COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2024 INTEGRATED RESOURCE PLAN OF DUKE ENERGY KENTUCKY, INC.	))	CASE NO. 2024-00197

DUKE ENERGY KENTUCKY, INC.'S COMMENTS ON THE COMMISSION STAFF'S REPORT ON THE 2024 INTEGRATED RESOURCE PLAN OF DUKE ENERGY KENTUCKY

I. INTRODUCTION

On June 21, 2024, in compliance with the Commission's August 1, 2023, Order in Case No. 2021-00245,[1] Duke Energy Kentucky, Inc., (Duke Energy Kentucky of the Company) filed its Electronic 2024 Integrated Resource Plan (2024 IRP). The Commission granted the intervention requests of the Office of the Kentucky Attorney General (KY AG), Sierra Club, and Joint Intervenors, Kentucky Solar Energy Society, Kentuckians for the Commonwealth, and Kentucky Resources Council (Joint Intervenors). An evidentiary hearing occurred on December 10, 2024. On December 16, 2024, the Commission issued a procedural schedule that permitted post hearing requests for information and for the filing of post hearing comments, a Staff Report, and an opportunity for parties to submit comments to that Staff Report.[2]

On April 7, 2025, the Commission Staff's Report on the 2024 Integrated Resource Plan of Duke Energy Kentucky, Inc., (Staff Report) was issued. The Staff Report provides

[1] *In the Matter of the Electronic 2021 Integrated Resource Plan of Duke Energy Kentucky, Inc.*, Case No. 2021-00245, Order (Aug. 1, 2023).

[2] *Id.*, Order (Dec. 16, 2024).

a thorough summary of the Company's 2024 IRP, including the Company's analysis, forecasting, and ultimately, the preferred portfolio of resources to satisfy customer demand over a fifteen-year planning horizon. The Staff Report also summarizes the positions of the various intervenors throughout the case, as well as the Company's responses to data requests and testimony at the December 10, 2024 evidentiary hearing. In its final section, the Staff Report addresses the reasonableness of the Company's 2024 IRP, making multiple findings and recommendations for the Company to consider and include as part of its next IRP filing.

The Staff Report finds that some of the methodologies and assumptions in the 2024 IRP were reasonable and consistent with the Commission's regulations. Specifically, the Staff Report finds that the Company's load forecast methodology and results were reasonable. However, the Staff Report further found that the Company did not comply with 807 KAR 5:058, Section 8(2)(b) for evaluating potential demand side management (DSM) programs. And, while the 2024 IRP was not unreasonable, the Company did not include enough modeling details to (1) explain why it selected a plan that does not appear to be the least-cost alternative and (2) make clear what the model was permitted to select for each scenario. The Staff Report, through its findings and recommendations, identifies areas of improvement for future IRPs summarized as follows:

- Load Forecasting- While the 2024 IRP did not provide alternative load analysis for potential effects of large data centers, the Company did provide these load forecasts in response to discovery. The Staff Report recommends that the Company include alternative load forecasts that account for known, potential significant increases in load.

- Demand and Supply Side Resource Assessment-
    - While the 2024 IRP did evaluate existing Demand Side Management (DSM) programs, it did not evaluate potential DSM programs. The Staff Report recommends that Duke Energy Kentucky should provide an evaluation of potential DSM programs with total resource costs (TRC) scores, budget, and descriptions for all evaluated programs regardless of cost-effectiveness.
    - Large Loads- The Staff Report recommends that the Company's next IRP should evaluate and discuss the potential reliability impact of large loads on its system.
    - Electric Vehicles (EV)- The Staff Report recommends the Company should continue to evaluate EV charging management as a possible DSM/ energy efficiency (EE) program and provide an update on the viability and full analysis of an EV charging management program.
    - Reliability- The Staff Report recommends that the Company independently examine the reliability of its preferred portfolio options by considering the impact on the loss of load expectation (LOLE) of the various portfolio options to the extent possible, and the effect, if any, of portfolio on the LOLE of the Duke Energy Ohio/Kentucky (DEOK) delivery zone.

- Integration to PJM Interconnection LLC (PJM) Reliability Pricing Model (RPM) base residual auction (BRA) process:
    - The Staff Report found that the Company should have provided calculations supporting the claim that switching to the PJM BRA process would not impact modeling outcomes.
    - The Staff Report found that when testing the selection of preferred portfolios under different sets of assumptions, the Company should model alternative portfolios to test the appropriateness of selected portfolios.
    - The Staff Report found that in the next IRP, the Company should:
        - provide a more detailed explanation of the required EPA regulations and how these constraints are modeled into the resource selection and production cost models.
        - Make clear why a different resource portfolio was selected if different from the least-cost option overall.
        - Explain any portfolio results that are not the least cost option, or are inconsistent with other goals, such as carbon reduction.
        - Ensure that the discussion and presentation of data modeling results are consistent throughout the IRP.
        - To the extent reasonably estimated, the next IRP should include specific cost data for storage and/or disposal of carbon capture sequestration (CCS) CO_2.

