

**COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

**ELECTRONIC APPLICATION OF DUKE )  
ENERGY KENTUCKY, INC. FOR A )  
CERTIFICATE OF PUBLIC CONVENIENCE )  
AND NECESSITY TO CONVERT ITS WET FLUE )  
GAS DESULFURIZATION SYSTEM FROM A )  
QUICKLIME REAGENT PROCESS TO A )  
LIMESTONE REAGENT HANDLING SYSTEM )  
AT ITS EAST BEND GENERATING STATION )  
AND FOR APPROVAL TO AMEND ITS )  
ENVIRONMENTAL COMPLIANCE PLAN FOR )  
RECOVERY BY ENVIRONMENTAL )  
SURCHARGE MECHANISM )  
)  
)  
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**Case No. 2024-00152**

**REBUTTAL TESTIMONY OF  
CHELSEA HOTALING  
  
ON BEHALF OF SIERRA CLUB**

**December 6, 2024**

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**Case No. 2024-00152**

**Table of Contents**

I. INTRODUCTION .....	2
II. PURPOSE OF TESTIMONY .....	2
III. DISCUSSION .....	3
A. Evaluation of East Bend’s Operational Alternatives .....	3
B. Duke’s Rebuttal Misconstrues Direct Testimony .....	8
IV. CONCLUSION.....	12

**CASE NO. 2024-00152**  
**REBUTTAL TESTIMONY OF CHELSEA HOTALING**

**I. INTRODUCTION**

1  
2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Chelsea Hotaling, and my business address is 91 Main Street, Canton, New York  
4 13617.

5 **Q. BY WHOM ARE YOU EMPLOYED, AND IN WHAT CAPACITY, FOR THE**  
6 **PURPOSES OF THIS PROCEEDING?**

7 A. I am providing rebuttal testimony on behalf of Sierra Club.

**II. PURPOSE OF TESTIMONY**

8  
9 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

10 A. The purpose of my testimony is to respond to the critiques raised by Duke Energy  
11 Kentucky's ("Company" or "Duke") witnesses in their rebuttal testimony. Within that, I  
12 focus on addressing the most important issues, and any issues not addressed in this testimony  
13 should not be taken as agreement with the Company's rebuttal.

14 Specifically, here I respond to Witness Verderame's (a) mischaracterizations of my  
15 testimony with respect to East Bend's economic performance and whether or when to  
16 evaluate potentially economic advantageous options, including retirement; (b) assertions that  
17 the Company's analysis in this proceeding and the IRP adequately supports the certificate of  
18 public convenience and necessity ("CPCN") to convert the lime-based reagent process to a  
19 limestone-based reagent handling system ("Limestone Conversion Project"); and (c) claims  
20 that the CPCN is the least-cost option among those evaluated by the Company.

21 I also respond to Witness Kalemba's rationalizations for including the Limestone  
22 Conversion as a base assumption in the IRP modeling and not including accelerated

**CASE NO. 2024-00152**  
**REBUTTAL TESTIMONY OF CHELSEA HOTALING**

1 renewables in the natural gas conversion scenario; as well as his view that Duke should not  
2 perform additional resource planning analysis because there is no additional information to  
3 gain from doing so.

4 **Q. OVERALL, DOES THE COMPANY’S REBUTTAL TESTIMONY CHANGE YOUR**  
5 **EARLIER RECOMMENDATION TO THE COMMISSION IN THIS**  
6 **PROCEEDING?**

7 A. No. The additional opinions and information offered in the Company’s rebuttal do not  
8 assuage the concerns I raised in my direct testimony. It continues to be my view that, on the  
9 basis of the analyses provided to date, the Commission should deny Duke’s CPCN request  
10 and direct Duke to provide more fulsome analysis of potentially cost-effective alternatives,  
11 including at least the East Bend operational pathways evaluated in the 2024 IRP.

