COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

The 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	)	Case No. 2024-00152

PUBLIC REBUTTAL TESTIMONY OF

JOHN A. VERDERAME

ON BEHALF OF

DUKE ENERGY KENTUCKY, INC.

November 27, 2024

TABLE OF CONTENTS

PAGE

I. INTRODUCTION AND PURPOSE 1

II. DISCUSSION 2

A. Summary of Lime Supply Negotiations 2
B. Response To Ms. Hotaling's Testimony 7
C. Response to Dr. Sahu's Testimony 16

III. CONCLUSION 22

I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is John A. Verderame, and my business address is 525 South Tryon Street, Charlotte, North Carolina 28202.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Duke Energy Progress, LLC (Duke Energy Progress), as Vice President, Fuels & Systems Optimization for Duke Energy Corporation (Duke Energy). Duke Energy Progress is a public utility that is an affiliate of Duke Energy Ohio, Inc. (Duke Energy Ohio or the Company), both of which are subsidiaries of Duke Energy Corporation (Duke Energy).

Q. ARE YOU THE SAME JOHN A. VERDERAME THAT FILED DIRECT AND SUPPLEMENTAL DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY IN THIS PROCEEDINGS?

A. The purpose of my rebuttal testimony is to address specific recommendations and claims made by the Sierra Club in the Direct Testimonies of their witnesses, Dr. Ranajit Sahu and Chelsea Hotaling and explain why the Company's Limestone Conversion proposal is in the best interests of customers and should be approved.

II. DISCUSSION

A. Summary of Lime Supply Negotiations

Q. PLEASE PROVIDE A BRIEF STATUS UPDATE OF THE COMPANY'S CURRENT LIME REAGENT CONTRACT AND POTENTIAL FOR A NEW LIME SUPPLY?

A. As I stated in my Supplemental Direct Testimony submitted on November 1, 2024, the Company's current contract was executed through a public Request for Proposal (RFP) issued in 2023 for the MEL product. As I explained in my Direct Testimony, the Company received [redacted] bids for the requested and complying product. However, [redacted] As a result of that RFP, in 2023, the Company reached an interim agreement, but at more than double the price of the prior two-year contract. The Company attempted to negotiate a longer-term supply contract at a more reasonable price, but at that time, the supplier was unwilling to do so, citing market prices and demand from other industries, including steel production and lithium battery production, as the primary driver for its cost increases and unwillingness to enter into a longer-term arrangement.

Then, sometime in early September 2024, the current MEL supplier became aware of the Company's CPCN application to convert to a limestone-based reagent handling process and, on its own, contacted Duke Energy Kentucky, indicated that it was now willing to consider the possibility of a longer-term MEL supply contract and potentially more competitive pricing options. As a result, the Company agreed to meet with the supplier on several occasions, in person and via telephone, in an attempt to negotiate a longer term, reasonably priced alternative. As a result of these discussions, the supplier was willing to [redacted]

As I explained in my supplemental direct testimony, the Company believes that a [redacted] agreement may not adequately protect customers from the risks that prompted the CPCN filing:

- This [redacted] MEL contract does not negate the continued fuel security risk stemming from the scarcity of the MEL product required to operate the WFGD for the life of the plant.
- Customers would remain at risk for future, and potentially significant price escalations due to a potential lack of a competitive market when the agreement comes up for renewal.

- This lack of availability may be further exacerbated by pending environmental regulations affecting lime manufacturing plants.[1]
- If the supplier ceases operations and the Company is still unable to find a new supplier, East Bend is at risk for non-compliance, early shut down and customers would be exposed to market prices for replacement until a firm supply of generation is built, acquired, or contracted for.

Q. WHY IS IT NOT REASONABLE FOR THE COMPANY TO ENTER INTO THE PROPOSED MEL AGREEMENT AND FILE ITS CPCN TO CONVERT TO LIMESTONE WFGD AT A LATER DATE IF NECESSARY?