Duke Energy Kentucky appreciates the Staff's thorough review of the Company's 2024 IRP. And while the Company disagrees with some of the Staff's conclusions as explained below, the Company nonetheless will incorporate Staff's recommendations and conclusions as part of future IRPs.

II. RESPONSE TO STAFF CONCLUSIONS AND RECOMMENDATIONS

A. Load Forecasting

Although the Company's as-filed 2024 IRP did not include alternative load analysis for potential effects of large data centers coming online in the Duke Energy Kentucky service territory, because such alternative analysis were not required in prior IRPs, as the Staff Report acknowledges, the Company did provide these load forecasts in response to discovery upon request. The Company commits to include an alternative load forecast in future IRP submittals that capture plausible load increases from new large-scale customers.

B. Demand and Supply Side Resource Assessment

1. Evaluation of DSM Programs-

Duke Energy Kentucky respectfully submits that its 2024 IRP did consider and effectively model all commercially known technologies. The Company regularly submits an annual DSM amendment filing in August to propose new and proven cost-effective EE and DSM programs, as well as to amend existing programs with new measures of changes to maintain or increase their cost effectiveness. Therefore, the Company believes its DSM and EE strategy continues to be an iterative analysis providing regular information to the Commission beyond the annual August filings and November rider true-up proceedings. Nonetheless, the Company agrees and commits that its future IRPs will leverage available data to consider all known and reasonably quantifiable measures (even those that may not be commercially available at the time of the preparing the evaluation) that may have economic potential to be offered during the IRP planning horizon.

2. Large Loads-

Duke Energy Kentucky acknowledges and agrees that the sudden addition of large load could present both a resource adequacy and reliability concern. The Company's pending application to transition from its fixed resource requirement (FRR) to the PJM RPM auction-based structure is one mitigating strategy to address the short-term impacts of such a risk. Additionally, the Company's currently pending electric base rate case proposes an enhancement to its non-residential rate structure to also mitigate the impacts of large loads to ensure they are paying their full cost of service. Nonetheless, the Company agrees that in future IRPs, it should continue to evaluate and proactively address the reliability risks associated with sudden large load increases and evaluate strategies to address these risks.

3. Electric Vehicles (EV)-

The Company agrees and commits to continue to evaluate and consider EV charging management as possible DSM/EE programs. The Company has proposed several programs to encourage EV adoption in the past, which have not been approved by the Commission. Admittedly, while these programs have focused on supporting greater EV adoption and charging infrastructure, to date, they have not been proposed as DSM/EE programs. The Company commits to evaluating EV managed charging as a possible DSM/EE portfolio program and will provide an updated assessment of an EV managed charging program through future filings, including, but not limited to future IRPs.

4. Reliability-

The Company's 2024 IRP did not evaluate the LOLE of the various portfolios in its resource plan. However, the reserve margin requirement that the Company uses in its IRP analysis is developed to meet a LOLE target of one day in ten years. In addition, the capacity contribution of each resource type to the reserve requirement is based on the seasonal effective load carrying capability (ELCC) of that type, rather than on the full capacity (Table H.3 in the 2024 IRP presents firm, i.e., ELCC-adjusted, MW for the Preferred Portfolio). The Company submits that additional LOLE analysis has not been a requirement or recommendation in prior IRPs, and thus did not consider this as a requirement for inclusion. Nonetheless, the Company agrees that enhanced evaluation of future reliability will become increasingly important as contributions from variable energy and energy-limited resources increase, the Company's existing assets continue to age, and the resource portfolio in future years diverges materially from the current resource mix. The Company commits that it will perform enhanced reliability analysis to support future IRPs if appropriate.

C. Integration

1. PJM Transition from FRR to RPM

Duke Energy Kentucky filed its Application to exit the FRR and to fully participate in PJM's RPM auction construct in Case No. 2024-00285 on September 6, 2024 (BRA Transition Case).[3] The Company's final decision to exit the FRR and to become a full RPM BRA participant was made after the Company had started and completed the

[3] *In the Matter of the Electronic Application of Duke Energy Kentucky, Inc., to Become a full Participant in the PJM Interconnection LLC., Base Residual and Incremental Auction Construct or the 21027/2028 Delivery Year and for Necessary Accounting and Tariff Changes,* Case No. 2024-00285, Application (Sept. 6, 2024).

underlying analysis for the 2024 IRP. The analysis supporting the BRA Transition was underway while the Company was finishing its IRP document and preparing it for filing. Therefore, it was not practical to include the analysis in the IRP when it was filed. Indeed, although the Company's Application to transition to the RPM auction construct was pending while the IRP was being evaluated and is now decisional, the Company's BRA Transition request nonetheless, remains pending before the Commission and is not a foregone conclusion.

As the Company's IRP shows, and as the Company stated in its rebuttal testimony and responses to data requests in both proceedings, Duke Energy Kentucky does not intend for the PJM auctions to permanently replace or obviate the need for physical capacity. The BRA participation is more of a tool to allow the Company to meet demand if it is unable to procure replacement or new capacity resources in sufficient time to meet load requirements. Therefore, from a resource planning perspective, there is no meaningful impact from the BRA Transition on the Company's strategy to meet demand through owning and operating physical generating assets.

