentucky, Inc. to Amend its Demand Side Management Programs*, Case No. 2022-00251, Order, pp. 4-6, 7. (Ky. P.S.C. Feb. 21, 2024).

XV. NEW PROGRAM UPDATE

106. Earlier this year, the Company requested to add an additional program to the current EE/DSM portfolio[19] in response to comments referencing 807 KAR 5:508 Section 8(2)(b) requirement that Duke Energy Kentucky evaluate potential DSM programs.[20] The Company conducts a review on an annual basis and proposes measures and programs that meet Kentucky standards of passing the Total Resource Cost test (TRC) at a 1.0 or higher when applicable.

107. The proposed new program, the Energy Efficiency in Education Program (Program), would offer participating customers the opportunity to lower their electric bill by reducing their electric usage by providing Company-designed energy saving measures.

108. This Program primarily targets children in grades K-12 enrolled in public and private schools within the Duke Energy Kentucky service territory but may be offered via other community educational/awareness programs where the curriculum would be relevant.

109. The Program provides an educational component (for example: a theatrical performance or informational seminar) centered around EE with a variety of versions and themes tailored to different grade levels and ages, between K-12. Individuals are provided with materials that supplement the educational elements of the program that focus on topics such as types of energy, resources, the relationship between energy and resources, ways

[19] *In the Matter of the Electronic Application of Duke Energy Kentucky, Inc. to Amend its Demand Side Management Programs,* Case No. 2025-00272, Application, pp. 7-9 (Aug. 15, 2025).

[20] *See In the Matter of Electronic 2024 Integrated Resource Plan of Duke Energy Kentucky, Inc.*, Case No. 2024-00197, Comments of Joint Intervenors Kentuckians for the Commonwealth, Kentucky Solar Energy Society, and Kentucky Resources Council on Duke Energy Kentucky's 2024 Integrated Resource Plan, pp. 6-7 (Nov. 6, 2024); *id.*, Post-Hearing Comments of Joint Intervenors Kentuckians for the Commonwealth, Kentucky Solar Energy Society, and Kentucky Resources Council on Duke Energy Kentucky's 2024 Integrated Resource Plan, pp. 5-6 (Feb. 20, 2025).

energy is wasted and how children and their families can be more energy efficient.

110. The Program also offers attendees the opportunity to request free energy efficient measures that may be bundled as a part of a kit. These measures/kits are free to eligible Duke Energy Kentucky customers who attend or have children that attend a school or communal facility that hosted a theatrical performance or educational seminar. The kit offer includes specific energy efficiency measures to reduce home energy consumption.

111. Once an eligible customer submits a complete kit request, it is shipped for delivery within two to four weeks.

112. In addition to developing and producing theatrical performances and/or educational seminars, the implementation vendor is responsible for marketing the Program to develop a pipeline of participating schools and facilities and promotion of the free EE measure offer. Marketing channels include, but are not limited to the following:

- Direct Mail
- Email
- In-person visits
- Program website
- Printed materials for students and teachers

113. These marketing efforts engage participants in energy conservation behavior and provide energy saving opportunities through the Program's measures. To help encourage participation, the program vendor provides various rewards for participants to champion the Program and encourage additional measure requests.

114. Duke Energy Kentucky requests funding for the program to begin with Commission approval. Billing system revisions and other preparations for program

implementation will begin with Commission approval.

115. The Company requested approval by December 31, 2025, to implement the changes immediately.[21] The Company is including the costs of the proposed Program in the forecast of this application. The Company will true-up the actual costs and include the cost effectiveness scores within the Annual Cost Recovery Filing for DSM to be filed on November 15, 2026, recovering the July 1, 2025 – June 30, 2026, costs within that timeframe.

The forecasted program costs are included in Appendix C.

XVI. EVALUATION, MEASUREMENT, AND VERIFICATION

116. The EM&V schedule for each program for program years 2025 – 2027 is available in Appendix F. Also included is Appendix G - PowerShare 2019-2024 Final Report.[22]

XVII. CALCULATION OF THE 2024 DSM COST RECOVERY MECHANISM, RIDER DSMR

117. The reconciliation of the cost recovery mechanism (Rider DSMR) involves a comparison of projected versus actual program expenses, lost revenues, and shared savings, as well as inclusion of the prior year's reconciliation. The actual cost of residential and non-residential program expenditures, lost revenues, and shared savings for this reporting period, July 1, 2024, to June 30, 2025, was $10.89 million. The projected level of program expenditures was $11.39 million.[23]

118. Lost revenues are computed using the applicable marginal block rate net of fuel costs and other variable costs times the estimated kWh savings for a three-year period

[21] *In the Matter of the Electronic Application of Duke Energy Kentucky, Inc. to Amend its Demand Side Management Programs,* Case No. 2025-00272, Application, p. 9 (Aug. 15, 2025).

[22] The report was finalized after the submission of Case No. 2025-00272.

[23] *See* Appendix C, tab "Page 1", B42-D42 and E42-G42.

from installation of the DSM measure. The estimate of kWh savings is based upon the results from any recently completed impact evaluation studies and actual customer participation. Lost revenues accumulate over a three-year period from the installation of each measure unless a general rate case has occurred.

119. With respect to shared savings, Duke Energy Kentucky utilized the shared incentive of 10 percent of the total net benefits as calculated under the Utility Cost Test. The net benefits are calculated by taking the total of the net present value of avoided energy, capacity, T&D and gas production costs and subtracting all non-EM&V program costs. The shared savings is then calculated by multiplying this difference by 10 percent thereby allowing customers to maintain 90 percent of the net benefits realized through the Company's portfolio of programs.

XVIII. 2024 DSM RIDERS

120. Duke Energy Kentucky submits the proposed adjustments to its Rider DSMR for both electric and gas programs (Appendices D and E, respectively). The two Rider DSMRs are intended to recover projected July 1, 2026 – June 30, 2027[24] (fiscal year 2026) program costs, lost revenues, and shared savings and to reconcile the actual DSM revenue requirement, as previously defined, to the revenue recovered under the riders for the period July 1, 2024, through June 30, 2025. The spreadsheet model contained in Appendix C has been used by the Company for several years in its Rider DSMR update filings.

121. Appendix C, page 1 of 7, tabulates the reconciliation of the DSM revenue requirement associated with the prior reconciliation, Duke Energy Kentucky's program

[24] The projected July 1, 2026 – June 30, 2027, program expenditures used in this filing will be trued-up as part of the 2026 annual status report and will be described as 2026 throughout the document.

costs, lost revenues, and shared savings between July 1, 2024, and June 30, 2025, and the revenues collected through the DSMR Riders over the same period. The true-up adjustment is based upon the difference between the actual DSM revenue requirement and the revenues collected during the period July 1, 2024, through June 30, 2025.

122. The DSM revenue requirement for the period July 1, 2024, through June 30, 2025, consists of: (1) program expenditures, lost revenues, and shared savings; and (2) amounts approved for recovery in the previous reconciliation filing.

123. Appendix C, page 2 of 7, contains the forecasted DSM revenue requirement for the period July 1, 2026, through June 30, 2027, consists of: (1) program expenditures, lost revenues, and shared saving. Shared savings are increasing primarily due to the Company's periodic update of avoided Transmission and Distribution (T&D) costs, which reflects higher T&D investments with the modernization of the grid, included in the calculation of the net benefits under the UCT. Avoided Energy and Capacity costs were also updated, to align with the 2024 Integrated Resource Planning (IRP).

124. Appendix C, page 6 of 7, contains the calculation of the 2024 – 2025 residential cost allocation factors for gas and electric, as approved in Case No. 2014-00388. These factors are the Electric Percent of Total Percent of Sales, and the Gas Percent of Total Percent of Sales, and are calculated by program. The calculation includes the residential kWh and ccf sales for July 2024 – June 2025, along with the kWh and ccf savings achieved for July 2024 – June 2025. The factors are used in Appendix C, page 1 of 7, to calculate columns 5 and 6.

125. Appendix C, page 7 of 7, contains the calculation of the 2026–2027 residential cost allocation factors for gas and electric, as approved in Case No. 2014-00388.

These factors are the Electric Percent of Total Percent of Sales, and the Gas Percent of Total Percent of Sales, and are calculated by program. The calculation includes the projected Rate RS kWh and ccf sales found in Appendix C, page 4 of 7, along with the projected kWh and ccf savings for July 2026 – June 2027. The factors are used in Appendix C, page 2 of 7, Residential Program Summary, columns G and H (Allocations of Costs).

126. Appendix C, page 5 of 7 contains the calculation of the 2025 Residential DSMR Riders. The calculation includes the reconciliation adjustments calculated in Appendix C, page 1 of 7 and the Residential DSM revenue requirement for 2025. The Projected Residential DSM revenue requirement for 2024 includes the costs associated with the Residential DSM programs: Home Energy Report, Income Qualified Neighborhood, Income Qualified Services, Residential Energy Assessments, Residential Smart $aver®, Power Manager®, Energy Efficiency in Education Program, and any applicable net lost revenues and shared savings (Appendix C, pages 2 and 3 of 7). Total revenue requirements are incorporated along with the projected electric and gas volumes (Appendix C, page 4 of 7) in the calculation of the Residential DSM Rider.

127. Appendix C, page 5 of 7 also contains the calculation of the 2025 Commercial and Industrial DSM Rider. The calculation includes the reconciliation adjustments calculated in Appendix C, page 1 of 7 and the DSM revenue requirement for 2024. The Commercial & Industrial DSM revenue requirement for 2026 includes the costs associated with the Commercial and Industrial DSM programs: Smart $aver® Non-Residential, Business Energy Saver, Smart $aver® Non-Residential Performance Incentive Program, and PowerShare® the associated net lost revenues and shared savings (Appendix C, pages 2 and 3 of 7). The 2025 Commercial and Industrial DSMR Rider is calculated in two parts. One part (Part A) is based

upon the revenue requirements for Smart $aver® Non-Residential, Business Energy Saver, Power Manager® for Business and PowerShare®. This part is only recovered from all non-residential rate classes except rate TT. The other part (Part B) is based upon the revenue requirements for the PowerShare® program and is recovered from all non-residential rate classes including rate TT.

128. Total revenue requirements are incorporated along with the projected electric volumes (Appendix C, page 4 of 7) in the calculation of the Commercial and Industrial DSM Rider.

129. The Company's proposed DSMR Riders, shown as Appendices D and E, replace the current DSMR Riders. The electric DSMR rider, proposed to be effective with the first billing cycle in the month following Commission approval, is applicable to service provided under Duke Energy Kentucky's electric service tariffs as follows:

- Residential Electric Service provided under:
  - Rate RS, Residential Service, Sheet No. 30.
- Non-Residential Electric Service provided under:
  - Rate DS, Service at Secondary Distribution Voltage, Sheet No. 40;
  - Rate DT, Time-of-Day Rate for Service at Distribution Voltage, Sheet No. 41;
  - Rate EH, Optional Rate for Electric Space Heating, Sheet No. 42;
  - Rate SP, Seasonal Sports, Sheet No. 43;
  - Rate GS-FL, Optional Unmetered General Service Rate for

Small Fixed Loads, Sheet No. 44;

- Rate DP, Service at Primary Distribution Voltage, Sheet No. 45;
- Rate RTP, Real Time Pricing Program, Sheet No. 99; and,
- Rate TT, Time-of-Day Rate for Service at Transmission Voltage, Sheet No. 51.