A. This delay is not a reasonable option for several reasons. First, as discussed in witness Donner's supplemental direct testimony, should the CPCN be denied there are new Mercury Air Toxics Standards (MATS) regulations effective July 2027 that would need to be addressed for East Bend to remain operational that would otherwise be provided as co-benefits of the limestone conversion. Second, one must consider the age of East Bend and its likely remaining operational life. Based upon current environmental regulations, and as discussed in the Company's IRP, the most recent update to the Clean Air Act dictates that East Bend must retire or convert to natural gas co-firing (dual fuel) or full natural gas burning by 2030. And under a dual fuel (coal and natural gas cofiring) scenario, East Bend would still have to retire by the end of 2038. Finally, the cost of the Limestone Conversion is

[1] www.epa.gov/stationary-sources-air-pollution/lime-manufacturing-plants-national-emission-standards-hazardous

likely to increase in the future due to supply chain tightening, construction costs and simple inflation. These three factors, additional new environmental regulations, approaching unit end of life and construction cost increases would make a Limestone Conversion a potentially more costly strategy for customers five years from now. The rate impact to customers five years from now could be significant as there would be fewer years over which to spread the cost of the project for customers.

Q. HAS THE COMPANY UPDATED ITS ANALYSIS OF ALTERNATIVE COMPLIANCE OPTIONS WITH THIS NEW CONTRACT INFORMATION? PLEASE EXPLAIN.

A. Yes. The Company reran its stochastic production cost modeling to capture the projected impacts of the proposed reduction in MEL commodity costs on dispatch costs, native fuel costs, capacity factor and off system sales. Despite the tightened spread between the lime and limestone cases, customers continue to see a net decrease of $10.56/MWh in forecasted dispatch costs in the 2027 through 2029 operating period when operating on limestone. This now represents a 25% decrease from the projected [redacted] cost in the same period when operating on the MEL product under the newly proposed price. Stochastic production cost modeling shows the net reduction in variable operational costs to be approximately 73% or ~$9.95/MWh in reduced dispatch cost. The reduction in dispatch costs continues to result in increased economic dispatch of East Bend into the PJM market and reduced reliance on PJM resources to serve customer demand.

Comparisons of production cost modeling of the two scenarios continue to show on average a 17% increase in capacity factor in the limestone conversion

scenario for the 2027 through 2029 period, which translates to total average additional generation in the limestone case of ~1000 GWh over the three-year period. The limestone conversion still demonstrates that the cost to serve the Duke Energy Kentucky customer load continues to be reduced by an annual average amount of $3.1 million per year in fuel and purchase power, and $11.6 million in reagent costs from 2027 through 2029, with an additional approximate $500 thousand of annual non-native off-system sales margin in the same period, for a total annual savings of $15.2 million per year. The system average fuel rate (exclusive of reagents) in the 2027 through 2029 period is projected to decline $0.75/MWh annually, primarily due to the continued reduction in PJM purchase volumes.

Q. WHAT IS THE IMPACT TO THE COMPANY'S OFF SYSTEM SALES MECHANISM, RIDER PSM?

A. In the Company's updated analysis, the increase in modeled off system sales in the 2027 through 2029 period only see a net increase of 309 GWhs. This results in net revenue from off system sales flattening to an average of approximately $500 thousand per year.

Q. DOES THE ANALYSIS INDICATE THAT THE POSSIBLITY OF A LOWER COST LONGER-TERM CONTRACT WILL OBVIATE THE NEED FOR THIS CPCN?

A. No, it does not. While this proposed contract is more favorable than the previous terms presented by the supplier, the Company still does not believe it represents the best interests of customers over the long-term. As previously stated, the purpose of this Application is to address the risks of price escalations impacting the economics

of East Bend and the risk of a [redacted]. Even with a longer-term contract, there remains the same risks of price uncertainty once the contract term expires and the [redacted] of lime that the Company's application seeks to mitigate. Additionally, should the Company delay the conversion, the costs of converting the unit to limestone is likely to increase making the project more expensive, and is contingent on the supplier continuing to operate or that alternative sources become available. The Company continues to believe that the Limestone conversion remains in the best interests of customers and should be approved.