**III. DISCUSSION**

12  
13 **A. Evaluation of East Bend’s Operational Alternatives**

14 **Q. WITNESS KALEMBA CLAIMS THAT IT IS REASONABLE TO INCORPORATE**  
15 **THE LIMESTONE CONVERSION PROJECT AS PART OF THE BASE**  
16 **ASSUMPTION IN THE IRP. HOW DO YOU RESPOND TO THIS CLAIM?**

17 A. Witness Kalemba reports that the Limestone Conversion Project costs for the IRP were  
18 developed in late 2023<sup>1</sup> and that “since the forecasts and assumptions were developed for the  
19 IRP, the estimated costs of conversion have increased, and the forecasted cost of reagents  
20 required without the conversion has decreased.”<sup>2</sup> Witness Kalemba also states that “the

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<sup>1</sup> Witness Kalemba Rebuttal at 9.

<sup>2</sup> Witness Kalemba Rebuttal at 9.

**CASE NO. 2024-00152**  
**REBUTTAL TESTIMONY OF CHELSEA HOTALING**

1 limestone conversion project was assessed to be the best alternative at the time the inputs to  
2 the IRP were developed, and as such, the project was included as a base assumption.”<sup>3</sup>

3 I have two responses. First, if there is an input that may be subject to changes in costs,  
4 that would be a prime candidate to evaluate through sensitivity testing on the costs in an IRP.  
5 The Company’s decision not to analyze the potential impact of cost changes for the  
6 Limestone Conversion Project through sensitivity testing was unreasonable, and that was  
7 known or knowable when the Company made that decision.

8 Second, is that when Duke received the updated MEL cost information during this CPCN  
9 proceeding, it had an opportunity to refresh the modeling it performed for the IRP and could  
10 have provided that as supporting analysis for this CPCN request. Duke did not choose to do  
11 that, leaving the Company, the Commission, and other stakeholders insufficiently informed  
12 on the cost impacts from the alternative pathways to the Limestone Conversion Project.

13 The main issue with including the Limestone Conversion Project in all the IRP modeling is  
14 that an IRP is the prime opportunity to evaluate resource decisions. It is common practice for  
15 utilities to utilize IRP modeling, which is typically capacity expansion and production cost  
16 modeling, to evaluate decisions around resources that require a significant capital investment.

17 This avoids piecemeal resource planning, allowing a utility to take a comprehensive look at a  
18 broad set of potentially cost-effective and low-risk resource alternatives. The industry  
19 standard in an IRP process is to evaluate pursuing additional investments in existing  
20 resources versus pursuing different pathways that could avoid the costs of that investment.

21 When a utility follows that industry standard approach, the analysis conducted as part of an  
22 IRP may provide support for any CPCN proceedings following the completion of an IRP.

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<sup>3</sup> Witness Kalemba Rebuttal at 9.

**CASE NO. 2024-00152**  
**REBUTTAL TESTIMONY OF CHELSEA HOTALING**

1 The Company’s 2024 IRP, however, unreasonably assumed that the Limestone Conversion  
2 Project would be part of a least cost portfolio plan when it included those costs in its base  
3 case for all modeling runs. Because the different operational pathways where the Limestone  
4 Conversion Project could be avoided were not tested as part of the 2024 IRP, the 2024 IRP  
5 cannot provide support for the decision being made in this CPCN.

6 **Q. WITNESS VERDERAME STATES THAT THE ANALYSIS OF THE LIMESTONE**  
7 **CONVERSION PROJECT DISCUSSED IN HIS DIRECT AND REBUTTAL**  
8 **TESTIMONIES SUPPORTS APPROVAL OF THE CPCN. HOW DO YOU**  
9 **RESPOND?**

10 A. I disagree. The analysis performed and filed along with the CPCN application focuses on the  
11 impact of reduction in MEL commodity costs on dispatch costs, native fuel costs, capacity  
12 factor, and off system sales for the 2027 through 2029 time period.<sup>4</sup> This is not the same  
13 level of analysis that is usually undertaken as part of an IRP planning process or a reasonable  
14 level of analysis to support a significant capital investment in a generating asset.