The gas DSM rider is applicable to service provided under the following residential gas service tariff:

- Rate RS, Residential Service, Sheet No. 30.

XIX. CALCULATION OF THE RESIDENTIAL CHARGE

130. The proposed residential charge per kWh for 2025 was calculated by dividing the sum of: (1) the reconciliation amount calculated in Appendix C, page 1 of 7; and (2) the DSM revenue requirement associated with the DSM programs projected for 2026, by the projected sales for calendar year 2026. DSM program costs for 2026 include the total implementation costs plus program rebates, lost revenues, and shared savings. The calculations in support of the residential recovery mechanism are provided in Appendix C, page 5 of 7. Based on the updated rider amounts, the estimated annual cost for the average residential customer is a charge of approximately $59.49 for electric, and $9.03 for gas.[25]

XX. CALCULATION OF THE NON-RESIDENTIAL CHARGE

131. The proposed non-residential charge per kWh for 2025 was calculated in two parts. The first part (Part A), applicable to all non-residential rate classes except Rate TT, is

[25] The cost for average customer was calculated by using the 2026 forecasted sales of Appendix C page 4 divided by the number of residential electric or gas customers multiplied by the cost per kWh or cost per CCF respectively of Appendix C page 5. The costs are estimates and will vary by customer based on usage.

calculated by dividing the sum of: (1) the reconciliation amount calculated in Appendix C, page 1 of 7; and (2) the DSM revenue requirement associated with the Smart $aver® Non-Residential, and Business Energy Saver, programs projected for 2026, by the respective projected sales for calendar year 2026. The second part (Part B), applicable to all non-residential rate classes including Rate TT, is calculated by dividing the DSM revenue requirement associated with the PowerShare® program projected for 2026, by total non-residential projected sales for calendar year 2026. DSM program cost for 2026 includes the total implementation costs plus program rebates, lost revenues, and shared savings.

132. The rider applicable to all non-residential rate classes except Rate TT is the sum of Part A and Part B. The rider applicable to all non-residential rate classes including Rate TT is only Part B.

XXI. ALLOCATION OF THE DSM REVENUE REQUIREMENT

133. As required by KRS 278.285(3), the DSM Cost Recovery Mechanism attributes the costs to be recovered to the respective class that benefits from the programs. The costs for the Power Manager program are fully allocated to the residential electric class, since this is the class benefiting from the implementation of the program. As required, qualifying industrial customers are permitted to "opt-out" of participation in, and payment for, Smart $aver® Non-Residential and Business Energy Saver. All of Duke Energy Kentucky's Rate TT customers met the "opt-out" requirements prior to the implementation of the DSM riders in May 1996 and are not subject to this portion of the DSM Cost Recovery Mechanism (*i.e.,* Rider DSMR). However, all non-residential customers, including Rate TT customers, will be charged for the PowerShare® program.

WHEREFORE, Duke Energy Kentucky respectfully requests that the Commission

review and approve this Application and Duke Energy Kentucky gives notice that the new rates will take effect 30 days from the date of this Application.

Respectfully submitted,

DUKE ENERGY KENTUCKY, INC.

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CERTIFICATE OF SERVICE

This is to certify that the foregoing electronic filing is a true and accurate copy of the document in paper medium; that the electronic filing was transmitted to the Commission on November 3, 2025; that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding; and that submitting the original filing to the Commission in paper medium is no longer required as it has been granted a permanent deviation.[26]

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[26] *In the Matter of Electronic Emergency Docket Related to the Novel Coronavirus COVID-19,* Order, Case No. 2020-00085 (Ky. P.S.C. July 22, 2021).

Commonwealth of Kentucky
Michael G. Adams, Secretary of State

Michael G. Adams
Secretary of State
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Certificate of Existence

Authentication number: 348659
Visit https://web.sos.ky.gov/ftshow/certvalidate.aspx to authenticate this certificate.

I, Michael G. Adams, Secretary of State of the Commonwealth of Kentucky, do hereby certify that according to the records in the Office of the Secretary of State,

DUKE ENERGY KENTUCKY, INC.

DUKE ENERGY KENTUCKY, INC. is a corporation duly incorporated and existing under KRS Chapter 14A and KRS Chapter 271B, whose date of incorporation is March 20, 1901 and whose period of duration is perpetual.

I further certify that all fees and penalties owed to the Secretary of State have been paid; that Articles of Dissolution have not been filed; and that the most recent annual report required by KRS 14A.6-010 has been delivered to the Secretary of State.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Official Seal at Frankfort, Kentucky, this 31st day of October, 2025, in the 234th year of the Commonwealth.

Michael G. Adams
Secretary of State
Commonwealth of Kentucky
348659/0052929

Appendix B 2024-2025
Cost Effectiveness Test Results

Program Name	UCT	TRC	RIM	PCT
Residential Programs				
Income Qualified Neighborhood	0.62	0.62	0.36	2.61
Income Qualified Services	0.31	0.31	0.25	1.60
Home Energy Report	2.96	2.96	0.86	NA
Residential Energy Assessments	2.19	2.03	0.63	27.43
Residential Smart $aver®	1.54	1.40	0.63	4.95
Power Manager®	1.43	1.79	1.43	NA
Peak Time Rebate Pilot Program	0.18	0.18	0.18	NA
Total	**1.32**	**1.43**	**0.80**	**5.27**
Non-Residential Programs				
Business Energy Saver	4.81	2.82	0.98	4.14
Smart $aver® Non-Residential	3.20	2.32	0.81	5.04
PowerShare®	2.42	6.86	2.42	NA
Total	**3.94**	**2.85**	**0.99**	**4.46**
Overall Portfolio Total	**2.55**	**2.24**	**0.93**	**4.60**

Kentucky DSM Rider
Comparison of Revenue Requirement to Rider Recovery
2024-2025 Status Update

Residential Programs	(1) Projected Program Costs 7/2024 to 6/2025 (A)	(2) Projected Lost Revenues 7/2024 to 6/2025 (A)	(3) Projected Shared Savings 7/2024 to 6/2025 (A)	(4) Program Expenditures 7/2024 to 6/2025 (B)	(5) Program Expenditures (C) Gas	(6) Program Expenditures (C) Electric	(7) Lost Revenues 7/2024 to 6/2025 (B)	(8) Shared Savings 7/2024 to 6/2025 (B)	(9) 2024 Reconciliation Gas (D)	(10) 2024 Reconciliation Electric (D)	(11) Rider Collection (E) Gas	(12) Rider Collection (E) Electric	(13) (Over)/Under Collection Gas (F)	(14) (Over)/Under Collection Electric (G)
Income Qualified Neighborhood	$ 534,292	$ 31,541	$ (20,759)	$ 456,409	$ -	$ 456,409	$ 34,637	$ (17,478)						
Income Qualified Services	$ 748,255	$ 12,001	$ (40,116)	$ 788,557	$ 333,524	$ 455,032	$ 14,682	$ (37,434)						
Home Energy Report	$ 442,331	$ 741,075	$ 65,215	$ 359,658	$ -	$ 359,658	$ 959,137	$ 68,157						
Residential Energy Assessments	$ 322,136	$ 50,042	$ 24,047	$ 207,160	$ -	$ 207,160	$ 56,034	$ 24,592						
Residential Smart $aver®	$ 648,458	$ 88,164	$ 22,748	$ 569,094	$ -	$ 569,094	$ 87,606	$ 28,496						
Power Manager®	$ 2,038,578	$ -	$ 46,463	$ 1,853,640	$ -	$ 1,853,640	$ -	$ 76,506						
Peak Time Rebate Pilot Program	$ 428,999	$ -	$ -	$ 156,768	$ -	$ 156,768	$ -							
Revenues collected											($401,907)	$2,553,900		
Total	$ 5,163,049	$ 922,822	$ 97,599	$ 4,391,286	$ 333,524	$ 4,057,762	$ 1,152,096	$ 142,838	$ (242,159)	$ (4,196,402)	$ (401,907)	$ 2,553,900	$ 493,272	$ (1,397,605)

(A) Amounts identified in report filed in Case No. 2024-00264
(B) Actual program expenditures, lost revenues (for this period and from prior period DSM measure installations), and shared savings for the period July 1, 2024 through June 30, 2025
(C) Allocation of program expenditures to gas and electric in accordance with the Commission's Order in Case No. 2014-00388
(D) Recovery allowed in accordance with the Commission's Order in Case No. 2024-00352
(E) Revenues collected through the DSM Rider between July 1, 2024 and June 30, 2025
(F) Column (5) + Column (9) - Column(11)
(G) Column (6) + Column (7) + Column (8) + Column (10) - Column(12)

Commercial Programs	(1) Projected Program Costs 7/2024 to 6/2025 (A)	(2) Projected Lost Revenues 7/2024 to 6/2025 (A)	(3) Projected Shared Savings 7/2024 to 6/2025 (A)	(4) Program Expenditures 7/2024 to 6/2025 (B)	(5) Lost Revenues 7/2024 to 6/2025 (B)	(6) Shared Savings 7/2024 to 6/2025 (B)	(7) 2024 Reconciliation (C)	(8) Rider Collection (D)	(9) (Over)/Under Collection (E)
Business Energy Saver	$ 1,070,184	$ 128,985	$ 175,543	$ 1,922,887	$ 217,667	$ 732,813			
Smart $aver® Non-Residential	$ 2,286,676	$ 330,875	$ 339,287	$ 1,117,757	$ 216,548	$ 228,426			
Total	$ 3,356,859	$ 459,860	$ 514,830	$ 3,040,644	$ 434,214	$ 961,239	$ (93,896)	$ 6,955,814	$ (2,613,613)
PowerShare®	$ 801,600	$ -	$ 77,572	$ 660,457	$ -	$ 84,060	$ 115,873	$ 1,544,077	$ (683,687)
Total All Programs	$ 9,321,509	$ 1,382,683	$ 690,001	$ 8,092,387	$ 1,586,311	$ 1,188,138			

(A) Amounts identified in report filed in Case No. 2024-00264
(B) Actual program expenditures, lost revenues (for this period and from prior period DSM measure installations), and shared savings for the period July 1, 2024 through June 30, 2025
(C) Recovery allowed in accordance with the Commission's Order in Case No. 2024-00352
(D) Revenues collected through the DSM Rider between July 1, 2024 and June 30, 2025
(E) Column (4) + Column (5) + Column (6) + Column (7) - Column(8)

Kentucky DSM Rider

2026-2027 Projected Program Costs, Lost Revenues, and Shared Savings

Residential Program Summary (A)