B. Response To Ms. Hotaling's Testimony

Q. PLEASE SUMMARIZE MS. HOTALING'S TESTIMONY AND RECOMMENDATIONS.

A. Ms. Hotaling describes her testimony as addressing the Company's Application to convert East Bend's Wet Flue Gas Desulfurization (WFGD) process to a limestone-based reagent handling system as well as the Company's 2024 Integrated Resource Plan (IRP) modeling that is the subject of a separate proceeding before the Commission. Through her testimony, Ms. Hotaling makes several allegations, including that the Company failed to take timely and adequate action to secure a lime supply; that East Bend is uneconomic and should be retired; that the Company's analysis of the project and alternatives does not support the CPCN, the Company's IRP analysis does not support the CPCN, and the CPCN is not the least-cost option. She recommends: 1) that the Commission direct the Company to provide more fulsome analysis of potentially cost-effective alternatives, including at least the East Bend operational pathways evaluated in the 2024 IRP; and 2) to the extent that the Company reports that there is not enough time to explore or

implement an alternative option, the Company should be responsible for increased costs of not acting sooner to resolve a reagent supply issue that it has seen coming since early 2020.

Q. PLEASE RESPOND TO MS. HOTALING'S ALLEGATION THAT THE COMPANY HAS NOT TAKEN TIMELY OR NECESSARY ACTION TO ADEQUATELY ADDRESS THE LIME SUPPLY RISKS.

A. In Q1 2020, Duke Energy Kentucky's MEL supplier did provide the Company notice of the operational suspension of its MEL mining operation due to a lack of industry demand for the MEL product. At the same time, the supplier made the commitment to honor its contractual obligations from an alternative affiliated mine. However, due to the chemical composition of the lime from the alternative mine it did require additional chemical processing to meet East Bend's WFGD system specifications. Duke Energy Kentucky has previously provided the Commission an overview of these issues in prior proceedings, including its Environmental Surcharge Report filed in November 2020.[2] Duke Energy Kentucky received official notification of operations at the suppliers MEL mining operation recommencing in January 2022.

As a result of the suspension in operations, Duke Energy Kentucky has since tested the only other known alternative source of the MEL product as well as tested alternative chemical additives to quicklime to increase potential supply sources to

[2] *See e.g., In re An Electronic Examination By The Public Service Commission Of The Environmental Surcharge Mechanism Of Duke Energy Kentucky, Inc. For The Six-Month Billing Periods Ending November 30, 2020, May 31, 2021, November 30, 2021, November 30, 2022, And May 31, 2023, And The Two-Year Billing Periods Ending May 31, 2020, And May 31, 2022, Case No. 2023-00374,* Response to Staff-DR-01-001 Attachment 34 (January 31, 2024); *See also* Duke Energy Kentucky Environmental Surcharge Report for October 2020, submitted to the Commission November 20, 2020.

meet environmental requirements. This testing informed the Company's Alternative 3 - On-Site mixing of a Mag-Lime product outlined in the Application.

Duke Energy Kentucky has received reliable supply and competitive pricing on its lime supply agreements from the current supplier since the 1980's. While Duke Energy Kentucky was aware that inflation was putting upward pressure on commodity prices and that there were limited alternatives for the MEL product it was not until the results of the 2023 RFP were received that the extraordinary MEL product price increase and its impact on East Bend's economic dispatch profile was fully made apparent. Additionally, up and to the point the [redacted], Duke Energy Kentucky had a reasonable expectation of an alternative supply being available.

