

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

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| ELECTRONIC APPLICATION OF DUKE ENERGY) | CASE NO. |
| KENTUCKY, INC. TO AMEND ITS DEMAND SIDE) | 2022-00251 |
| MANAGEMENT PROGRAMS) | |

ORDER

On August 15, 2022, pursuant to KRS 278.285, and the final Order in Case No. 2012-00495,¹ Duke Energy Kentucky, Inc. (Duke Kentucky) filed an application requesting approval to modify its Demand-Side Management (DSM) programs, including terminating the Peak Time Rebate Pilot Program (PTR Pilot). Additionally, Duke Kentucky provided an update regarding the Seasonal Energy Efficiency Ratio (SEER) baseline increases for certain heating, ventilation, and air conditioning (HVAC) measures within the Residential Smart \$aver® Energy Efficiency (EE) Residential program. Duke Kentucky did not propose any budgetary changes in this case.

The Attorney General of the Commonwealth of Kentucky, by and through the Office of Rate Intervention (Attorney General) is an intervenor in this matter. Duke Kentucky responded to multiple rounds of discovery. A hearing was held on March 28, 2023. Duke Kentucky and the Attorney General, on behalf of their respective witnesses, responded to post-hearing discovery. Duke Kentucky filed an initial brief; the Attorney

¹ Case No. 2012-00495, *Application of Duke Energy Kentucky, Inc. For the Annual Cost Recovery Filing for Demand Side Management* (Ky. PSC Apr. 11, 2013).

General filed a response brief; and Duke Kentucky filed a reply brief. The matter now stands submitted for a decision.

LEGAL STANDARD

KRS 278.285(1) authorizes the Commission to review and approve the reasonableness of DSM programs proposed by any utility under its jurisdiction. The statute lists multiple factors the Commission can consider when determining the reasonableness of the DSM programs. The listed factors in KRS 278.285(1) are:

- (a) The specific changes in customers' consumption patterns which a utility is attempting to influence;
- (b) The cost and benefit analysis and other justification for specific demand-side management programs and measures included in a utility's proposed plan;
- (c) A utility's proposal to recover in rates the full costs of demand-side management programs, any net revenues lost due to reduced sales resulting from demand-side management programs, and incentives designed to provide positive financial rewards to a utility to encourage implementation of cost effective demand-side management programs;
- (d) Whether a utility's proposed demand-side management programs are consistent with its most recent long-range integrated resource plan;
- (e) Whether the plan results in any unreasonable prejudice or disadvantage to any class of customers;
- (f) The extent to which customer representatives and the Office of the Attorney General have been involved in developing the plan, including program design, cost recovery mechanisms, and financial incentives, and if involved, the amount of support for the plan by each participant, provided however, that unanimity among the participants developing the plan shall not be required for the commission to approve the plan;

(g) The extent to which the plan provides programs which are available, affordable, and useful to all customers; and

(h) Next-generation residential utility meters that can provide residents with amount of current utility usage, its cost, and can be capable of being read by the utility either remotely or from the exterior of the home.

KRS 278.285(1) also states the factors listed are not exhaustive, the Commission can consider anything that will help determine if the programs are reasonable.

DUKE KENTUCKY'S DSM PROGRAM PORTFOLIO

Duke Kentucky's current DSM programs were originally approved in Case No. 2012-00085² and amended in subsequent annual DSM filings. The current suite of programs, as approved in Case No. 2021-00424,³ include the following:

1. Low Income Services Program;
2. Residential Energy Assessments Program;
3. Residential Smart \$aver® Efficient Residences Program;
4. Residential Smart \$aver® Energy Efficient Products Program;
5. Smart \$aver® Prescriptive Program;
6. Smart \$aver® Custom Program;
7. Power Manager® Program;
8. PowerShare®;
9. Low Income Neighborhood;

² Case No. 2012-00085, *Application of Duke Energy Kentucky, Inc. for an Energy Efficiency Cost Recovery Mechanism and for Approval of Additional Programs for Inclusion in its Existing Portfolio* (Ky. PSC June 29, 2012), Order.

³ Case No. 2021-00424, *Electronic Annual Cost Recovery Filing for Demand Side Management by Duke Energy Kentucky, Inc.* (Ky. PSC Nov. 15, 2021), Order.