	Costs	Lost Revenues	Shared Savings	Total	Allocation of Costs (B) Electric	Gas	Electric Costs	Budget (Costs, Lost Revenues, & Shared Savings) Electric	Gas Costs
Energy Efficiency in Education Program	$ 153,493	$ 30,039	$ 101,731	$ 285,263	100.0%	0.0%	$ 153,493	$ 285,263	$ -
Income Qualified Neighborhood	$ 654,678	$ 121,220	$ 44,107	$ 820,005	100.0%	0.0%	$ 654,678	$ 820,005	$ -
Income Qualified Services	$ 737,986	$ 39,499	$ (5,108)	$ 772,377	49.6%	50.4%	$ 366,039	$ 400,430	$ 371,947
Home Energy Report	$ 497,961	$ 881,540	$ 315,208	$ 1,694,708	100.0%	0.0%	$ 497,961	$ 1,694,708	$ -
Residential Energy Assessments	$ 348,650	$ 208,617	$ 116,042	$ 673,310	100.0%	0.0%	$ 348,650	$ 673,310	$ -
Residential Smart $aver®	$ 965,796	$ 261,982	$ 192,191	$ 1,419,969	100.0%	0.0%	$ 965,796	$ 1,419,969	$ -
Power Manager®	$ 2,501,926	$ -	$ 1,806,549	$ 4,308,475	100.0%	0.0%	$ 2,501,926	$ 4,308,475	$ -
Peak Time Rebate Pilot Program	$ 201,913	$ -	$ -	$ 201,913	100.0%	0.0%	$ 201,913	$ 201,913	$ -
Total Costs, Net Lost Revenues, Shared Savings	$ 6,062,404	$ 1,542,897	$ 2,570,720	$ 10,176,020			$ 5,690,457	$ 9,804,073	$ 371,947

NonResidential Program Summary (A)

	Costs	Lost Revenues	Shared Savings	Total	Allocation of Costs (B) Electric	Gas	Electric Costs	Budget (Costs, Lost Revenues, & Shared Savings) Electric	Gas
Business Energy Saver (C)	$ 1,187,273	$ 783,885	$ 588,133	$ 2,559,291	100.0%	0.0%	$ 1,187,273	$ 2,559,291	NA
Smart $aver® Non-Residential	$ 1,241,196	$ 518,838	$ 889,288	$ 2,649,322	100.0%	0.0%	$ 1,241,196	$ 2,649,322	NA
PowerShare®	$ 630,681	$ -	$ 212,731	$ 843,411	100.0%	0.0%	$ 630,681	$ 843,411	NA
Total Costs, Net Lost Revenues, Shared Savings	$ 3,059,149	$ 1,302,723	$ 1,690,151	$ 6,052,024			$ 3,059,149	$ 6,052,024	NA
Total Program	$ 9,121,553	$ 2,845,620	$ 4,260,871	$ 16,228,044					

(A) Costs, Lost Revenues (for this period and from prior period DSM measure installations), and Shared Savings for the portfolio.
(B) Allocation of program expenditures to gas and electric in accordance with the Commission's Order in Case No. 2014-00388.
(C) Small Business Energy Saver and SmartPath are indiviual sets of measures that are part of a single and larger program referred to as Business Energy Saver beginning July 1, 2023.

Kentucky DSM Rider

Duke Energy Kentucky
Demand Side Management Cost Recovery Rider (DSMR)
Summary of Calculations for Programs

July 2026 to June 2027

	Program Costs (A)
Electric Rider DSM	
Residential Rate RS	$ 9,804,073
Distribution Level Rates Part A DS, DP, DT, GS-FL, EH & SP	$ 5,208,613
Transmission Level Rates & Distribution Level Rates Part B	$ 843,411
Gas Rider DSM	
Residential Rate RS	$ 371,947

(A) See Appendix C, page 2 of 7

Kentucky DSM Rider

Duke Energy Kentucky
Demand Side Management Cost Recovery Rider (DSMR)
Summary of Billing Determinants

Year	July 2026 - June 2027
Projected Annual Electric Sales kWH	
Rate RS	1,512,856,770
Rates DS, DP, DT, GS-FL, EH, & SP	2,248,044,740
Rates DS, DP, DT, GS-FL, EH, SP, & TT	2,433,827,740
Projected Annual Gas Sales CCF	
Rate RS	61,478,656

Kentucky DSM Rider

Duke Energy Kentucky
Demand Side Management Cost Recovery Rider (DSMR)
Summary of Calculations

July 2024 to June 2025

Rate Schedule Riders	True-Up Amount (A)	Expected Program Costs (B)	Total DSM Revenue Requirements	Estimated Billing Determinants (C)		DSM Cost Recovery Rider (DSMR)	
Electric Rider DSM							
Residential Rate RS	$ (1,461,476)	$ 9,804,073	$ 8,342,597	1,512,856,770	kWh	$ 0.005514	$/kWh
Distribution Level Rates Part A DS, DP, DT, GS-FL, EH & SP	$ (2,733,055)	$ 5,208,613	$ 2,475,558	2,248,044,740	kWh	$ 0.001101	$/kWh
Transmission Level Rates & Distribution Level Rates Part B TT	$ (714,931)	$ 843,411	$ 128,480	2,433,827,740	kWh	$ 0.000053	$/kWh
Distribution Level Rates Total DS, DP, DT, GS-FL, EH & SP						$ 0.001154	$/kWh
Gas Rider DSM							
Residential Rate RS	$ 515,814	$ 371,947	$ 887,761	61,478,656	CCF	$ 0.014440	$/CCF
Total Rider Recovery			$ 11,834,397				

(A) (Over)/Under of Appendix C page 1 multiplied by the average three-month commercial paper rate for 2025 to include interest on over or under-recovery in accordance with the Commission's order in Case No. 95-312. Value is: **1.045700**
(B) Appendix C, page 2
(C) Appendix C, page 4

Summary of Load Impacts July 2024 Through June 2025 (1)

Allocation Factors based on July 2024-June 2025

Residential Programs	kWh	% of Total Res Sales	ccf	% of Total Res Sales	Elec % of Total % of Sales	Gas % of Total % of Sales
Income Qualified Neighborhood	625,676	0.0409%	-	0.0000%	100%	0%
Income Qualified Services	222,494	0.0146%	5,640	0.0107%	57.70%	42.30%
Home Energy Report	12,138,294	0.7942%	-	0.0000%	100%	0%
Residential Energy Assessments	1,040,625	0.0681%	-	0.0000%	100%	0%
Residential Smart $aver®	1,243,683	0.0814%	-	0.0000%	100%	0%
Power Manager®	-	0.0000%	-	0.0000%	100%	0%
Peak Time Rebate Pilot Program	-	0.0000%	-	0.0000%	100%	0%
Total Residential	15,270,772	0.9991%	5,640	0.0107%		
Total Residential (Rate RS) Sales	1,528,435,329	100%	52,858,356	100%		
For July 2024 Through June 2025						

(1) Load Impacts Net of Free Riders at Meter

FORECAST

Summary of Load Impacts July 2026 Through June 2027 (1)

Allocation Factors Projected

Residential Programs	kWh	% of Total Res Sales	ccf	% of Total Res Sales	Elec % of Total % of Sales	Gas % of Total % of Sales
Energy Efficiency in Education Program	739,116	0.0489%	-	0.0000%	100%	0%
Income Qualified Neighborhood	655,428	0.0433%	-	0.0000%	100%	0%
Income Qualified Services	139,616	0.0092%	5,765	0.0094%	49.6%	50.4%
Home Energy Report	11,771,223	0.7781%	-	0.0000%	100%	0%
Residential Energy Assessments	851,773	0.0563%	-	0.0000%	100%	0%
Residential Smart $aver®	1,271,740	0.0841%	-	0.0000%	100%	0%
Power Manager®	-	0.0000%	-	0.0000%	0%	0%
Total Residential	15,428,897	0.9710%	5,765	0.0094%		
Total Residential (Rate RS) Sales Projected	1,512,856,770	100%	61,478,656	100%		

(1)Load Impacts Net of Free Riders at Meter

KY.P.S.C. Electric No. 2
~~Thirty-Ninth~~Fourtieth Revised Sheet No. 78
Duke Energy Kentucky
1262 Cox Road
78
Erlanger, KY 41018

Cancels and Supersedes
Thirty-~~Eighth~~ Ninth Revised Sheet No. 78
Page 1 of 1

RIDER DSMR

DEMAND SIDE MANAGEMENT RATE

The Demand Side Management Rate (DSMR) shall be determined in accordance with the provisions of Rider DSM, Demand Side Management Cost Recovery Rider, Sheet No. 75 of this Tariff.

The DSMR to be applied to residential customer bills is $0.~~002418~~ 005514 per kilowatt-hour. (I)

A Home Energy Assistance Program (HEA) charge of $0.30 will be applied monthly to residential customer bills.

The DSMR to be applied to non-residential distribution service customer bills is $0.~~003409~~ 001154 per kilowatt-hour. (R)

The DSMR to be applied for transmission service customer bills is $0.~~000674~~ 000053 per kilowatt-hour. (~~I~~R)

Issued by authority of an Order by the Kentucky Public Service Commission dated ____ in Case No. ~~2024-00352~~2025-00359~~xxx~~.
Issued: November ~~1~~3, ~~2024~~2025
Effective: December ~~1~~3, ~~2024~~2025
Issued by Amy B. Spiller, President /s/ Amy B. Spiller

Duke Energy Kentucky
1262 Cox Road
Erlanger, KY 41018

KY.P.S.C. Electric No. 2
Fourtieth Revised Sheet No. 78
Cancels and Supersedes
Thirty-Ninth Revised Sheet No. 78
Page 1 of 1

RIDER DSMR

DEMAND SIDE MANAGEMENT RATE

The Demand Side Management Rate (DSMR) shall be determined in accordance with the provisions of Rider DSM, Demand Side Management Cost Recovery Rider, Sheet No. 75 of this Tariff.

The DSMR to be applied to residential customer bills is $0.005514 per kilowatt-hour. (I)

A Home Energy Assistance Program (HEA) charge of $0.30 will be applied monthly to residential customer bills.

The DSMR to be applied to non-residential distribution service customer bills is $0.001154 per kilowatt-hour. (R)

The DSMR to be applied for transmission service customer bills is $0.000053 per kilowatt-hour. (R)

Issued by authority of an Order by the Kentucky Public Service Commission dated ____ in Case No. 2025-00359.

Issued: November 3, 2025
Effective: December 3, 2025
Issued by Amy B. Spiller, President /s/ Amy B. Spiller

Duke Energy Kentucky
1262 Cox Road
Erlanger, Kentucky 41018

KY.P.S.C. Gas No. 2
Thirty-~~Eighth~~ Ninth Revised Sheet No. 62
Cancels and Supersedes
Thirty-~~Seventh~~ Eighth Revised Sheet No. 62
Page 1 of 1

RIDER DSMR

DEMAND SIDE MANAGEMENT RATE

The Demand Side Management Rate (DSMR) shall be determined in accordance with the provisions of Rider DSM, Demand Side Management Cost Recovery Rider, Sheet No. 61 of this Tariff.

The DSMR to be applied to residential customer bills is $0.~~001249~~ 014440 per hundred cubic feet. (I)

A Home Energy Assistance Program (HEA) charge of $0.30 will be applied monthly to residential customer bills.