Q. PLEASE RESPOND TO MS. HOTALING'S ALLEGATION THAT EAST BEND IS UNECONOMIC.

A. Ms. Hotaling bases her conclusion that East Bend is uneconomic on the analysis she conducted in Confidential Table 2 of her direct testimony.[3] Through her analysis, Ms. Hotaling appears to treat East Bend as a merchant power plant and solely judges a unit's value on its immediate contribution to the bottom line. Although the result of her backward-looking analysis shows that revenues for East Bend do not exceed its fixed and operating expenses, she ignores the immediate value of East Bend's existing capacity in an increasingly constrained PJM capacity market. PJM currently projects scenarios that have severely inadequate reserve margins by 2030,[4] this would indicate an increasing value for East Bend capacity

[3] Hotaling at 6

[4] https://www.pjm.com/-/media/library/reports-notices/special-reports/2023/energy-transition-in-pjm-resource-retirements-replacements-and-risks.ashx

during the period analyzed in the CPNC analysis. For example, the 2025/2026 PJM Base Residual Auction (BRA) cleared at $269.92/MW-Day, the highest cleared value in PJM history[5], while the current bilaterial capacity price of future auctions is approximately $250/MW-Day or an approximate value [redacted] If Table 2 were to be constructed in such a way that includes East Bend's estimated capacity value based on the PJM BRA cleared price, it should include the associated dollars as shown in Table 1 below.

Table 1

	Energy Market Revenue	Ancillary Services Revenue	Capacity Revenue	Total Operating Revenue	Fuel Cost	Total O&M Cost (East Bend Coal)	Expense (Excluding Depreciation & Amortization)	Estimated Capacity Value at BRA Cleared Capacity Price	Net Operating Revenue
2018	89,368,124.81	3,436,491.00	2,026,798.00	94,831,413.81	57,890,072.98	58,525,293.48	116,415,366.46	29,332,753.54	7,748,800.89
2019	80,764,631.29	2,592,872.00	-	83,357,503.29	67,767,903.48	50,360,969.13	118,128,872.61	25,492,740.63	(9,278,628.69)
2020	51,214,367.96	2,576,568.00	-	53,790,935.96	50,256,154.57	47,008,575.71	97,264,730.28	23,588,125.00	(19,885,669.32)
2021	83,491,680.95	2,651,276.00	-	86,142,956.95	54,171,470.37	50,281,245.75	104,452,716.12	27,268,541.67	8,958,782.50
2022	203,779,804.00	3,322,283.00	1,537,235.00	208,639,322.00	79,902,242.78	46,528,829.57	126,431,072.35	20,105,614.38	102,313,864.03
2023	70,944,881.48	2,562,808.00	1,300,148.00	74,807,837.48	85,370,908.00	47,434,646.17	132,805,554.17	9,993,335.00	(48,004,381.69)
YTD 2024	49,872,146.87	1,614,514.00	153,040.00	51,639,700.87	53,561,266.98	29,905,586.58	83,466,853.56	4,464,847.29	(27,362,305.40)
	629,435,637.36	18,756,812.00	5,017,221.00	653,209,670.36	448,920,019.16	330,045,146.40	778,965,165.56	140,245,957.51	14,490,462.31

Additionally, Ms. Hotaling's analysis appears to ignore the Company's entire IRP process by implying that this backward-looking analysis should somehow influence the future disposition decisions of East Bend. Duke Energy Kentucky plans for the generation to meet its customers energy needs through its IRP process. This process includes a robust analysis of different scenarios in reaching a plan that best serves its customers future energy and capacity needs in a reliable and cost-effective manner.

[5] https://pjm.com/-/media/markets-ops/rpm/rpm-auction-info/2025-2026/2025-2026-base-residual-auction-report.ashx

Finally, Duke Energy Kentucky found some basic inaccuracies in Ms. Hotaling's analysis. First, the Total Costs shown by Ms. Hotaling in Table 2 included a summation of the fuel costs, O&M, and levelized capital expenses. Ms. Hotaling, states that she used the information related to the expenses associated with the WFGD operating costs provided by the Company[6] and added it to the total O&M cost provided. She did this, despite Duke Energy Kentucky stating that "Duke Energy Kentucky does not track Fixed and Non-fuel variable O&M Costs separately."[7] Therefore, the WFGD operating costs are already embedded in the total O&M expense. Doing so clearly overstates the total O&M expense by the amount of WFDG operating costs, or approximately $16M annually.[8] Similarly, her Confidential Table 2 also includes sunk capital costs. 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.