10. My Home Energy Report;
11. Non-Residential Small Business Energy Saver Program;
12. Non-Residential Pay for Performance;
13. Peak Time Rebate Pilot Program.⁴

PROPOSED DSM MODIFICATIONS

Seasonal Energy Efficiency Ratio

Duke Kentucky provided an update regarding the SEER baseline increases for certain HVAC measures within the Residential Smart \$aver® Energy Efficiency Residential program. Beginning in 2023, all heat pump systems are required to meet new minimum EE standards of 15 SEER as well as increase the heating efficiency of heat pump seasonal performance factor (HPSF) of 8.8 compared with the current standard of 8.2.⁵

Due to this increase in baseline, Duke Kentucky worked with a third-party consultant for updated EE and demand savings estimates for current HVAC replacement measures, duct sealing, and smart thermostats. Duke Kentucky explained that these models will use energy usage data, housing stock characteristics, and other resources provided to define typical baseline housing characteristics for each model.⁶ Duke Kentucky did not request a change in the current budget for June 2023; the forecasted budget for the fiscal year July 2023 will reflect any changes.⁷

⁴ Case No. 2019-00277, *Electronic Application of Duke Energy Kentucky, Inc. to Amend its Demand Side Management Programs* (Ky. PSC Apr. 27, 2020), Order.

⁵ Application, Paragraph 9.

⁶ Application, Paragraph 10.

⁷ Application, Paragraph 11.

Peak Time Rebate Pilot Program (PTR Pilot)

The Commission authorized Duke Kentucky to offer the PTR Pilot for residential customers in Case No. 2019-00277.⁸ The PTR Pilot is a two-year, incentive-based demand response (DR) program that had a research extension through the Summer of 2022. The research extension was in place to evaluate the difference in load impacts between a customer credit of \$0.60/kWh reduced and a credit of \$1.20/kWh reduced.⁹ Duke Kentucky marketed the program by sending emails to customers, which Duke Kentucky argued is less expensive than mailing notices and was designed to enable customers to respond to email event notifications once the program started.¹⁰ Currently, there are 679 customers enrolled in the \$0.60/kWh reduced offer and 667 customers enrolled in the \$1.20/kWh reduced offer. In Summer 2022, seven events were called for the research extension customers. The results of the pilot research extension showed an overall average hourly load impact per customer in Summer 2022 of 0.27 kW. Additionally, participants receiving \$0.60 per kWh provided a reduction of 0.25 kW and participants receiving \$1.20 per kWh provided a 0.30 kW reduction.

The Commission has traditionally evaluated DSM effectiveness by focusing on the Total Resource Cost (TRC) results. A TRC score of less than one indicates that the cost of the program outweighs the measured benefits. The following table shows the result of the cost-effectiveness test as provided by Duke Kentucky:¹¹

⁸ Case No. 2019-00277, Apr. 27, 2020 Order.

⁹ Application, Appendix F at 7.

¹⁰ Application, Peak Time Credit Pilot Evaluation, Section 2.2.

¹¹ Application, Appendix A.

| <u>DSM Portfolio Program</u> | <u>UTC</u> | <u>TRC</u> | <u>RIM</u> | <u>Participant Test</u> |
|--------------------------------------|------------|------------|------------|-------------------------|
| Peak Time Rebate Pilot (Residential) | 0.14 | 0.15 | 0.14 | N/A |

Duke Kentucky requested to terminate the original pilot program arguing that it is not cost effective with a TRC score of 0.15. Additionally, Duke Kentucky proposed to consider how the PTR pilot program and other time-differentiated rates might be elements of a broader effort to effectively shape and reduce peak load. Duke Kentucky stated that new considerations will be shared at annual meetings of the DSM collaborative. Duke Kentucky is currently evaluating a PTR research proposal from consulting firm ESource to assist with investigating ways to effectively offer time-differentiated rates that leverage advanced metering infrastructure (AMI) data.¹²

In Case No. 2022-00398,¹³ the Demand Side Management Rider (DSMR) rates were approved as filed and no budget dollars were requested for the PTR pilot program for July 2023 through June 2024. Duke Kentucky stated that it currently has budget dollars set aside for the PTR Pilot Program through June 30, 2023, but has not sought authorization for budget amounts to continue the PTR Pilot Program past that point.¹⁴ Duke Kentucky also requested that if the Commission orders it to continue the PTR Pilot program, with or without modifications, that the Commission authorize an initial budget amount of \$216,000 and authorize Duke Kentucky to adjust the initial budget for any modifications ordered by the Commission.¹⁵

¹² Application, Appendix F at 7.