The DSMR to be applied to non-residential service customer bills is $0.00 per hundred cubic feet.

Issued by authority of an Order by the Kentucky Public Service Commission dated _____ in Case No. ~~2024-00352~~2025-00359~~xxx~~.
Issued: November ~~13~~, ~~2024~~2025
Effective: December ~~13~~, ~~2024~~2025
Issued by Amy B. Spiller, President /s/ Amy B. Spiller

Duke Energy Kentucky
1262 Cox Road
Erlanger, Kentucky 41018

KY.P.S.C. Gas No. 2
Thirty-Ninth Revised Sheet No. 62
Cancels and Supersedes
Thirty-Eighth Revised Sheet No. 62
Page 1 of 1

RIDER DSMR

DEMAND SIDE MANAGEMENT RATE

The Demand Side Management Rate (DSMR) shall be determined in accordance with the provisions of Rider DSM, Demand Side Management Cost Recovery Rider, Sheet No. 61 of this Tariff.

The DSMR to be applied to residential customer bills is $0.014440 per hundred cubic feet. (I)

A Home Energy Assistance Program (HEA) charge of $0.30 will be applied monthly to residential customer bills.

The DSMR to be applied to non-residential service customer bills is $0.00 per hundred cubic feet.

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Issued: November 3, 2025
Effective: December 3, 2025
Issued by Amy B. Spiller, President /s/ Amy B. Spiller

Status Update for Duke Energy Kentucky Energy Efficiency and Demand Response Programs; 2025-2027

Planned[1] Evaluation, Measurement and Verification Activities and Evaluation Reports

Residential Customer Programs	Program/Measure	Last Evaluation completion	Next Evaluation ==>	Q1 2025	Q2 2025	Q3 2025	Q4 2025	Q1 2026	Q2 2026	Q3 2026	Q4 2026
Low Income Neighborhood	Neighborhood	12/20/2022							M&V	M&V	M&V
Low Income Services	Refrigerator Replace	7/31/2013	TBD								
	Weatherization/Payment Plus	7/31/2013									
	Pay For Performance	N/A									
My Home Energy Report	MyHER	12/12/2024									
Residential Energy Assessments	HEHC	8/7/2020		M&V	M&V	M&V	Report				
Residential Smart Saver®	HVAC	9/26/2023			M&V	M&V	M&V	M&V	M&V	M&V	M&V
	Specialty Bulbs/Online Savings Store	10/6/2022								M&V	M&V
	Water Measures	7/19/2024									
	Multi-Family	1/30/2024									
Power Manager		2/1/2025		Report							
Peak Time Rebate Pilot	Peak Time Rebate	5/18/2023								M&V	M&V

Non-Residential Customer Programs	Program/Measure	Last Evaluation completion	Next Evaluation ==>	Q1 2025	Q2 2025	Q3 2025	Q4 2025	Q1 2026	Q2 2026	Q3 2026	Q4 2026
Small Business Energy Saver		11/10/2022									
Smart $aver® Non-Res, Custom		1/18/2022						M&V	M&V	M&V	Report
Smart $aver® Non-Res, Prescriptive		6/13/2025		M&V	Report						
PowerShare		2/14/2017		M&V	M&V	Report					

[1] Future Evaluation Report dates are projections only. Actual report dates will vary depending on program participation, time to achieve a significant sample and the time needed to collect adequate data.

LEGEND	
M&V	Data collection (surveys, interviews, onsite visits, billing data) and analysis
Report	Evaluation Report

EM&V Report for the PowerShare® Program 2019-2024

Prepared for:

Duke Energy Kentucky

FINAL

October 13, 2025

Prepared by:

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Executive Summary

Duke Energy Kentucky's (DEK) PowerShare program is a demand response (DR) program offered to commercial and industrial customers that compensates businesses for reducing demand during periods of the PJM Interconnection LLC (PJM) or Duke Energy system capacity constraints. This report includes the methodology and results of the evaluation performed by Guidehouse Inc. (Guidehouse) for the period of June 1, 2019, through May 31, 2024. The evaluation included an impact assessment to quantify participant load curtailment during DR events.

The PowerShare program offers customers two options for participation:[1]

- **CallOption**: The CallOption program requires participating customers to reduce and maintain a predetermined load during Emergency Curtailment Periods. Participants may either opt to participate in events for (1) the entire calendar year or (2) only during the summer months spanning May through October. Participants receive a monthly credit on their energy bill, and additional Load Reduction Credits are paid for load curtailed during events. Monthly credits for summer-only (May through October) participants total $36 per enrolled kW per year, and for year-round participants the monthly credit totals to $54 per enrolled kW per year. All CallOption participants must participate in an annual test event to remain in the program.
- **QuoteOption**: By enrolling in the QuoteOption program, participants can take part in voluntary program events on a per-event basis. If a participant elects to participate in an event, they should reduce and maintain load to a level they specify prior to the event. A QuoteOption event is initiated at Duke Energy's discretion and participants are typically provided with event notification on the morning of the event. When possible, an advisory is sent out a day in advance. Unlike CallOption participants, QuoteOption participants are not paid monthly credits and are only eligible for Load Reduction Credits for their performance during voluntary program events. All QuoteOption participants must participate in an annual test event to remain in the program.

Duke Energy contracts with Schneider Electric, a firm that provides energy management services, to calculate monthly customer settlements for the PowerShare program. The PowerShare settlements are calculated with the use of Schneider Electric's Energy Profiler Online (EPO), a third-party hosted software application. EPO uses participant interval data, participant baselines,[2] and a set of program option-specific calculations to determine the event energy (kWh) and monthly capacity (kW) values that determine participant settlement payments.

Between 2019 and 2024, the PowerShare program called nine CallOption Test/Retest events, one QuoteOption event, and two CallOption Emergency Events across seventeen customers.[3,] Both Emergency events were called during Winter 2022-2023 (December 23 and December 24, 2022).

For the impact evaluation, Guidehouse utilized hourly interval data (kWh) from Schneider Electric's EPO platform for DEK participants to estimate demand response impacts on event days.

[1] This summary of participation options was drawn directly from the Kentucky PowerShare program's 2025-2026 program brochure.

[2] Baselines are calculated in accordance with PJM guidance for customer baseline load estimation for economic load response participants. For more information, please see Section 3.3A in the Amended and Restated Operating Agreement of PJM Interconnection, LLC (PJM): **https://www.pjm.com/pjmfiles/directory/merged-tariffs/oa.pdf**

[3] A customer is defined as the parent account that is called to curtail during a demand response event and whose demand is the sum of all associated children and parent accounts' demand.

Guidehouse selected a baseline approach that minimized the root mean squared error (RMSE) between actual and predicted loads on specific event-like non-event days across all participants for the Summer (May through October) and Winter (November through April) seasons. For each event, Guidehouse estimated a baseline using the "winning" baseline approach for each event participant. Subsequently, Guidehouse estimated the demand response impacts for each participant by calculating the difference between the estimated baseline demand and the actual observed demand during event hours.

Key Findings and Recommendations

Impact Findings

Table ES-1 illustrates the average reported and estimated demand reductions for the curtailment events called between June 1, 2019, and May 31, 2024, that Guidehouse had sufficient data to evaluate.

Table ES-1. Total Estimated Load Reductions for 2019-2024 DEK PowerShare Events

Season	Date	Customers Evaluated	Reported Demand Reduction (MW)	Estimated Total Impacts (MW)	Margin of Error (± MW, 90% CI)	Relative Precision (± %, 90% CI)	Realization Rate (%)**
Summer	2019-09-10	15	17.70	12.72	2.14	17%	72%
	2019-09-26	1	0.92	0.19	0.07	36%	21%
	2019-10-02	1	0.35	0.05	0.02	38%	13%
	2020-09-03	13	17.11	13.69	1.95	14%	80%
	2020-09-17	1	0.89	0.11	0.02	20%	13%
	2020-09-29	1	0.11	0.04	0.05	126%	33%
	2021-09-02	11	17.10	12.94	2.05	16%	76%
	2022-09-01	10	14.66	11.18	2.02	18%	76%
	2023-06-29	5	9.14	7.15	1.31	18%	78%
	2023-08-04	2	2.20	2.46	1.27	52%	112%
	Average* **	**6.00**	**14.58**	**11.07**	**0.86**	**14%**	**75%**
Winter	2022-12-23*	1	0.24	0.27	0.07	24%	113%
	2022-12-24*	2	3.00	2.76	0.40	15%	92%
	Average* **	**1.50**	**2.08**	**1.93**	**0.27**	**18%**	**94%**
Overall Average* **		**5.25**	**12.08**	**9.24**	**0.90**	**24%**	**84%**

*The events on December 23 and December 24, 2022, were the only Emergency Events called between June 1, 2019, and May 31, 2024.

**Realization rate is the ratio of Guidehouse's estimated total impacts to Duke Energy's reported demand reduction calculated via the PJM methodology for calculating customer baseline load.

***Averages are weighed by the average number of customers evaluated during each event.

Source: Guidehouse analysis of participant EPO interval data and event settlement data

The key findings of Guidehouse's impact evaluation of the DEK PowerShare program for 2019-2024 are:

- **Guidehouse estimated an average total weighted curtailment of 11.07 MW across all Summer Test events, and 1.93 MW across both Winter Emergency events. Summer Test events yielded an average weighted realization rate of 75%, and Winter Emergency events yielded an average weighted realization rate of 94%.** Realization rate is defined as Guidehouse's average weighted per-season impact estimate divided by the average weighted per-season reported event impacts provided by Duke Energy, derived using the PJM

methodology for calculating customer baseline load. These results indicate that the PJM-supplied approach used to calculate customer baseline load is relatively well-aligned with Guidehouse's verified baseline methodology.

- **Across both summer and winter program events, Guidehouse estimated that the majority of the DEK PowerShare program's curtailment capability is tied to a small number of large customers participating in the program.** During Summer Test events, four of the sixteen evaluated customers accounted for 74% of the observed demand response impact. During Winter Emergency events, one of the two evaluated customers accounted for 92% of the observed demand response impacts. Continued monitoring of these key customers during and after the program's mandatory test events will be important in ensuring the curtailment capability can be relied upon during system emergencies.

Based on the findings above, Guidehouse developed the following recommendations:

- **Guidehouse recommends that Duke Energy continue to monitor program performance across the mandatory test events and continue to retest customers, as needed.** While Guidehouse's estimate of curtailment is relatively well-aligned with Duke Energy's, heterogeneity across participants and the natural evolution of the PowerShare participant pool warrants a periodic review of this alignment to ensure Duke Energy's curtailment capability estimates reflect load that may be relied upon during system emergencies.
- **For participants enrolled in the program for several contract periods,[4] Guidehouse recommends that Duke Energy examine current contract year test event performance relative to prior contract year test events.** If there are substantial declines in test event performance for some participants, this may warrant a follow-up with the participants to understand how their curtailment plan may have changed and to identify whether an adjustment to their contract or plan is needed. Adopting this recommendation should give Duke Energy a more robust indication of load that may be relied upon during system emergencies.