15 While this CPCN proceeding and the IRP are obviously two separate cases, it is not  
16 unusual for modeling performed as part of an IRP to be the foundation for a CPCN  
17 application that follows the IRP. In cases such as this one, where the IRP is so close in time  
18 to the Company’s pursuit of a CPCN,<sup>5</sup> it would be even more typical to see IRP modeling  
19 efforts that support the CPCN project, in addition to other analysis in support of the project.  
20 Duke could have included the Limestone Conversion Project as a decision point to stress test  
21 and evaluate in the IRP modeling. It chose not to. For the CPCN proceeding, Duke could

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<sup>4</sup> Verderame Rebuttal at 5.

<sup>5</sup> Duke filed this CPCN application and supporting analysis in late July, within weeks of filing its 2024 IRP in Case No. 2024-00197.

**CASE NO. 2024-00152**  
**REBUTTAL TESTIMONY OF CHELSEA HOTALING**

1 have updated the IRP modeling to reflect the more recent cost information and evaluate the  
2 potential pathways where the Limestone Conversion Project could be avoided, but again,  
3 Duke chose not to. While an analysis has been put forward in the CPCN case, it is not how a  
4 major capital expenditure decision, such as whether East Bend should convert to operate  
5 fully on gas, be retired and replaced with thermal generation, or to pursue the Limestone  
6 Conversion Project, can be evaluated to understand the cost impacts of those decisions.

7 **Q. WITNESS KALEMBA ALSO CRITIQUES YOUR QUESTIONING OF WHY THE**  
8 **ACCELERATED RENEWABLE INVESTMENTS WERE NOT EVALUATED AS**  
9 **PART OF THE NATURAL GAS CONVERSION SCENARIO. HOW DO YOU**  
10 **RESPOND TO THIS?**

11 A. Witness Kalemba states that the accelerated renewables were not modeled because the  
12 Natural Gas Conversion case selected solar in the beginning of 2037 with only 50 MW being  
13 selected by 2040, whereas the dual fuel operation (“DFO”) case selected solar in 2039 with a  
14 total of 250 MW by 2040.<sup>6</sup> In Witness Kalemba’s view, my recommendation that it would be  
15 reasonable to evaluate accelerated renewable investments – where renewable generation is  
16 added sooner than 13 years in the future – as part of the natural gas conversion scenario is  
17 based solely on speculation. My position continues to be that it is important to know what  
18 the PVRR impact would be if additional solar (or other renewables) is added into the Natural  
19 Gas Conversion portfolio, similar to the approach that Duke took for the DFO case or their  
20 Preferred Plan.

21 As I discussed in my Direct Testimony,<sup>7</sup> typically a coal-to-gas conversion is paired with

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<sup>6</sup> Witness Kalemba Rebuttal at 10.

<sup>7</sup> See generally, Corrected Direct Testimony of Chelsea Hotaling at 14–16.

**CASE NO. 2024-00152**  
**REBUTTAL TESTIMONY OF CHELSEA HOTALING**

1 additional energy resources and does not rely solely on market purchases to fill the gap in  
2 energy generation once the unit is converted. While it is Witness Kalemba’s view that my  
3 recommendation is “speculation”,<sup>8</sup> I made this recommendation based on my modeling  
4 experience. In addition, as I discuss in more detail below, there are additional factors to  
5 consider about Duke’s modeling in the IRP and the costs reported for the portfolios.