¹³ Case No. 2022-00398, *Electronic Annual Cost Recovery Filing for Demand Side Management by Duke Energy Kentucky, Inc.* (Ky. PSC Nov. 15, 2022).

¹⁴ Duke Kentucky Post-Hearing Brief (filed Apr. 26, 2023) at 11.

¹⁵ Duke Kentucky Post-Hearing Brief at 11.

PARTIES' ARGUMENTS

The Attorney General filed witness testimony on November 14, 2022, that concluded that the Commission should require Duke Kentucky to continue the PTR Pilot. The Attorney Generals' witness, Paul J. Alvarez argued that the Commission should order Duke Kentucky to convert the PTR Pilot Program into a fully integrated program by June 1, 2023, maximize participation from all residential and small commercial customers, and automatically enroll all existing pilot participants in the full PTR program.¹⁶

Alvarez asserted that AMI meters may have an impact on the PTR Pilot because such meters were designed to collect usage data so that meter reading costs could be avoided, are equipped with service disconnect and reconnect switches that the utility can control and are digital data recorders that track both the amount of energy a customer uses and when the customer uses energy. Mr. Alvarez asserted that the benefits of AMI meters results in a direct impact on the PTR Pilot and may reduce Duke Kentucky customers' bills each month.

Mr. Alvarez argued that Duke Kentucky missed key opportunities to maximize participant awareness because Duke Kentucky notified customers of critical peak events (CPE) by email, asserting that most customers do not read their emails. Mr. Alvarez further argued that a full time PTR program offers better CPE notifications and DSM enabling technology co-promotion opportunities, such as pairing the PTR program with a smart thermostat rebate program,¹⁷ which would improve customer participation.¹⁸ Mr.

¹⁶ Direct Testimony of Paul J. Alvarez (Alvarez Direct Testimony) at 7.

¹⁷ Alvarez Direct Testimony at 15.

¹⁸ Alvarez Direct Testimony at 12–13.

Alvarez maintained that the email notifications failed to secure more customer information, such as smart phone numbers, that could result in customers becoming more aware of CPE's through text messages.¹⁹

Mr. Alvarez argued that if the PTR program were integrated full-time, then the PTR program would have been cost-effective. Mr. Alvarez argued that using a 20 percent participant assumption, as used in other similar PTR programs, would result in customers receiving a projected \$1.60 in benefits for every \$1 spent on the PTR program. Mr. Alvarez asserted that the customer benefits improve to \$1.89 per \$1 spent after PTR program start-up costs have been recovered, delivering approximately \$500,000 in value annually to customers. Mr. Alvarez further asserted that results improve even further with every increase in customer participation rates, and improves further still if Duke Kentucky were to launch a full time PTR program, or if avoided energy or capacity costs were to rise.²⁰ Additionally, Mr. Alvarez argued that fixed and variable costs would increase for the program, and those high costs would make customer participation essential. Mr. Alvarez concluded that the cost-effectiveness of the PTR program would increase drastically from a TRC of 0.15 to 1.89 in 2024 if those changes were made as described above.

In rebuttal testimony, Duke Kentucky's witness, Bruce Sailers argued that the Attorney General's assumptions, specifically the participation rate of 20 percent, were flawed and exaggerated and should be rejected.²¹ Mr. Sailers further argued that there

¹⁹ Alvarez Direct Testimony at 13.

²⁰ Alvarez Direct Testimony at 28.

²¹ Rebuttal Testimony of Bruce L. Sailers (Sailers Rebuttal Testimony) at 5–6.

is no indication that a 20 percent participation rate could be reached and that Mr. Alvarez's assumption, which was derived from the summaries of three inapplicable peak time-based studies, in which additional factors, such as customers receiving a technology device during enrollment, impacted the participation rate. Mr. Sailers asserted that the conservation impact estimates provided by Mr. Alvarez are not supported and PTR programs inherently include an incentive payment issue to correctly identify customers who earn an incentive resulting from event implementation.²²

Mr. Sailers reiterated that the PTR Pilot should be terminated, and the program reassessed to focus on program improvements that result in a cost-effective offer for customers.²³

DISCUSSION AND FINDINGS

SEER

The Commission notes that the SEER baseline increases for certain HVAC measures within the Residential Smart \$Aver® Energy Efficiency Residences program has been addressed in the final Order in Case No. 2022-00398,²⁴ and thus the issue is moot.

