

**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)
)
)
)**

Case No. 2024-00152

**PUBLIC REBUTTAL TESTIMONY OF
RANAJIT SAHU**

ON BEHALF OF SIERRA CLUB

December 6, 2024

**REBUTTAL TESTIMONY OF RANAJIT SAHU
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LIST OF EXHIBITS

RS-2 U.S. Environmental Protection Agency, List of Units that May Need Updated
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I. INTRODUCTION

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Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Dr. Ranajit Sahu, and my business address is 311 North Story Place, Alhambra, California 91801.

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

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

II. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to address issues raised by (1) Duke’s supplemental discovery responses regarding its negotiations around a long-term supply contract for the quicklime reagent currently used in the East Bend plant’s flue gas desulfurization scrubber system; and (2) the rebuttal testimony of Duke witnesses Matthew Kalemba and John Verderame filed in this docket on November 27, 2024.

Q. ARE YOU PROVIDING ANY EXHIBITS WITH THIS TESTIMONY.

A. Yes, I am including one exhibit, marked RS-2, and reflecting the U.S. Environmental Protection Agency’s (“EPA”) identification of units that may need to update controls to meet the updated MATS Rule.

Q. WERE THESE EXHIBITS PREPARED BY YOU OR UNDER YOUR DIRECTION OR SUPERVISION?

A. Yes.

III. DISCUSSION

A. There Are Reasonable Alternatives That The Company Still Has Not Evaluated Despite Having A Longer-Term Supply Option Available.

Q. Based on the newly available information, do you continue to think that there are reasonable alternatives to the proposed limestone conversion project at East Bend that the Company has not fully evaluated?

A. Yes. Specifically, the timespan of the new offer opens up the feasibility of at least two alternatives to the Scrubber Conversion Project—the full conversion of the East Bend Plant to natural gas or the construction of a new combined cycle plant. Under the new MEL scrubber reagent offer, Duke has a guaranteed supply of quicklime for [REDACTED]

[REDACTED]

This provides [REDACTED] for Duke to evaluate reasonable alternatives, such as converting the unit to gas firing. [REDACTED] in my experience, is sufficient time to plan and complete the conversion of the unit to gas firing. In addition, [REDACTED] is also enough time to install gas-fired combined cycle units to generate the electrical power being supplied by the coal unit.

Either way, this additional [REDACTED] time period of stable MEL supply provides Duke with sufficient time to evaluate and install reasonable alternatives that could be operational by mid-2030.

B. The Updated MATS Standards Do Not Create a Need for the Conversion Project and Do Not Show that the Conversion Project is Reasonable.

Q. Can you briefly summarize the requirements under the updated MATS standards?

A. In May 2024, the EPA updated its mercury and air toxics standards (“MATS”), which set technology-based limits on the emission of particulate matter (“PM”), as well as mercury and

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1 other hazardous air pollutants such as arsenic and lead from electric generating units with a
2 capacity of greater than 25 megawatts. The latest revisions to the MATS standards, among
3 other limits, reduce PM limits from the previous 0.03 lb/MMBtu to 0.01 lb/MMBtu starting
4 in July 2027. PM is a surrogate for a number of metals that are emitted from coal
5 combustion.

6 **Q. Did EPA identify which plants are expected to need capital upgrades to comply with the**
7 **MATS rule?**

8 A. Yes. EPA provided a table that accompanied the final MATS rule which summarizes the
9 electric generating units expected to need to upgrade existing controls to meet the final
10 revised standards. EPA anticipates 33 coal-fired electric generating units would need to
11 improve or upgrade their filterable particulate matter (fPM) control technology in order to
12 meet the finalized limit of 0.010 lb/MMBtu. Importantly, there are only two plants in
13 Kentucky on the list—D.B. Wilson and Mill Creek; the East Bend unit is not identified as a
14 facility that would need to upgrade its existing controls to comply. See Exhibit RS-2 (U.S.
15 EPA, Units that may need to update controls to meet MATS).

16 **Q. What is the new MATS Rule compliance date?**

17 A. The compliance date for the new MATS rule is July 6, 2027 but states can grant a one-year
18 extension.¹

19 **Q. Can you describe the flaws in Duke's implication that the limestone conversion project**
20 **is the optimal MATS compliance pathway.**

¹ Fed Reg. May 7 2024, p. 38592

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1 A. First, I note that Duke’s witnesses have not previously raised the issue of MATS compliance
2 or supposed MATs co-benefit in this proceeding.² In Company Witness Verderame’s
3 Rebuttal Testimony, he now states that “[w]hile MATS compliance was not a primary driver
4 of the need for the conversion to a limestone handling process, the conversion has the
5 additional benefit of allowing the Company to meet new MATS standards that come into
6 effect after 2027.”³ The Company’s new position in support of the limestone conversion
7 project is that converting to limestone will result in MATS compliance as a “co-benefit” but
8 that continuing to use MEL will somehow require additional efforts and costs in order to
9 comply with the MATS requirements beginning in 2027.