[4] A contract period is defined as the yearly period between June 1 to May 31 for each customer.

1. Program Description

Duke Energy Kentucky's (DEK) PowerShare program is a demand response (DR) program offered to commercial and industrial customers that compensates businesses for reducing demand during periods of the PJM Interconnection LLC (PJM) or Duke Energy system capacity constraints. The PowerShare program offers customers several options for participation:[5]

- **CallOption**: The CallOption program requires participating customers to reduce and maintain a predetermined load during Emergency Curtailment Periods. Participants may either opt to participate in events for (1) the entire calendar year or (2) only during the summer months spanning May through October. Participants receive a monthly credit on their energy bill, and additional Load Reduction Credits are paid for load curtailed during events. Monthly credits for summer-only (May through October) participants total $36 per enrolled kW per year, and for year-round participants the monthly credit totals to $54 per enrolled kW per year. All CallOption participants must participate in an annual test event to remain in the program.
- **QuoteOption**: By enrolling in the QuoteOption program, participants can take part in voluntary program events on a per-event basis. If a participant elects to participate in an event, they should reduce and maintain load to a level they specify prior to the event. A QuoteOption event is initiated at Duke Energy's discretion and participants are typically provided with event notification on the morning of the event. When possible, an advisory is sent out a day in advance. Unlike CallOption participants, QuoteOption participants are not paid monthly credits and are only eligible for Load Reduction Credits for their performance during voluntary program events. All QuoteOption participants must participate in an annual test event to remain in the program.

The table below provides additional details for the program participation options that are available in the DEK PowerShare Program.

Table 1-1. DEK PowerShare Participation Options

Program Option	Dates of Potential Interruption	Conditions Triggering Curtailment Periods	Timing of Curtailment Periods	Maximum Duration of Curtailment Periods
CallOption Emergency (Summer Only)	June 1 – October 31; May 1 – May 31	PJM capacity constraints	10am-10pm	Unlimited
CallOption Emergency (Annual)	June 1 – May 31	PJM capacity constraints	Summer: 10am-10pm Winter: 6am – 9pm	Unlimited
QuoteOption	June 1 – May 31	Duke Energy capacity constraints or mutual economic opportunity	Anytime, as needed	Unlimited

Source: Guidehouse analysis of Duke Energy program brochure

[5] This summary of participation options was drawn directly from the Kentucky PowerShare program's 2025-2026 program brochure.

Duke Energy contracts with Schneider Electric, a firm that provides energy management services, to calculate monthly customer settlements for the PowerShare program. The PowerShare settlements are calculated with the use of Schneider Electric's Energy Profiler Online (EPO), a third-party hosted software application. EPO uses participant interval data, participant baselines,[6] and a set of program option-specific calculations to determine the event energy (kWh) and monthly capacity (kW) values that determine participant settlement payments.

The following two subsections provide additional detail on program enrollment, as well as events called between June 1, 2019, and May 31, 2024.

1.1 Program Enrollment and Program Events

For the 2019 through 2024 contract periods,[7] Guidehouse estimated load curtailment for sixteen parent accounts (hereinafter referred to as "customers") that were called to participate in PowerShare events. Of the participating customers, the vast majority were participating in the PowerShare program events during the summer months spanning May through the end of October, with a small number of remaining customers enrolled in the PowerShare program year-round. Table 1-2 provides an overview of PowerShare program enrollment and participation by contract period between 2019 and 2024.

Table 1-2. DEK PowerShare Participation: June 1, 2019 – May 31, 2024

Contract Period	Enrolled Customers*	
	Summer-Only	Year-Round
2019-2020	14	3
2020-2021	13	4
2021-2022	10	2
2022-2023	10	2
2023-2024	7	1

*The number of enrolled customers is defined as the number of enrolled parent accounts. Guidehouse was not able to produce impact estimates for all customers due to missing or incomplete EPO interval data for some customers who were enrolled in the PowerShare program.

Source: Guidehouse analysis of Duke Energy event settlement and program participation data

Between the 2019 and 2024 program years, DEK called twelve PowerShare events (ten in Summer and two in Winter), which are listed in Table 1-3. Nine events called during the Summer season were Test/Retest events, and one event in 2019 was a QuoteOption event. The two Winter season events were CallOption Emergency events called on December 23 and December 24, 2022 for participants enrolled in the program year-round. Figure 1-1 illustrates that these two Winter events were called during the two coldest Winter days between June 2019 and May 2024.

[6] Baselines are calculated in accordance with PJM guidance for customer baseline load estimation for economic load response participants. For more information, please see Section 3.3A in the Amended and Restated Operating Agreement of PJM Interconnection, LLC (PJM): **https://www.pjm.com/pjmfiles/directory/merged-tariffs/oa.pdf**

[7] A contract period is defined as the yearly period between June 1 to May 31 for each customer.

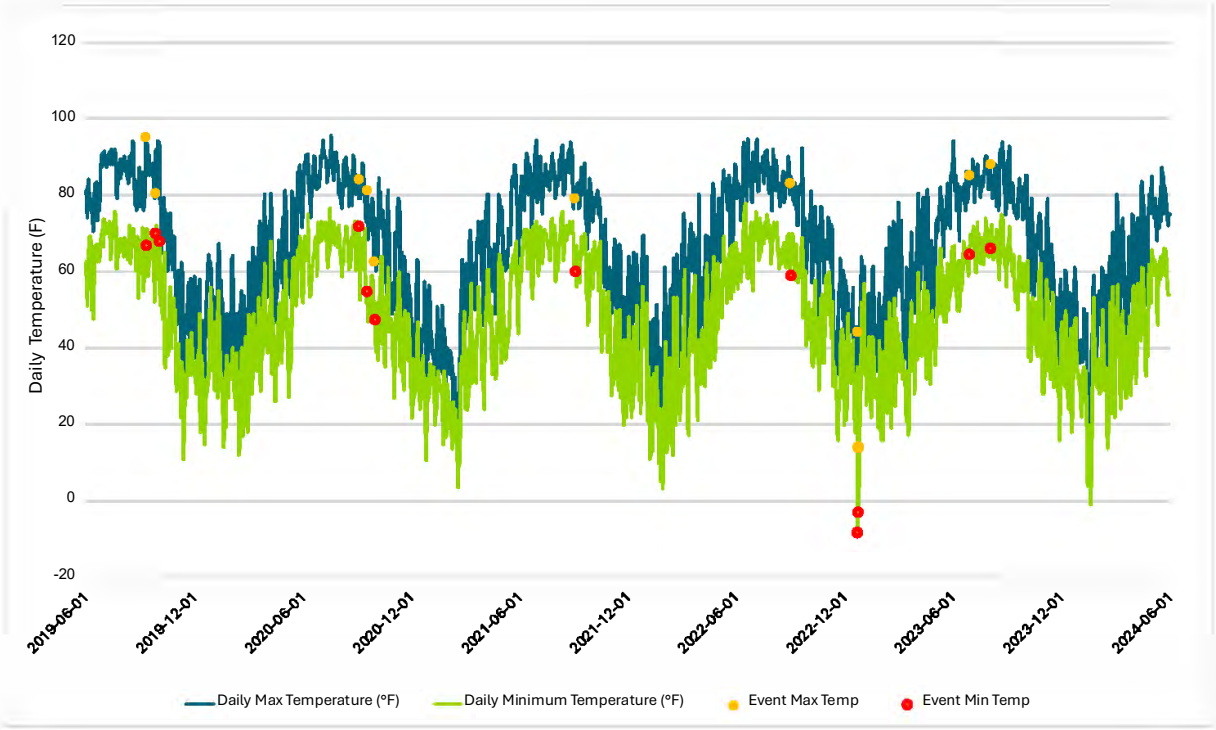
Table 1-3. DEK PowerShare Events: June 1, 2019 – May 31, 2024

Season	Event Date	Event Time (Hour Ending)	Event Type	Customers Called to Curtail
Summer	9/10/2019	17:00	Test	16
	9/26/2019	17:00	Retest	1
	10/2/2019	16:00 – 19:00	QuoteOption	1
	9/3/2020	17:00	Test	14
	9/17/2020	17:00	Retest	1
	9/29/2020	17:00	Retest	1
	9/2/2021	17:00	Test	12
	9/1/2022	17:00	Test	12
	6/29/2023	17:00	Test	6
	8/4/2023	17:00	Retest	2
Winter	12/23/2022*	19:00 – 21:00	CallOption Emergency	1
	12/24/2022*	07:00 – 20:00	CallOption Emergency	2

*The events on December 23 and December 24, 2022, were the only Emergency Events called between June 1, 2019, and May 31, 2024.

Source: Guidehouse analysis of Duke Energy event settlement data

Figure 1-1. Time Series of Weather and Event Temperature – June 1, 2019 – May 31, 2024



Source: Guidehouse analysis of Duke Energy event settlement data and NOAA weather data

2. Impact Evaluation

This section summarizes the research objectives, the data collection, and the impact evaluation methodology utilized to estimate curtailment across the events called for the PowerShare program.

2.1 Key Research Objectives

The primary research objective of this evaluation was to estimate the load curtailment (kW) delivered by PowerShare participants on all event days from June 1, 2019, through May 31, 2024. Specifically:

1. Estimate verified demand (kW) impacts using a baseline testing approach (described in Section 2.3 and Appendix A. Detailed Impact Evaluation Methodology) across seven regression-based baseline and 23 non-regression-based customer baseline (CBL) estimation methods. These impacts include:
    a. Average kW demand impact per customer for each event, and on average across all events.
    b. Total program kW demand impact for each event, and on average across all events.

2.2 Data Sources

To estimate demand impacts for PowerShare program events, Guidehouse utilized a blend of hourly Duke Energy customer consumption (kWh) data, weather data, and program tracking data. More specifically, the data sources used for the impact evaluation include:

- **Participant Metering Data from Schneider Electric's EPO Platform:** All available hourly consumption (kWh) data for all participants for the entire evaluation period (i.e., June 1, 2019 through May 31, 2024).
- **Participant Cross-Sectional Data:** This data includes the program enrollment option (i.e., CallOption or QuoteOption) and other firmographic information.
- **Event Settlement Data:** This data includes information on the type and timing of each PowerShare event called, as well as performance data for each participant for each event, including contracted curtailment and reported curtailment (measured in kW) during each of the events called between June 1, 2019, and May 31, 2024.
- **National Oceanic and Atmospheric Administration (NOAA) Weather Data:** Guidehouse collected data for three weather stations from NOAA, which includes hourly dry bulb temperature and relative humidity. After collecting data from weather stations, Guidehouse assigned weather data to each participant by selecting the most proximate weather station for each participant site.