PTR Pilot

Based upon the case record and being otherwise sufficiently advised, the Commission finds that Duke Kentucky's request to terminate the PTR Pilot should be denied for the reasons set forth below. Since Duke Kentucky must continue to offer the

²² Sailers Rebuttal Testimony at 17.

²³ Sailers Rebuttal Testimony at 18.

²⁴ Case No. 2022-00398, Nov. 15, 2022 Order.

PTR Pilot and because the costs for this program were removed for DSM rates in Case No. 2022-00398²⁵, the Commission further finds that the rates contained in the Appendix to this Order are fair, just and reasonable, and should be placed into effect July 1, 2023. The Commission further finds that this case should be kept open to allow time to establish parameters for the PTR Pilot program going forward.

The Commission concludes that there are sufficient flaws in the current PTR Pilot that preclude a Commission determination that the PTR Pilot should be terminated due only to the TRC score. First, because Duke Kentucky uses 2016 dollars for calculating avoided costs, the information is stale and outdated, and thus not reliable. Instead, Duke Kentucky should utilize more recent and updated information when calculating avoided costs to determine the cost-effectiveness of their DSM programs.

Second, the PTR program was Duke Kentucky's attempt at maximizing the benefits of AMI. Thus, there is a question whether sufficient time has been allotted for this determination. Additionally, the Commission notes that AMI is not merely a rate base investment for Duke Kentucky, but rather, like any investment in utility infrastructure, its benefit for consumers should be maximized now that it is placed into service. To that point, the final Order in Case No. 2019-00277²⁶ stated, "using AMI metering for more than just billing purposes is something that not only Duke Kentucky, but all utilities should consider maximizing the benefits of smart meters." The Commission agrees with the Attorney General that AMI brings not only operational savings for the utility, but also the potential for additional benefits to ratepayers. The Commission has required other utilities

²⁵ Case No. 2022-00398, Nov. 15, 2022 Order.

²⁶ Case No. 2019-00277, *Electronic Application of Duke Energy Kentucky, Inc. to Amend Its Demand Side Management Programs* (Ky. PSC Aug. 15, 2019).

to maximize the stated impacts of AMI, including benefits related to innovative rate design and time of day rates.²⁷ Duke Kentucky would do well to take heed of Commission’s consistent direction in this regard.

Third, the Commission agrees with the Attorney General that the PTR Pilot adds value to system reliability by enabling load reductions, particularly in providing customers an incentive to reduce consumption, rather than merely asking customers to do so at peak times. The Commission has interest in a PTR design that can be used as part of Duke Kentucky’s Fixed Resource Requirements (FRR) plan in the PJM capacity market and can alleviate the need for Duke Kentucky to procure costly additional generation capacity, and reduce incremental investments in distribution and transmission capacity costs. The Commission expressed this interest a number of years ago, in approving the PTR Pilot, by stating that it “support[ed] the possibility of converting the PTR Pilot to a [Price Responsive Demand] program for PJM.”²⁸

The Commission encouraged Duke Kentucky in approving the PRT Pilot to learn from it and modify the program so that it could maximize benefits to its customers as well as reducing its load requirements.²⁹ The Commission further urged Duke Kentucky to study the incentive, or rebate, to ensure that the “carrot” is high enough to encourage

²⁷ Case No. 2020-00350, *Electronic Application of Louisville Gas and Electric Company for an Adjustment of its Electric and Gas Rates, a Certificate of Public Convenience and Necessity to Deploy Advanced Metering Infrastructure, Approval of Certain Regulatory and Accounting Treatments and Establishment of a One-year Surcredit*, (Ky. PSC June 30, 2021), Order, Appendix F; and Case No. 2020-00349, *Electronic Application of Kentucky Utilities Company for an Adjustment of its Electric Rates, a Certificate of Public Convenience and Necessity to Deploy Advanced Metering Infrastructure, Approval of Certain Regulatory and Accounting Treatments and Establishment of a One-year Surcredit*, (Ky. PSC June 30, 2021), Order, Appendix E.

²⁸ Case No. 2019-00277, Apr. 27, 2020 Order at 15.

²⁹ Case No. 2019-00277, Apr. 27, 2020 Order at 15.

behavioral changes that are impactful.³⁰ The Commission reiterates that the PTR Pilot in general has significant benefits to Duke Kentucky's customers as well as its load requirements. The Commission notes that the record in Case No. 2017-00427,³¹ evidenced that reducing Duke Kentucky's load requirements through DSM programs was a less costly alternative than either purchasing capacity or installing additional capacity.