Nonetheless, assuming the Commission approves the Company's Application in the BRA Transition Case, and the Company does complete such transition, the Company will include the impacts of such transition, if any, in its future IRPs. At that point, the BRA may become a useful and cost-effective tool for shorter term capacity needs until replacement or incremental generation is able to be constructed and acquired.

2. Modeling Alternative Portfolios

The Staff Report acknowledges that the 2024 IRP "appropriately runs separate models for planning with and without the effects of the EPA CAA Section 111(d) Update."[4] As the Company's IRP explained, and the Staff Report agrees, under the 111(d) update, there are four possible options available for coal-fired generation:

i. Retirement by January 1, 2032;

ii. Convert to full natural gas operation by January 1, 2030;

iii. Convert to at least 40 percent gas co-firing by January 1, 2030, or

iv. Add CCS by January 1, 2032.

Of these options, the Company's IRP selected option iii, co-firing with natural gas, as the most-favored and least cost option. This was as much a process of elimination, and an acknowledgement of Kentucky's policy to maintain the viability of coal as a generation resource, as it was an exercise in cost effectiveness. As this Commission is aware, there is now a rebuttable presumption embedded in Kentucky law, that disfavors fossil generation retirements and indeed, is intended to maintain coal as a generation resource.[5] The Company's 2024 IRP selected the most feasible option that preserved the continued operation of East Bend as a coal-fired asset as long as feasible.

As the IRP explained, and as the Company's witnesses testified at the evidentiary hearing, converting East Bend to full natural gas operation by January 1, 2030, is an impossible hurdle to overcome when factoring in design, approvals, and construction timelines. Full conversion was not the least cost option and indeed, would require the

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[4] Staff Report, p. 39.

[5] KRS 278.264; *See also,* Robert Stivers: We need our power plants more than ever and must protect our grid and coal-fired plants - NKyTribune

Company to cease using coal as a generating fuel in approximately five years. The conversion to full natural gas would require coal equipment retirements, both practically, and from an accounting perspective, and is contrary to the policy of the Commonwealth. Coal handling equipment and certain environmental compliance equipment would need to be retired and decommissioned while significant investments in natural gas technologies would be made.[6] These reasons made full conversion a less-than-ideal alternative.

Similarly, the Company's analysis found the availability of CCS as a feasible technology by January 1, 2032, to be speculative and its cost-effectiveness that early, even with available tax incentives was dubious. Selecting the CCS alternative by 2032 was not a near-term effective and reliable strategy for the Company or its customers.

The final alternative not selected, full retirement of East Bend by January 1, 2032, was not selected because again, it was not reasonable, or in the customers' best interests and was contrary to the policy of Kentucky. East Bend, in addition to being the Company's only coal-fired asset, is also the Company's only baseload generator. A retirement without replacement is not possible for the Company without relying solely on the market for the missing capacity and energy. This left the dual fuel/ cofiring alternative as the least-cost reasonable solution.

In addition, the Company's modeling demonstrates that adding moderate amounts of solar capacity to the portfolio starting in 2029 would diversify the resource mix without materially increasing PVRR.

Admittedly, since the filing and prosecution of this 2024 IRP proceeding, there has been a change in Federal Administration and an accompanying reversal in policy as it

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[6] Kalemba Cross, Hearing Video Recording at 3:17:16-3:17:29.

relates to fossil generation and the environmental regulations that impact those technologies. Indeed, the new Administration has taken action to review these environmental regulations and although still in effect, their longevity is in question. In this regard, if these regulations are indeed vacated, the results of the Company's IRP are likely to be remarkably different.

To that end, the Company acknowledges the Staff Report's concern regarding modeling alternative portfolios and commits to making its best efforts in future IRPs to thoroughly analyze foreseeable scenarios and the various portfolios that the Company's modeling produces.

D. Miscellaneous Recommendations for Future IRPs

The Staff Report found that in the next IRP, the Company should: 1) provide more detailed explanations of required EPA regulations and how they are modeled into models; 2) clarify why a resource portfolio was selected if not the least-cost strategy; 3) explain results that are not least-cost or are inconsistent with goals like carbon reduction; 4) present modeling and data consistently; and 5)include specific cost data for CCS.

The Company believes its 2024 IRP was robustly detailed and that the Company used its best efforts to achieve those five recommendations within this IRP. Nonetheless, the Company acknowledges that reasonable minds can differ as to the subjective nature of sufficiency of documentation and that these five criticisms and recommendations are not unfair. The Company commits to focus its efforts on achieving these goals in its next and future IRPs.

III. CONCLUSION

The Company continues to believe its 2024 IRP was thorough, consistent with prior IRP analysis accepted by the Commission, and presented a reasoned and well-considered plan for meeting Duke Energy Kentucky's customers' energy needs over the long-term in the least-cost, most reasonable manner. Execution of such strategies will necessarily come in future proceedings where the Company will have the burden of proof to establish that such strategies are reasonable. The Company commits to incorporate the Staff Report conclusions and recommendations into future resource plans.

Respectfully submitted,

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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 April 21, 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.[7]

/s/Rocco D'Ascenzo
Counsel for Duke Energy Kentucky, Inc.

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