2.3 Estimating Verified Impacts Using a Baseline Testing Approach

Once all data was compiled, Guidehouse conducted baseline testing to inform the estimation of program impacts. The objective of this task was to select the most accurate method to construct baseline (i.e., counterfactual) load profiles for each participant, which are compared to actual in-event load to estimate total load curtailment. Guidehouse selected a baseline approach by assessing a variety of baseline estimation methods and selecting the best performing method that had the smallest calculated root mean squared error (RMSE) between actual and predicted load on specific event-like non-event days[8] across all participants for the Summer and Winter seasons. This process is detailed in Appendix A.1 Estimating Verified Impacts Using a Baseline Testing Approach and involved:

- **Testing of Candidate Baseline Methods.** Guidehouse tested a set of non-regression-based customer baseline (CBLs) and regression-based baseline methodologies to determine the approach to be used for estimating verified impacts. Guidehouse then selected the best performing method that had the smallest calculated root mean squared error (RMSE) between actual and predicted load on specific event-like non-event days across all participants for the Summer and Winter seasons.
- **Estimating Verified Impacts.** Guidehouse estimated baseline demand using the best-performing baseline approach for each season. Guidehouse then estimated verified impacts by calculating the difference between observed in-event demand and estimated baseline demand for each participant. Guidehouse estimated verified impacts for each event in the evaluation period, as well as the average across all events, for each customer and for all customers in aggregate (i.e., the program total).

Guidehouse tested 23 non-regression-based CBL methods and seven regression-based baseline methods, using three event-like non-event days for each season between June 1, 2019 and May 31, 2024.[9] Table 2-1 provides a description of the best-performing baseline method for the Summer and Winter seasons. For each event called in each season, the best-performing baseline method was then used to estimate baseline demand for each customer for each event in which they were called to participate.

[8] Event-like non-event days are defined on the basis of the day's temperature profile. For each event, a test day is selected from the pool of non-event days which has a temperature profile most similar to that of the given event day.

[9] Three event-like non-event days were selected for each customer for each season based on similarity of observed weather with the event days the participant was called to participate in. Different event-like non-event days were selected for each customer, as weather data were matched to each customer based on proximity of the customer to a specific NOAA weather station.

Table 2-1. Winning Baseline Methods for Estimating Verified Impacts

Season	Winning Method	Method Description
Summer (May – October)	7-of-7 CBL	Baseline (i.e., counterfactual) demand for each event day's hour is the average of each respective hour's demand observed over the seven non-holiday, non-event weekdays immediately preceding the event day.
Winter (November – April)	2-of-2 CBL	Baseline (i.e., counterfactual) demand for each event day's hour is the average of each respective hour's demand observed over the two non-holiday, non-event weekdays immediately preceding the event day.

Note: Apart from the December 24 emergency event, Guidehouse removed weekend days from the analysis dataset, as all but one event was called on weekdays, and demand on weekend days were a departure from typical weekday demand for most participants. Therefore, for baseline accuracy, the two winning CBL methods used data looking back across a set of preceding weekdays.

Source: Guidehouse

3. Impact Findings

In this section, Guidehouse presents impact evaluation estimates for 12 program events called between June 1, 2019, and May 31, 2024. The discussion of program impacts is divided into the following sections:

1. **Demand Response Impacts – Overall.** This section provides the estimated *aggregate* demand response impacts during the 12 evaluated demand response events called from June 1, 2019, through May 31, 2024. These events are listed in Table 3-2.
2. **Demand Response Impacts – Per Participant.** This section provides the estimated *per participant* demand response impacts during the 12 evaluated demand response events called from June 1, 2019, through May 31, 2024. These events are listed in Table 3-4.
3. **Net-to-Gross.** This section outlines why the appropriate net-to-gross factor for this program should be 1.0.

Table 3-1. DEK PowerShare Events: June 1, 2019 – May 31, 2024

Season	Date	Event Type	Event Time (Hour Ending)	Avg. Event Temp. (°F)	Customers Called to Curtail	Customers Evaluated*
Summer	2019-09-10	Test	17:00	87.58	16	15
	2019-09-26	Retest	17:00	74.32	1	1
	2019-10-02	QuoteOption	16:00 – 19:00	89.31	1	1
	2020-09-03	Test	17:00	78.77	14	13
	2020-09-17	Retest	17:00	76.08	1	1
	2020-09-29	Retest	17:00	56.88	1	1
	2021-09-02	Test	17:00	74.87	12	11
	2022-09-01	Test	17:00	81.25	12	10
	2023-06-29	Test	17:00	77.74	6	5
	2023-08-04	Retest	17:00	83.91	2	2
Winter	2022-12-23	CallOption Emergency	19:00 – 21:00	-3.09	1	1
	2022-12-24	CallOption Emergency	07:00 – 20:00	3.18	2	2

* Guidehouse was not able to produce impact estimates for customers on all events due to missing or incomplete EPO interval data for certain customers.

Source: Guidehouse analysis of Duke Energy event settlement data and NOAA weather data

3.1 Demand Response Impacts – Overall

Guidehouse selected a baseline approach by testing a variety of potential methods and determining the best performing model across all customers per season, as detailed in Appendix A.1 Estimating Verified Impacts Using a Baseline Testing Approach. Previously summarized in Section 2.3, the winning method for Summer events was 7-of-7 CBL, while the winning method for Winter events was a 2-of-2 CBL. These winning methods were used to estimate impacts for each customer individually per season. Guidehouse aggregated the per-participant impacts for each event to estimate total load reduction by event. Per-event and per-season average impacts can be found below in Table 3-2, along with a visual representation of the same data found in Figure 3-1.

Table 3-2. Summary of Estimated Load Reduction by Event and Season

Season	Date	Customers Evaluated	Reported Demand Reduction (MW)	Estimated Total Impacts (MW)	Margin of Error (± MW, 90% CI)	Relative Precision (± %, 90% CI)	Realization Rate (%)**
Summer	2019-09-10	15	17.70	12.72	2.14	17%	72%
	2019-09-26	1	0.92	0.19	0.07	36%	21%
	2019-10-02	1	0.35	0.05	0.02	38%	13%
	2020-09-03	13	17.11	13.69	1.95	14%	80%
	2020-09-17	1	0.89	0.11	0.02	20%	13%
	2020-09-29	1	0.11	0.04	0.05	126%	33%
	2021-09-02	11	17.10	12.94	2.05	16%	76%
	2022-09-01	10	14.66	11.18	2.02	18%	76%
	2023-06-29	5	9.14	7.15	1.31	18%	78%
	2023-08-04	2	2.20	2.46	1.27	52%	112%
	Average* **	**6.00**	**14.58**	**11.07**	**0.86**	**14%**	**75%**
Winter	2022-12-23*	1	0.24	0.27	0.07	24%	113%
	2022-12-24*	2	3.00	2.76	0.40	15%	92%
	Average* **	**1.50**	**2.08**	**1.93**	**0.27**	**18%**	**94%**
Overall Average* **		**5.25**	**12.08**	**9.24**	**0.90**	**24%**	**84%**

*The events on December 23 and December 24, 2022, were the only Emergency Events called between June 1, 2019, and May 31, 2024.

** Realization rate is the ratio of Guidehouse's estimated total event impact to the demand reduction calculated via PJM's settlement methodology.

***The averages presented are weighted by the average number of customers evaluated during each event.

Source: Guidehouse analysis of participant EPO interval data and Duke Energy event settlement data

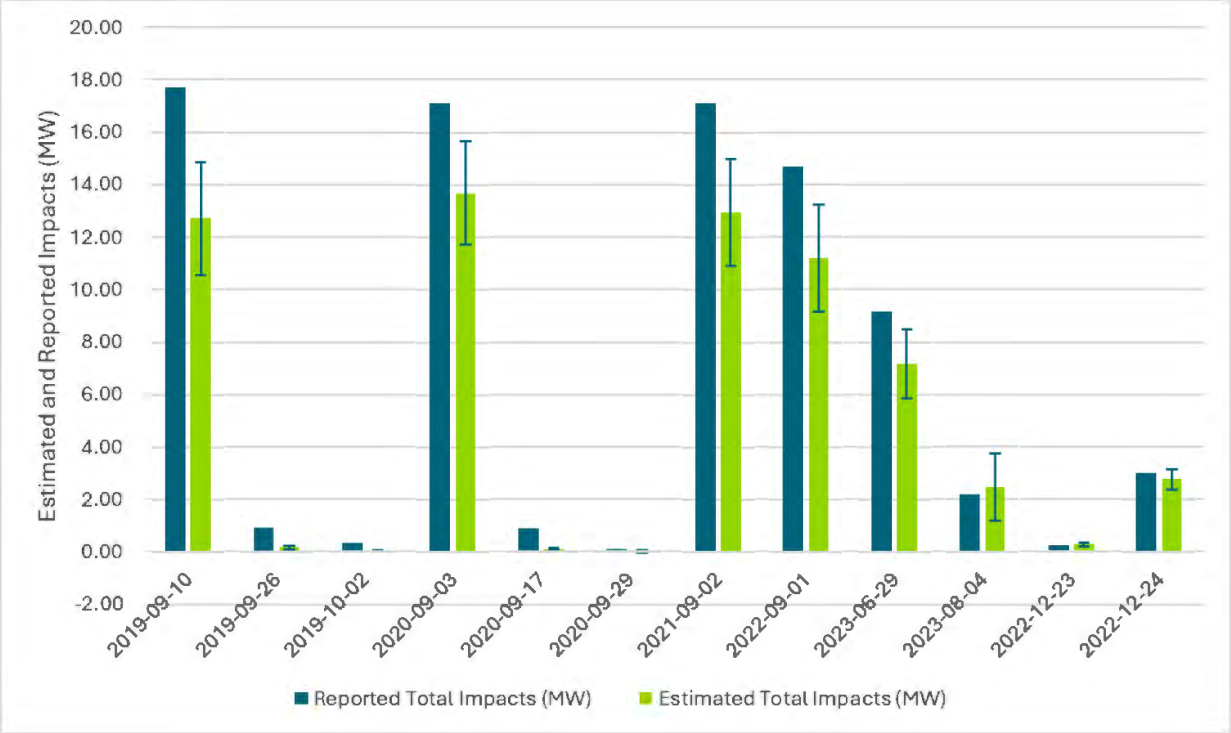
Guidehouse estimated that Duke Energy achieved a weighted realization rate of 75% for Summer Test events and 94% for Winter Emergency events. Four program events (2019-09-26, 2019-10-02, 2020-09-17, and 2020-09-29) have realization rates much lower than the average. However, these events featured one customer each. Moreover, three of these events (2019-09-26, 2020-09-17, and 2020-09-29) were retest events for one customer each that had previously failed to meet curtailment expectations, so low realization rates for these events is not entirely unexpected. Overall, Guidehouse findings suggest that the PJM methodology for calculating customer baseline load used by DEK to estimate curtailment is relatively well-aligned with Guidehouse's estimates derived by the "winning" baseline estimation approach.

Figure 3-1 shows the average estimated event impacts compared to reported event impacts. The reported event impacts presented in the blue bars represent the total reported load curtailment provided by Duke Energy, derived using the PJM methodology for calculating customer baseline load.[10] The estimated impacts presented in the green bars represent the Guidehouse-estimated

[10] For more information on the PJM methodology, please see Section 3.3A in the Amended and Restated Operating Agreement of PJM Interconnection, LLC (PJM): **https://www.pjm.com/pjmfiles/directory/merged-tariffs/oa.pdf**

amount of curtailment that occurred during the event. In addition to showing the aggregate impact on each date, this plot shows 90 percent confidence intervals, represented by the whiskers straddling the top of the blue bars.