Q. PLEASE RESPOND TO MS. HOTALING'S CLAIM THAT THE ANALYSIS DOES NOT SUPPORT APPROVAL OF THE CPCN.

A. Duke Energy Kentucky's CPCN analysis focused on which of the three potential environmental reagent alternatives provided the most immediate cost-effective option to 1) maintain the on-going economic viability of East Bend, 2) continue to meet the Company's PJM capacity obligations and 3) protect the Company's customers from increasing volatile PJM capacity and energy costs. The Company's analysis was conducted using the PowerSimm stochastic modeling software as this

[6] Hotaling at 5
[7] Duke Response to Sierra Club DR-01-004 Attachment 1
[8] Duke Response to Sierra Club DR-01-039

is the same model used by the Company to forecast East Bend's position and costs over the mid-term planning horizon i.e., next month through the next five years. Therefore, the Company found it to be the most reasonable model to use in evaluating the alternative impacts to the Company's FAC and ESM on a similar five-year time horizon. As for the difference in project costs highlighted by Ms. Hotaling, as discussed in Mr. Kalemba's rebuttal testimony, the August 2023 IRP analysis utilized the best available information at the time the forecast was developed. Since that time, the Company has continued to refine its costs including contingencies and provided a full cost estimate break-down in its Application. To be conservative, the Company used the higher cost estimate including contingencies and escalations as the basis for the customer rate impact calculations sponsored by Company witness Sarah E. Lawler in her direct testimony.

As discussed in my direct and supplemental testimonies, the analysis of the Limestone conversion project supports approval of the CPCN through increased economic dispatch of East Bend effectively reducing customers' purchase power expense, providing increased opportunities for non-native revenues which are shared with customers through the Profit Sharing Mechanism (PSM) and by avoiding potential extremely costly capacity performance penalties and/or purchases should East Bend become unable to run due to a re-emergent lack of MEL supply. Finally, the Limestone conversion project is the only alternative that, in the near term, lowers East Bend's dispatch cost effectively increasing its economic dispatch, while also addressing the fuel security risk inherent with a [redacted] and providing the additional co-benefit of avoiding

additional investment in environmental compliance upgrades needed to meet MATS compliance on time in 2027.

Q. PLEASE BRIEFLY DISCUSS HOW THIS LIMESTONE CONVERSION PROJECT WILL HELP THE COMPANY MEET NEW MATS COMPLIANCE REQUIREMENTS.

A. While MATS compliance was not a primary driver of the need for the conversion to a limestone handling project, the conversion has the additional benefit of allowing the Company to meet new MATS standards that come into effect in 2027. More specifically, the new absorber spray headers and recirculation pumps needed as part of this conversion will increase the flow of absorber slurry and improve its distribution to improve the ability to scrub particulates out of the flue gas. This improvement will allow the Company to comply with the new MATs requirements that were finalized in May 2024, without an additional or separate project. Without the limestone conversion project, a separate environmental compliance project will need to be completed by the mid-2027 compliance deadline to meet MATs. If the Company cannot meet MATs in time, East Bend will be unable to operate in compliance and customers will be exposed to additional purchased power costs. In addition to the other reasons for the Limestone Conversion described in the Company's Application and testimony, the conversion also provides the quickest and easiest path to comply with MATs.