6 **Q. WITNESS KALEMBA’S POSITION IS THAT ADDITIONAL RESOURCE**  
7 **PLANNING ANALYSIS WOULD NOT PROVIDE ADDITIONAL ACTIONABLE**  
8 **INFORMATION. HOW DO YOU RESPOND?**

9 A. I disagree. Sierra Club retained the Applied Economics Clinic (“AEC”) to review Duke’s  
10 IRP filing. The AEC experts identified a discrepancy in the costs the experts calculated  
11 compared to what Duke reported. The result of that is a change in the cost rankings of  
12 portfolios. With that change, AEC reports that the East Bend 100% gas conversion is the  
13 lowest-cost option and cheaper than co-firing or retirement regardless of whether the 111(d)  
14 compliance remains.<sup>9</sup> Given that the Natural Gas Conversion case may be the cheapest  
15 option, and that the PVRR of that portfolio would further be reduced from the avoided costs  
16 of the Limestone Conversion Project, which would not be necessary under a full gas  
17 conversion scenario, then it makes sense to at least test additions of solar to evaluate the  
18 impact that additional solar has on the market purchases and PVRR of the Natural Gas  
19 Conversion portfolio.

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<sup>8</sup> Witness Kalemba Rebuttal at 10.

<sup>9</sup> Sierra Club’s Comments Regarding Duke Energy Kentucky, Inc.’s 2024 Integrated Resource Plan at 11. Case No. 2024-00197.



**CASE NO. 2024-00152**  
**REBUTTAL TESTIMONY OF CHELSEA HOTALING**

**B. Duke’s Rebuttal Misconstrues Direct Testimony**

**Q. IN YOUR DIRECT TESTIMONY YOU PROVIDED AN ANALYSIS ON THE HISTORICAL OPERATIONS OF EAST BEND. DID WITNESS VERDERAME HAVE CRITICISMS OF THIS ANALYSIS?**

A. Yes, Witness Verderame reported three criticisms of my analysis. He asserts that I double counted variable operations and maintenance (“O&M”) costs, did not factor in capacity revenue for East Bend, should not have included capital costs, and that the analysis presented in my Direct Testimony was a proxy for a retirement analysis. I will discuss each of these items in more detail below.

**Q. WHY DID YOU MAKE AN ASSUMPTION AROUND THE VARIABLE O&M COSTS TO INCLUDE IN THE ANALYSIS?**

A. I assumed Variable O&M cost estimates would need to be included based on unclear information provided by the Company. Sierra Club submitted a discovery question that asked for the historical annual data, from 2018 to present, for East Bend’s fixed O&M and non-fuel variable O&M costs.<sup>10</sup> Duke provided a workbook in response to this question from Sierra Club that included a note indicating that fixed and variable O&M were not tracked separately. It is industry standard to track and report these values separately, based on prudent business management, to enable informed participation in energy markets, and to provide cost data to regulators. In my experience, I have never encountered a utility that was unable or unwilling to provide separate reporting for fixed O&M and variable O&M costs, making the Company’s response difficult to make sense of. Because of this, I also reviewed responses that Duke provided to other intervenors in this case, including a similar question

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<sup>10</sup> Sierra Club data request DR-01-004 subpart a and subpart b.

**CASE NO. 2024-00152**  
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1 from Staff concerning East Bend’s costs. In that response, the same data that was provided to  
2 Sierra Club was labeled as “Fixed O&M”.<sup>11</sup> This difference in labeling further added to the  
3 confusion on which costs were reported. This gave me the impression that a proxy for a  
4 variable O&M cost would need to be added in my analysis.

5 **Q. COULD YOU CORRECT THE ANALYSIS YOU PRESENTED IN YOUR DIRECT**  
6 **TESTIMONY TO ACCOUNT FOR THIS CLARIFICATION IN VERDERAME’S**  
7 **REBUTTAL TESTIMONY?**

8 A. Yes, I present below an updated analysis that only includes the total costs reported by Duke  
9 (which Duke labelled “Fixed O&M” costs in response to Staff’s discovery request), and does  
10 not include additional variable O&M costs.