The Commission concludes that the PTR Pilot should be continued, with appropriate modification towards an aim to improving it, to allow sufficient time to gather data into a robust record. This is especially so given the evidence of record that the PTR Pilot received positive feedback from participants and has impacts to reducing load. To the extent that the program parameters should be modified, the Commission finds that this case should remain open to provide sufficient time to establish PTR Pilot program parameters to be followed in the future.

The Commission finds that the projected program costs for the PTR Pilot program will be \$216,000 and Duke Kentucky will also have the authority to adjust the initial budget when the Commission issues an order establishing the parameters of the PTR Pilot program. Duke Kentucky's DSM revenue requirement, which includes projected July 1, 2023, thru June 30, 2024, program costs, lost revenues, and financial incentives is approximately \$7.893 million once the \$216,000 projected program cost for the PTR Pilot program is included. Additionally, once the PTR program costs are added in to the DMSR calculations, this results in a total DSM revenue requirement of \$9.675 million and \$5.152 million allocated to the Residential RS Rate.

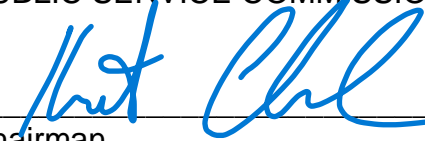
³⁰ Case No. 2019-00277, Apr. 27, 2020 Order at 15.

³¹ Case No. 2017-00427, *Electronic Annual Cost Recovery Filing for Demand Side Management by Duke Kentucky Energy, Inc.* (Ky. PSC Nov. 15, 2017).

IT IS THEREFORE ORDERED that:

1. Duke Kentucky's request to terminate the PTR Pilot is denied.
2. The DSM rates in the Appendix to this Order are considered fair, just and reasonable and shall be effective July 1, 2023.
3. Duke Kentucky shall comply with the requirements of the findings found herein.
4. Within 20 days of the date of this Order, Duke Kentucky shall file with this Commission, using the Commission's electronic Tariff Filing System, revised tariff sheets setting out the rates approved herein and reflecting that they were approved pursuant to this Order.
5. This case will remain open to allow sufficient time to establish program parameters for the continued PTR Pilot.

PUBLIC SERVICE COMMISSION


Chairman


Vice Chairman


Commissioner

ENTERED
JUN 13 2023 bsb
KENTUCKY PUBLIC
SERVICE COMMISSION

ATTEST:


Executive Director

APPENDIX

APPENDIX TO AN ORDER OF THE KENTUCKY PUBLIC SERVICE
COMMISSION IN CASE NO. 2022-00251 DATED JUN 13 2023

The following rates and charges are prescribed for the customers in the area served by Duke Energy Kentucky, Inc. All other rates and charges not specifically mentioned herein shall remain the same as those in effect under the authority of this Commission prior to the effective date of this Order.

Duke Energy Kentucky, Inc. – Electric and Gas Customers

DSM Cost Recovery Rider

Rate Schedule Riders (DSMR)

Electric Rider DSM

Residential RS Rate \$0.003497 per kWh

*Angela M Goad
Assistant Attorney General
Office of the Attorney General Office of Rate
700 Capitol Avenue
Suite 20
Frankfort, KENTUCKY 40601-8204

*Minna Sunderman
Duke Energy Kentucky, Inc.
139 East Fourth Street
Cincinnati, OH 45201

*Debbie Gates
Duke Energy Kentucky, Inc.
139 East Fourth Street
Cincinnati, OH 45201

*Rocco O D'Ascenzo
Duke Energy Kentucky, Inc.
139 East Fourth Street
Cincinnati, OH 45201

*John G Horne, II
Office of the Attorney General Office of Rate
700 Capitol Avenue
Suite 20
Frankfort, KENTUCKY 40601-8204

*Duke Energy Kentucky, Inc.
139 East Fourth Street
Cincinnati, OH 45202

*Larisa Vaysman
Duke Energy Kentucky, Inc.
139 East Fourth Street
Cincinnati, OH 45201

*Larry Cook
Assistant Attorney General
Office of the Attorney General Office of Rate
700 Capitol Avenue
Suite 20
Frankfort, KENTUCKY 40601-8204

*J. Michael West
Office of the Attorney General Office of Rate
700 Capitol Avenue
Suite 20
Frankfort, KENTUCKY 40601-8204