Figure 3-1. Reported vs. Estimated Demand Response Impacts: June 1, 2019 – May 31, 2024



Source: Guidehouse analysis of participant EPO interval data and Duke Energy event settlement data

The summary of reported versus estimated demand response impacts provides a further understanding of alignment between the two estimates. Overall, Guidehouse estimates are most well-aligned for the two Winter Emergency events called in December 2022, which had realization rates of 113% and 92%, respectively. For the Summer Test events, Guidehouse estimates are relatively well-aligned with Duke Energy's estimates when more than one customer was called to curtail, with the average estimated realization rate of events with more than one customer being 82%. As noted previously, three events (2019-09-26, 2020-09-17, and 2020-09-29) were retest events called for one customer each.

In addition to demand response impacts per event, Guidehouse also summarizes Duke Energy-reported and Guidehouse-estimated demand response impacts per contract period below in Table 3-3.[11] Consistent with the event-specific findings, when summarizing impacts per contract period, there is similar alignment between Duke Energy-reported and Guidehouse-estimated impacts.

[11] A contract period is defined as the yearly period between June 1 to May 31 for each customer. For example, the 2019-2020 Contract Period spanned June 1, 2019, through May 31, 2020.

Table 3-3. Average Estimated Demand Response Impacts by Contract Period

Contract Period*	Event Types	Average Number of Customers Evaluated	Average Total Reported Demand Reduction (MW)**	Average Total Estimated Impact (MW)**	Realization Rate (%)***
2019-2020	Test	6	15.69	11.23	72%
2020-2021	Test	5	14.89	11.88	80%
2021-2022	Test	11	17.10	12.94	76%
2022-2023	Test	4	2.08	1.93	93%
2023-2024	Test	10	14.66	11.18	76%
2022-2023	Emergency	2	7.16	5.81	81%

* A contract period is defined as the yearly period between June 1st to May 31st for each customer.

** Average Total Reported Curtailment (MW) and Average Total Estimated Impact (MW) are weighted by the number of customers evaluated per event within each contract period.

*** Realization rate is the ratio of Guidehouse's average total estimated impact to the demand reduction calculated via the PJM methodology for calculating customer baseline load.

Source: Guidehouse analysis of participant EPO interval data and event settlement data

3.2 Demand Response Impacts – Per Participant

In the previous section, Guidehouse aggregated the per-participant impacts for each event to provide total estimated load reduction by event, by season, and by contract period. This section provides the estimated per-participant impacts for the demand response events called between 2019 and 2024. Table 3-4 shows per-participant estimated impacts by event. Consistent with aggregate demand response impacts presented in the preceding figure and tables, per-participant impacts are relatively well-aligned across all but four program events that treated a single customer each.

Table 3-4. Summary of Estimated Load Reduction by Event – Per Participant

Season	Date	Customers Evaluated	Per-Participant Reported Demand Reduction (MW)	Per-Participant Estimated Demand Reduction (MW)	Per-Participant Margin of Error (± MW, 90% CI)	Relative Precision (± %, 90% CI)	Realization Rate (%)**
Summer	2019-09-10	15	1.18	0.85	0.14	17%	72%
	2019-09-26	1	0.92	0.19	0.07	36%	21%
	2019-10-02	1	0.35	0.05	0.02	38%	13%
	2020-09-03	13	1.32	1.05	0.15	14%	80%
	2020-09-17	1	0.89	0.11	0.02	20%	13%
	2020-09-29	1	0.11	0.04	0.05	126%	33%
	2021-09-02	11	1.55	1.18	0.19	16%	76%
	2022-09-01	10	1.47	1.12	0.20	18%	76%
	2023-06-29	5	1.83	1.43	0.26	18%	78%
	2023-08-04	2	1.10	1.23	0.64	52%	112%
	Average* **	**6.00**	**1.34**	**1.01**	**0.07**	**7%**	**75%**
Winter	2022-12-23*	1	0.24	0.27	0.07	24%	113%
	2022-12-24*	2	1.50	1.38	0.20	15%	92%
	Average* **	**1.50**	**1.08**	**1.01**	**0.14**	**13%**	**94%**
Overall Average* **		**3.75**	**1.21**	**1.01**	**0.16**	**15%**	**84%**

* Events on 2022-12-23 and 2022-12-24 were Emergency events

**Realization rate is the ratio of Guidehouse's estimated total event impact to the demand reduction calculated via PJM's settlement methodology.

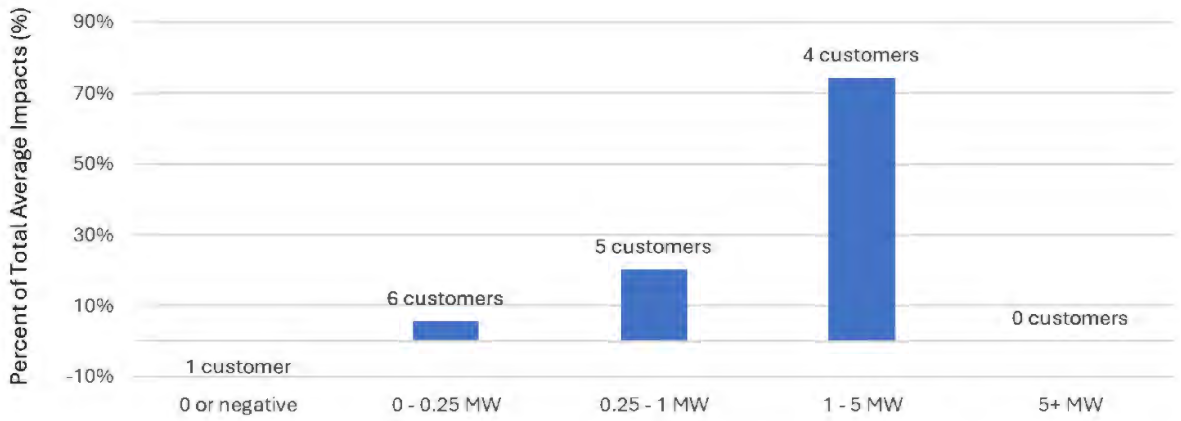
***Averages presented are weighed by the average number of customers evaluated.

Source: Guidehouse analysis of participant EPO interval data and event settlement data

Figure 3-2 shows the distribution of average estimated demand impacts by customer across the evaluated program Summer events during the June 1, 2019, through May 31, 2024, evaluation period.[12] A small number of customers (four out of the sixteen evaluated) provided more than 70% of the curtailed load across Summer events. Overall, most of the program capacity is drawn from a small number of participating customers. As such, Duke Energy should continue to monitor event performance for these larger customers to ensure that their relatively large committed loads may be relied upon during system emergencies.

[12] Due to low participation in PowerShare winter events, Guidehouse has omitted information from the December 23 and December 24, 2022, events from the figure.

Figure 3-2. Distribution of Average Load Reduction by Customer – Summer Events



Source: Guidehouse analysis of participant EPO interval data and event settlement data.

After reviewing overall and per-participant program impacts, Guidehouse findings suggest that the PJM methodology for calculating customer baseline load used by DEK to estimate curtailment is relatively well-aligned with Guidehouse's estimates derived by the "winning" baseline estimation approach. While Guidehouse's estimate of curtailment is relatively well-aligned with the PJM methodology, heterogeneity across participants and the natural evolution of the PowerShare participant pool warrants a periodic review of this alignment to ensure Duke Energy's curtailment capability estimates reflect load that may be relied upon during system emergencies.

Based on the above findings, Guidehouse recommends that Duke Energy continue to monitor program performance across the mandatory test events and continue to retest customers, as needed. In addition, for participants enrolled in the program for several contract periods, Guidehouse recommends that Duke Energy examine test event performance relative to prior-year test events. If there are substantial declines in test event performance for some participants, this may warrant a follow-up with the participants to understand how their curtailment plan may have changed and to identify whether an adjustment to their contract is needed. Adopting both recommendations should give Duke Energy a more robust indication of load that may be relied upon during system emergencies.

3.3 Net-to-Gross

Evaluations of demand-side management programs typically estimate both net and gross savings and often present a net-to-gross (NTG) ratio based on the evaluated percentage of demand reductions that may be ascribed either to free ridership (which decreases the NTG ratio) or to program spillover (which increases it). Free ridership is typically defined as the percentage of savings that would have occurred absent the presence of the program. Spillover is typically defined as incremental savings actions undertaken by a program's participants not directly claimed by the program.

Since demand reductions are estimated in contrast to an estimated baseline that captures expected participant behavior absent an event, Guidehouse can confidently state that the free ridership is zero. Absent the program, none of the demand reductions observed across the

program's participants would have taken place. In addition, there is no reason to assume that non-participants would curtail in absence of the incentives and structure of the program, so spillover is zero. With both free ridership and spillover at zero, the NTG ratio is 1.0 and all estimated impacts presented in this report should be considered net and gross.

4. Key Findings and Recommendations

This section includes a summary of the key findings presented throughout this report, along with some recommendations for DEK to consider.

4.1 Key Findings

The key findings of Guidehouse's impact evaluation of the DEK PowerShare program for this evaluation period are:

- **Guidehouse estimated an average total weighted curtailment of 11.07 MW across all Summer Test events, and 1.93 MW across both Winter Emergency events. Summer Test events yielded an average weighted realization rate of 75%, and Winter Emergency events yielded an average weighted realization rate of 94%.** Realization rate is defined as Guidehouse's average weighted per-season impact estimate divided by the average weighted per-season reported event impacts provided by Duke Energy, derived using the PJM methodology for calculating customer baseline load. These results indicate that the PJM-supplied approach used to calculate customer baseline load is relatively well-aligned with Guidehouse's verified baseline methodology.
- **Across both summer and winter program events, Guidehouse estimated that the majority of the DEK PowerShare program's curtailment capability is tied to a small number of large customers participating in the program.** During Summer Test events, four of the sixteen evaluated customers accounted for 74% of the observed demand response impact. During Winter Emergency events, one of the two evaluated customers accounted for 92% of the observed demand response impacts. Continued monitoring of these key customers during and after the program's mandatory test events will be important in ensuring the curtailment capability can be relied upon during system emergencies.

4.2 Recommendations

Based on the findings above, Guidehouse developed the following recommendations:

- **Guidehouse recommends that Duke Energy continue to monitor program performance across the mandatory test events and continue to retest customers, as needed.** While Guidehouse's estimate of curtailment is relatively well-aligned with Duke Energy's, heterogeneity across participants and the natural evolution of the PowerShare participant pool warrants a periodic review of this alignment to ensure Duke Energy's curtailment capability estimates reflect load that may be relied upon during system emergencies.
- **For participants enrolled in the program for several contract periods, Guidehouse recommends that Duke Energy examine current contract year test event performance relative to prior contract year test events.** If there are substantial declines in test event performance for some participants, this may warrant a follow-up with the participants to understand how their curtailment plan may have changed and to identify whether an adjustment to their contract or plan is needed. Adopting this recommendation should give Duke Energy a more robust indication of load that may be relied upon during system emergencies.