11 **Q. WITNESS VERDERAME ALSO CLAIMS THAT YOUR ANALYSIS “IGNORES**  
12 **THE IMMEDIATE VALUE OF EAST BEND’S EXISTING CAPACITY IN AN**  
13 **INCREASINGLY CONSTRAINED PJM CAPCITY MARKET” AND STATES THAT**  
14 **THE ANALYSIS SHOULD INCLUDE THE ESTIMATED CAPACITY VALUE**  
15 **FROM THE PJM BRA CLEARED PRICE.<sup>12</sup> HOW DID YOU FACTOR IN THE**  
16 **CAPACITY VALUE FOR EAST BEND?**

17 A. As referenced in Table 1 of my Direct Testimony, I relied on the capacity revenue  
18 information that Duke provided in response to Sierra Club DR-01-004(1). I took this  
19 approach because Duke Energy Kentucky currently is a fixed resource requirement entity  
20 (“FRR”) and does not participate in the PJM Base Residual Auction (“BRA”). Because of  
21 this, I included the capacity revenue that Duke provided in discovery that reported the actual

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<sup>11</sup> Duke response to Staff-DR-01-015. Workbook named “STAFF-DR-0-015\_Attachment\_1”. Duke’s response to STAFF-DR-01-015(g) states “Duke Energy Kentucky does not maintain this information. Please see STAFF-01-015 Attachment 1 for Fixed O&M costs.”

<sup>12</sup> Witness Verderame Rebuttal Testimony at 9-10.

**CASE NO. 2024-00152**  
**REBUTTAL TESTIMONY OF CHELSEA HOTALING**

1 capacity revenue earned over the period I evaluated. In the revised calculations presented in  
2 Table 1 of Witness Verderame’s Rebuttal Testimony, he calculates the “Estimated Capacity  
3 Value at BRA Cleared Capacity Price” for East Bend and argues it should be included given  
4 the going forward capacity outlook in PJM. The analysis underlying Table 1 of my Direct  
5 Testimony evaluated the historical operations of East Bend; it did not make any assumptions  
6 about future operations or the costs/revenues associated with East Bend in the future.  
7 Even if Witness Verderame’s estimated capacity value is included in the analysis, it is  
8 important to note that even with that additional capacity value, and correcting for any double  
9 counting of variable O&M, there are still years in which East Bend had negative net  
10 operating revenue according to Witness Verderame’s calculation.<sup>13</sup>

11 **Q. DID YOU UPDATE THE ANALYSIS PRESENTED IN YOUR DIRECT**  
12 **TESTIMONY?**

13 A. Yes, I updated the analysis to remove the additional variable O&M costs and include the  
14 estimated capacity value as calculated and presented in Table 1 of Witness Verderame’s  
15 Rebuttal Testimony. Table 1 below provides the results of the updated analysis for East  
16 Bend.

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<sup>13</sup> Witness Verderame Rebuttal, Table 1 at 10.

**CASE NO. 2024-00152**  
**REBUTTAL TESTIMONY OF CHELSEA HOTALING**

**Table 1. Updated Analysis for East Bend**

<b>Year</b>	<b>Total Revenue</b>	<b>Fuel &amp; O&amp;M</b>	<b>Revenue Less Operating Expense</b>	<b>Estimated Capacity Value at BRA</b>	<b>Capital</b>	<b>Net Operating Revenue</b>
<b>2018</b>	\$94,831,414	\$116,415,366	-\$21,583,953	\$29,332,753	\$9,725,463	-\$1,976,662
<b>2019</b>	\$83,357,503	\$118,128,873	-\$34,771,369	\$25,492,741	\$5,038,504	-\$14,317,132
<b>2020</b>	\$53,790,936	\$97,264,730	-\$43,473,794	\$23,588,125	\$2,885,174	-\$22,770,844
<b>2021</b>	\$86,142,957	\$104,452,716	-\$18,309,759	\$27,268,542	\$2,742,135	\$6,216,647
<b>2022</b>	\$208,639,322	\$126,431,072	\$82,208,250	\$20,105,614	\$1,806,130	\$100,507,734
<b>2023</b>	\$74,807,837	\$132,805,554	-\$57,997,717	\$9,993,335	\$3,682,057	-\$51,686,438
<b>2024 YTD</b>	\$51,639,701	\$83,466,854	-\$31,827,153	\$4,464,847	\$945,140	-\$28,307,445