Q. PLEASE RESPOND TO MS. HOTALING'S CLAIM THAT THE COMPANY'S 2024 IRP DOES NOT SUPPORT THE LIMESTONE CONVERSION CPCN.

A. Ms. Hotaling's claim is centered on the fact that the limestone conversion is included as a base assumption in the 2024 IRP. As discussed above, the Company's analysis focused on determining the most cost-effective solution to the immediate issue of reagent cost and availability in order to maintain East Bend's reliability for the benefit of customers. Based on the information known at the time the forecasts and assumptions were developed for the IRP, as explained by Mr. Kalemba in his rebuttal testimony, it was reasonable for the 2024 IRP to assume the limestone conversion in its base planning assumptions for East Bend.

Q. PLEASE RESPOND TO MS. HOTALING'S CLAIM THAT THE CPCN IS NOT THE LEAST-COST ALTERNATIVE.

A. Ms. Hotaling's claim appears to be solely based on the fact that the alternatives reviewed by the Company to address the immediate issue of reagent cost and availability did not include the cost of replacing or converting East Bend to natural gas.[9] As Ms. Hotaling notes in her testimony[10], the Company's Application for the Limestone Conversion Project focused on the cost effectiveness and risk mitigation of the alternatives that addressed that immediate reagent supply and cost issues. Meanwhile, Duke Energy Kentucky's IRP provided the "robust analysis of East Bend configuration and retirement alternatives"[11] as discussed in Mr. Kalemba's rebuttal testimony.

[9] Hotaling at 11
[10] Id.
[11] Kalemba at 10

Q. PLEASE RESPOND TO MS. HOTALING'S RECOMMENDATION THAT THE COMMISSION DIRECT THE COMPANY TO PROVIDE MORE FULSOME ANALYSIS OF POTENTIALLY COST-EFFECTIVE ALTERNATIVES, INCLUDING AT LEAST THE EAST BEND OPERATIONAL PATHWAYS EVALUATED IN THE 2024 IRP

A. I do not believe additional analysis is needed. The Company has provided updated cost benefit analysis and discovery responses reflecting the updated supply offer and continues to consider the limestone conversion alternative to be in the best interest of customers and consistent with Kentucky's energy policy. As for the additional resource planning analysis recommended by Ms. Hotaling, Mr. Kalemba provides a detailed discussion in his rebuttal testimony as to why this would not lead to additional meaningful information in this docket[12].

Q. PLEASE RESPOND TO MS. HOTALING'S RECOMMENDATION THAT TO THE EXTENT THAT THE COMPANY REPORTS THAT THERE IS NOT ENOUGH TIME TO EXPLORE OR IMPLEMENT AN ALTERNATIVE OPTION, THE COMPANY SHOULD BE RESPONSIBLE FOR INCREASED COSTS OF NOT ACTING SOONER TO RESOLVE A REAGENT SUPPLY ISSUE THAT IT HAS SEEN COMING SINCE EARLY 2020.

A. Ms. Hotaling's recommendation is based solely on speculation. As I have discussed in my direct, supplemental direct and rebuttal testimony the Company has taken and continues to take all reasonable actions to ensure reliable competitively priced reagent supply for East Bend station. Should the Commission deny this CPCN

[12] Kalemba at 11

application, East Bend would remain on MEL [redacted] And customers will continue to bear the risks they do today of future price increases and supply scarcity and will miss the opportunity for the anticipated efficiency gains.

C. RESPONSE TO DR. SAHU'S TESTIMONY

Q. PLEASE SUMMARIZE DR. SAHU'S TESTIMONY AND RECOMMENDATIONS.

A. Dr. Sahu describes the purpose of his testimony as to analyze the Company's Application and specifically, whether the Company adequately examined the "status quo alternative"- namely whether the Company should continue to operate East Bend using the lime-based reagent handling system. Dr. Sahu is critical of the Company for not seeking a long-term contract with its existing supplier. He bases his claim on the fact that the Company's initial RFP for lime supply in 2023 only sought a two year contract.[13] Dr Sahu then posits that the Company's RPF itself was "one-sided" and "in favor of Duke."[14] Dr. Sahu supports his claim that the RFP itself was deficient because following the filing of this Application in this case, the lime supplier approached the Company with a potential long-term supply contract, and in his words, "suggests that had Duke drafted the Request for Proposals to actually seek long-term contracts for quicklime, it would have received offers that…continued the status quo."[15] Dr. Sahu postulates that the fact that the supplier made an offer for a longer-term contract, could obviate the need for this project,