5. Summary Form

PowerShare®

2019-2024

Completed EMV Fact Sheet

Description of Program

Duke Energy Kentucky's (DEK) PowerShare program is a demand response (DR) program offered to commercial and industrial customers that compensates businesses for reducing demand during periods of PJM or Duke Energy system capacity constraints.

The PowerShare program offers customers two participation options to choose from:

- **CallOption:** The CallOption program requires participating customers to reduce and maintain a predetermined load during Emergency Curtailment Periods. Participants receive a monthly credit on their energy bill, and additional Load Reduction Credits are paid for load curtailed during events. Monthly credits for summer-only participants total to $36 per enrolled kW per year, and for year-round participants the monthly credit totals to $54 per enrolled kW per year. All CallOption participants must participate in an annual test event to remain in the program.
- **Voluntary Curtailment:** QuoteOption program participants can take part in voluntary Curtailment Periods on a per-event basis. If a participant elects to participate in an event, they should reduce and maintain load to a level they specify prior to the event. A QuoteOption event is initiated at Duke Energy's discretion and participants are typically provided with event notification on the morning of the event. When possible, an advisory is sent out a day in advance. Unlike CallOption participants, QuoteOption participants are not paid monthly credits and are only eligible for Load Reduction Credits for their performance during voluntary program events. All QuoteOption participants must participate in an annual test event to remain in the program.

Evaluation Methods

Customers enrolled in the CallOption and QuoteOption options of the PowerShare program were called to participate in two Emergency events, nine Test events, and one QuoteOption event called by DEK. Guidehouse estimated demand response impacts of 12 of these events using a baseline testing approach applied to called customers' consumption data collected during the 2019-2024 evaluation period spanning June 1, 2019, through May 31, 2024.

Evaluation Findings

- **Guidehouse estimated an average total weighted curtailment of 11.07 MW across all Summer Test events, and 1.93 MW across both Winter Emergency events. Summer Test events yielded an average weighted realization rate of 75%, and Winter Emergency events yielded an average weighted realization rate of 94%.** Realization rate is defined as Guidehouse's average weighted per-season impact estimate divided by the average weighted per-season reported event impacts provided by Duke Energy, derived using the PJM methodology for calculating customer baseline load. These results indicate that the PJM-supplied approach used to calculate customer baseline load and is relatively well aligned with Guidehouse's verified baseline methodology.
- **DEK's estimate of curtailment capability during Winter Emergency events is closely aligned with Guidehouse's estimate of Winter Emergency curtailment capability.** The close alignment with Guidehouse's estimate of Winter Emergency curtailment may suggest that the PJM customer baseline load estimation approach may be used to reliably estimate curtailment during similar winter system events. However, a periodic review of this approach is recommended to verify robustness across a wider range of event days and customers.
- **Most of the demand response impacts came from a small number of participating customers.** During Summer Test events, four of the sixteen evaluated customers accounted for 74% of the observed demand response impact. During Winter Emergency events, one of the two evaluated customers accounted for 92% of the observed demand response impacts.

Date:	2025-10-13
Region:	DEK
Evaluation Period	June 1, 2019 – May 31, 2024
Average DR Event Program Impact (MW)	
Load Reduction Impacts (Program total, averaged across all events)	Summer: 11.07 MW Winter: 1.93 MW
Net-to-Gross Ratio	1.0

Appendix A. Detailed Impact Evaluation Methodology

This section details the methods used for estimating impacts using the baseline testing approach, as well as the PJM baseline method.

A.1 Estimating Verified Impacts Using a Baseline Testing Approach

A.1.1 Testing of Candidate Baseline Methods

Guidehouse performed the following steps to test candidate baselines and select the approach to be used for verifying DR impacts:

1. **Identify Test Days.** Guidehouse identified three test days for each season (Summer and Winter) and participant. Test days are non-holiday, non-event weekdays with a temperature profile as similar as possible to that of the actual event days. Guidehouse selected test days as the three non-event, non-holiday weekdays with the highest average temperature for the Summer season, and the three coldest such days for the Winter season.
2. **Estimate Baselines**. Based on the test days selected, Guidehouse estimated demand during periods where curtailment events were called in each season. Summer events occurred between May and October, hour-ending 16:00 to hour-ending 19:00, and the Winter events occurred between November and April, hour-ending 07:00 to hour-ending 20:00.
3. **Quantify Accuracy and Select Approaches.** Each customer's baseline generated by each approach tested was assigned a metric of accuracy as the root mean squared error between predicted and actual demand. These metrics were aggregated across customers[13] by approach to determine the overall accuracy rank (for the entire program) of each approach in each season. Guidehouse selected the most accurate approach in aggregate to calculate verified impacts in each season.

A.1.2 CBL Specifications

Guidehouse tested the 23 CBLs listed in Table A-1. These included CBLs split across two categories:

- **X-of-Y day CBLs**. In this case the baseline is delivered by the average event window demand on the X days in which that demand was highest within a Y-day window preceding the event; and,
- **X-of-Y days of the same day-of-week CBLs.** In this case, the baseline delivered by the average event window demand on the X number of prior days in which demand was highest within the Y number of days that fall on the same day of the week as the event.

Only non-event days may qualify for inclusion in the baseline. A day may qualify for inclusion in the baseline if and only if it is a non-holiday, non-event weekday.

[13] Aggregation of metrics will explicitly account for customer loads to ensure that the baseline selected is the one that is most accurate for the program overall.

Qualifying non-event days are eligible for inclusion in the look-back window (the period of Y days) in the baseline only if the participant's average demand during the event period on that day is 50 percent or more of the average demand across all Y days.

Days that fail to meet the eligibility criteria (i.e., days where the average demand during the event window are less than half of the average demand in that window across the Y days of the look-back period) are replaced by next most proximate preceding qualifying and eligible day. If there are not three qualifying days out of the ten non-excluded days preceding the event, the algorithm reverts to using the three most-immediate non-excluded days prior to the event.

Table A-1. CBLs to be Tested

CBL Number	CBL
1	2-of-2
2	2-of-3
3	3-of-3
4	2-of-4
5	3-of-4
6	4-of-4
7	3-of-5
8	4-of-5
9	5-of-5
10	3-of-6
11	4-of-6
12	5-of-6
13	6-of-6
14	4-of-7
15	5-of-7
16	6-of-7
17	7-of-7
18	2-of-2 of same day-of-week
19	2-of-3 of same day-of-week
20	3-of-3 of same day-of-week
21	2-of-4 of same day-of-week
22	3-of-4 of same day-of-week
23	4-of-4 of same day-of-week

Source: Guidehouse

A.1.3 Regression Based Baselines

All regression specifications discussed below are variants of a core model that accounts for a base set of demand patterns. The base, or core, model specification of the regression model is presented below in Equation A-1.

Equation A-1. Core Regression Model

$$y_t = \sum_{i=1}^{96} \beta_{1,i} qhour_{t,i} + \sum_{i=1}^{96} \beta_{2,i} qhour_{t,i} DQH_t + \sum_{d=1}^{D} \gamma_d C_{t,d} + \epsilon_t$$

Where:

$\beta_{1,i}$ = Intercept term that represents the quarter-hourly average demand for each quarter-hour *i*.

$\beta_{2,i}$ = Regression-estimated impact of cooling (in Summer) or heating (in Winter) degree quarter-hours (base 65 degrees Fahrenheit) on average demand during quarter-hour *i*.

γ_d = Regression-estimated reduction in average quarter-hourly demand for each quarter-hour *d* in which a curtailment event took place.

y_t = The average demand (kW) observed at the given meter in the quarter-hour of sample *t*.

$qhour_{t,i}$ = A set of 96 dummy variables, one for each quarter-hour of the day. The given dummy takes a value of 1 when the quarter-hour of sample is the i-th quarter-hour of that day. For example: if quarter-hour t is between 00:00 and 00:15, $qhour_{t,i=1}$ is equal to one and zero otherwise.

DQH_t = The cooling (in Summer) or heating (in Winter) degree quarter-hours (base 65 degrees Fahrenheit) in quarter-hour of sample t. This variable accounts for the heating or cooling demand influences on energy consumption.

$C_{t,d}$ = A set of D dummy variables identifying each quarter-hour in which a curtailment event took place. Each event is given its own index – for example if there are two events of one hour each, quarter-hours across all events are indexed from 1 to 4. These variables capture the impact of curtailment.

ϵ_t = Error term at quarter-hour *t* that captures unexplained variation in demand.

Guidehouse also tested specifications that include the following additional variables.

$EMA6dh_t$ = An exponential moving average of DQH_t observed in the six-hour period leading up to, and including, hour *t*. This variable captures any effect of temperature in previous hours on the current hours demand (e.g., if it has been hot for a while, cooling demand may be higher)

$EMA24dh_t$ = Identical to $EMA6dh_t$, except for 24, instead of six hours. This variable captures any effects of temperature in previous hours on the current hours demand (e.g., if it has been hot for a while, cooling demand may be higher)

hbu_t or cbu_t = "Heat index build-up" (for Summer) or "cold build up" (for Winter) observed in quarter-hour of sample t. This variable captures the effect of heat or cold "build up" in previous hours on the current hours demand (e.g., if it has been hot and

humid for a while, cooling demand may be higher). This is a 72-hour geometrically decaying average of the NOAA-defined heat index[14] (for Summer) and of heating degree quarter-hours (for Winter). It is calculated in the following manner (note that t in this equation refers to hour):

$$hbu = \frac{\sum_{h=1}^{72} 0.96^{h} \cdot heatindex_{t-h}}{1000} \text{ or } cbu = \frac{\sum_{h=1}^{72} 0.96^{h} \cdot HDHH_{t-h}}{1000}$$

In total, Guidehouse tested seven different regression specifications: the core model and six models consisting of the core model with additional variables as listed in Table A-2. The HBU variable was used for the Summer season and the CBU variable was used for the Winter season.

Table A-2. Additional Variables Included in Regression Specifications Tested

Model	Var1	Var2	Var3
1	ema6dh		
2	ema24dh		
3	hbu or cbu		
4	hbu or cbu	ema6dh	
5	hbu or cbu	ema24dh	
6	hbu or cbu	ema6dh	ema24dh

Source: Guidehouse

A.1.4 Estimating Verified Impacts

Guidehouse estimated baseline demand using the best-performing baseline approach, then estimated verified impacts by comparing observed in-event demand to estimated baseline demand. Guidehouse estimated verified impacts for each event in the evaluation period, as well as the average across all events, for each customer and for all customers in aggregate (i.e., the program total).

[14] National Oceanic and Atmospheric Administration, National Weather Service – Weather Prediction Center, *The Heat Index Equation*, accessed April 2025. **http://www.wpc.ncep.noaa.gov/html/heatindex_equation.shtml**. There are additional adjustments that are applied within certain temperature and humidity ranges.

Appendix B. Impact Output Summary Workbook

Please see the accompanying workbook for Appendix B.