**Q. WITNESS VERDERAME CRITICIZED THE INCLUSION OF CAPITAL**

**EXPENDITURES IN YOUR ANALYSIS. WHY DID YOU NOT REMOVE THE CAPITAL EXPENDITURES FROM YOUR UPDATED ANALYSIS?**

A. Witness Verderame said, “If an analysis were to be used to determine if a unit should be retired as her analysis implies, it should be done with projected costs, not past or sunk costs, since the question being asked is what costs and revenues go away if a unit were to be retired.”<sup>14</sup> I agree that sunk costs should not be included when attempting to determine a unit’s economically optimal retirement timeline. But I did not offer an analysis purporting to answer that question, and Witness Verderame misunderstands or misrepresents my testimony in this regard. My earlier analysis did not attempt to support a decision on whether or when to retire East Bend, and for purposes of my historical analysis, I did not remove the capital expenditures.

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<sup>14</sup> Witness Verderame Rebuttal at 11.

**CASE NO. 2024-00152**  
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1 **Q. HOW DO YOU RESPOND TO WITNESS VERDERAME’S CLAIM THAT YOU**  
2 **IMPLY “THIS BACKWARD-LOOKING ANALYSIS SHOULD SOMEHOW**  
3 **INFLUENCE THE FUTURE DISPOSITION DECISIONS OF EAST BEND”?**<sup>15</sup>

4 A. I deny that my Direct Testimony makes any such implication. Witness Verderame asserts  
5 that I ignored the entire IRP process in favor of the analysis presented in my Direct  
6 Testimony, but he is mistaken. The analysis presented in my Direct Testimony is not a  
7 retirement analysis. The inclusion of the analysis in my Direct Testimony was to get a sense  
8 of the historical financial operation of East Bend. A decision on a resource retirement is  
9 appropriate for a robust IRP process where retirement scenarios can be evaluated against  
10 scenarios with the unit continuing to operate or in a CPCN that gives adequate consideration  
11 of alternatives. In that scenario, it would be important to evaluate the prospective avoidable  
12 costs of the unit, such as prospective fixed and significant capital investment and compare  
13 that to the all in costs of alternatives.

**IV. CONCLUSION**

14  
15 **Q. OVERALL, WHAT ARE YOUR RECOMMENDATIONS TO THE COMMISSION**  
16 **IN THIS PROCEEDING?**

17 A. On the basis of the analyses provided to date, the Commission should deny the CPCN and  
18 direct Duke to provide more fulsome analysis of potentially cost-effective alternatives,  
19 including at least the East Bend operational pathways evaluated in the 2024 IRP.

20 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

21 A. Yes.

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<sup>15</sup> Witness Verderame Rebuttal at 10.

**CASE NO. 2024-00152  
REBUTTAL TESTIMONY OF CHELSEA HOTALING**

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**AFFIDAVIT OF CHELSEA HOTALING  
IN SUPPORT OF REBUTTAL TESTIMONY  
ON BEHALF OF SIERRA CLUB**

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**COMMONWEALTH OF )  
KENTUCKY )**

*Chelsea Hotaling*  
\_\_\_\_\_  
Chelsea Hotaling

SUBSCRIBED, ACKNOWLEDGED, AND SWORN to before me by Chelsea Hotaling  
this 6th day of December, 2024.

<b>TANIKA MICHELLE CULLUM</b> Notary Public, State of New York Registration No. 01CU0021104 Qualified in Nassau County Commission Expires Feb. 13, 2028
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Notarized Online with NotaryLive.com

*Tanika Michelle Cullum*  
\_\_\_\_\_  
Notary Public

Notary ID No.: 01CU0021104

My Commission expires: **02/13/2028**