[13] Sahu Direct at 9.
[1414]Sahu at 10.
[15] Sahu at 11

change the Company's integrated resource plan conclusions by negating analysis that supported East Bend's dual fuel conversion strategy and allow for East Bend to retire sooner and replace it with a combined-cycle natural gas generator.[16] Finally, Dr. Sahu concludes that he did not have sufficient information to evaluate the Company's Application because the Company had not yet provided information on the potential new lime supply contract at the time that was under negotiation at the time his testimony was submitted.

Q. DO YOU AGREE WITH DR. SAHU'S CRITICISM THAT THE COMPANY DID NOT ADEQUATELY EXAMINE THE "STATUS QUO ALTERNATIVE?" PLEASE EXPLAIN.

A. No. The entire basis for Dr. Sahu's criticism of the Company's examination of the "status quo alternative" appears to assume that if the Company's initial RFP would have explicitly sought a longer-term supply, the RFP response from suppliers would have been different. Dr. Sahu's premise is baseless. While the RFP requested a term of two years, Section 3.9 of the RFP[17] expressly allows the Company the discretion to expand that the two-year term, and that the RFP was meant to establish an opening basis for negotiations for price, terms, and conditions for the supply. In other words, the RFP made clear that the two-year term was by no means an absolute term limitation.

[redacted]

[16] Sahu at 11-13.
[17] Sierra-DR-01-007(a) Confidential Attachment 1 (provided Oct. 4, 2024)

Regardless of the RFP's stated term, the specialized nature of the existing MEL WFGD process combined with lack of a functioning competitive market for the MEL product placed and will continue to place, the Company at a significant disadvantage in its pricing negotiations.

Q. DID THE COMPANY SEEK A LIME REAGENT CONTRACT DURATION LONGER THAN TWO YEARS INITIALLY AS PART OF THE INITIAL RFP AND SUBSEQUENT NEGOTIATIONS?

A. Yes. Since the end of the 5th Amendment on June 30, 2023, Duke Energy Kentucky has actively attempted to negotiate a more competitively priced MEL supply contract, including offering a longer-term supply contract, at lengths greater than two years with its MEL supplier. As I previously testified, the supplier was unwilling to engage in these discussions.

Q. PLEASE RESPOND TO DR. SAHU'S CRITICISM THAT THE COMPANY'S RPF WAS ONE-SIDED.

A**.** Firstly, Dr. Sahu is ill-informed on supplier responsiveness to non-minimum requirement contracts. As it stands, Duke Energy currently has thirty-six (36) active reagent contracts across its generation fleet, none of which have minimum required volumes. For years, Duke Energy Kentucky has executed a successful reagent procurement strategy that is designed to assure a reliable and consistent supply of reagents for our coal generating station at an economic price. Duke Energy structures its RFPs to lead to constructive customer cost outcomes as these costs are a direct pass through to customers. As Dr. Sahu notes "the request states that [redacted]. What

[18] Sahu at 10

Dr. Sahu fails to note is that in the RFP is an Estimated Annual Volume for each reagent being requested based on recent station requirements. This provides bidders with a reasonable estimate of the station requirements that would need to be provided over the proposal term. Finally, instead of committing to minimum volumes, the Company typically negotiates [redacted]. Doing so benefits the Company's customers by guaranteeing that the Company only incurs a contractual obligation for its actual supply need regardless of volatility in energy market economics and demand.

Q. PLEASE EXPLAIN WHAT LED THE CURRENT SUPPLIER TO NOW OFFER A SUPPLY CONTRACT LONGER THAN TWO YEARS.

A. After Duke Energy Kentucky filed its Application in this proceeding, the Company's MEL supplier become aware of the Company's CPCN application to convert to a limestone-based reagent handling process. The supplier contacted Duke Energy Kentucky in early September and indicated that it was willing to reconsider the possibility of a longer-term MEL supply contract and potentially more competitive pricing options. In late October, the Company and supplier were able to reach an agreement in principle on commercial terms as outlined below, but final terms and conditions have not yet been executed.

Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF THE CURRENT CONTRACT OFFER.

A. [redacted]

Q. DO YOU AGREE WITH DR. SHAU'S POSITION THAT A LONGER-TERM CONTRACT NEGATE THE NEED FOR THE LIMESTONE CONVERSION[19]?

A. No. As I noted in my Supplemental testimony, while the proposed contract is more favorable than the previous terms presented by the supplier, there remains a significant fuel security and scarcity risk with exposure to a [redacted] The lack of a functioning competitive market for the MEL product will continue to place the Company at a significant disadvantage in its pricing negotiations and will increase the risks of: 1) fuel security with a [redacted] of the reagent; 2) unit economics in the market; 3) reduced capacity factors; and 4) environmental non-compliance. All of which translates directly to increased customer exposure to volatile PJM capacity and energy costs.

[19] Sahu at 11

Q. DOES THE EXISTENCE OF A POTENTIAL LONGER-TERM LIME SUPPLY CONTRACT SOMEHOW INVALIDATE THE COMPANY'S IRP ANALYSIS? PLEASE EXPLAIN.

A. No. Duke Energy Kentucky maintains that its IRP provides a robust analysis of East Bend configuration and retirement alternatives. The potential change in near-term reagent cost assumptions does not invalidate the Company's long-term IRP analysis as explained by Mr. Kalemba in his rebuttal testimony.

Q. PLEASE RESPOND TO DR. SAHU'S REQUEST TO SUPPLEMENT TESTIMONY.

A. As discussed above, I do not believe additional testimony or analysis is needed. The Company has updated its discovery responses to reflect the existence of the updated supply offer, and it does not negate the need for this conversion. This offer, while admittedly does improve the economics of the unit if it continues to use the MEL product for a period longer than the last contract term, still leaves customers with significant exposure to significant price increases and compliance risks because:

1) the contract term does not run to the plant's end of life

2) the contract would need to be renegotiated following the end of its term

3) there remains a risk that if the supplier cannot fulfill its end of the contract, that the Company will be unable to secure a replacement lime supply.

Additionally, the Company would see co-benefits from the limestone conversion avoiding additional investment in environmental compliance upgrades to meet MATS. For these reasons, the Company continues to consider the limestone conversion to be in the best interests of customers; allows East Bend to continue operating as a coal-fired unit, consistent with Kentucky's energy policy.

Q. PLEASE EXPLAIN WHAT THE COMPANY WILL DO IF THE COMMISSION DENIES THIS CPCN APPLICATION.

A. As discussed above, should the Commission deny this CPCN application, East Bend would remain on MEL [redacted] Additionally, as discussed in witness Donner's supplemental direct testimony, should the CPCN be denied there are new MATs regulations effective July 2027 that would need to be addressed for East Bend to remain operational that would otherwise be provided as co-benefits of the limestone conversion.

III. CONCLUSION

Q. DOES THIS CONCLUDE YOUR PRE-FILED REBUTTAL TESTIMONY?

A. Yes.

VERIFICATION

STATE OF NORTH CAROLINA)
) **SS:**
COUNTY OF MECKLENBURG)

The undersigned, John A. Verderame VP Fuels and Systems Optimization, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing rebuttal testimony and that it is true and correct to the best of his knowledge, information and belief.

John A. Verderame Affiant

Subscribed and sworn to before me by John A. Verderame on this 20th day of November 2024.

NOTARY PUBLIC

My Commission Expires:

SHAMELL M WILSON
My Comm. Expires
NOTARY PUBLIC
July 06, 2026
MECKLENBURG COUNTY, NC