10 Second, Duke does not explain why, as a technical matter, continuing to use MEL as
11 opposed to limestone as the scrubber reagent will result in higher PM emissions – thus
12 putting MATS compliance in jeopardy with MEL usage but not limestone usage. The closest
13 Duke gets to any technical explanation is that “this conversion will increase the flow of
14 absorber slurry and improve its distribution to improve the ability to scrub particulates out of
15 the flue gas.”⁴ In support of this statement, Duke offers no estimate or quantification of the
16 PM emissions of the current quick lime process, no quantification of the asserted reduction in
17 PM emissions offered by the limestone conversion project, and no discussion as to whether
18 or how either process compares to the May 2024 MATS limits. Duke has not produced any
19 technical analyses of MATS compliance. Nor does Duke analyze other MATS compliance
20 pathways, leaving the Commission in the dark about the various MATS compliance options.

² Witness Geers’ Direct Testimony provided a brief summary of the MATS rule, noted East Bend’s current compliance with the MATS Rule, and expressed a belief that MATS rule changes may have “only limited impact on East Bend.” Direct Testimony of J. Michael Geers at 4.

³ Rebuttal Testimony of John Verderame at 13.

⁴ Rebuttal Testimony of John Verderame at 13.

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1 At no point in this proceeding does Duke address the cost, efficacy, and time needed for
2 design and implementation of other environmental projects that would be necessary for
3 MATS compliance at East Bend in the absence of Duke’s preferred \$125 million limestone
4 conversion project.

5 Third, Duke provides no detail on how much additional costs it anticipates would be
6 needed for MATS compliance if it keeps using MEL, but could be avoided if the unit is
7 converted to use limestone as the reagent. Without that cost data, the record offers no
8 quantification of the claimed “co-benefit,” and we cannot know whether there truly are any
9 cost savings from the claimed co-benefit. These other MATS compliance pathways could be
10 of a de minimis nature. Given that EPA did not identify this plant as one that would need
11 capital upgrades to comply with the rule, this is a significant oversight.

12 Fourth, by not evaluating reasonable alternatives such as conversion of the unit to natural
13 gas and/or installation of combined cycle gas units, Duke did not evaluate how these
14 alternatives will make MATS compliance a non-issue. Gas combustion, unlike coal
15 combustion, does not result in high levels of PM emissions and therefore MATS compliance
16 would not be an issue because the new MATS PM limit would not apply to units burning
17 natural gas.

18 **Q. In this proceeding, have you seen evidence showing that the Company evaluated**
19 **alternative MATS compliance pathways?**

20 A. No. See above.

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1 **C. The Actions the Company Took to Identify Supply Alternatives Were Inadequate.**

2 **Q. Mr. Verderame’s rebuttal testimony questioned whether your critiques of the Request**
3 **for Proposal (“RFP”) are fair. Do you have a response?**

4 A. Yes. His ad-hominem attack notwithstanding, it is clear from the record that Duke’s RFP for
5 obtaining MEL and its later “negotiating” with the vendor(s) are deficient.

6 First, Duke tries to rehabilitate its position with regards to contract length (i.e., two years
7 was all that was sought in the RFP) by now claiming that there was language in the RFP that
8 allowed for longer time periods, at Duke’s discretion. Duke’s reference to one-sided “fine
9 print” discretion as support in this regard is ludicrous. A plain reading by any responding
10 vendor of the initial RFP would have made clear that Duke only wanted a short-term 2 year
11 contract. And that is exactly what occurred: “The Company was only able to negotiate a
12 two-year contract.”⁵ In fact, the later development of [REDACTED] agreeing to a [REDACTED]
13 [REDACTED] after it became aware of this proceeding demonstrates that Duke’ initial RFP was
14 deficient.

15 Second, since Duke has failed to provide details regarding its latest negotiations with the
16 MEL vendor, the Company has not demonstrated that the vendor would not be willing to
17 agree to a longer supply of MEL. For example, Duke failed to show that while the vendor is
18 agreeable to a [REDACTED], that the vendor would not be amenable to
19 a longer contract at a slightly higher price for years beyond five years.

20 Third, Duke pushes back on my suggestion that a minimum quantity of MEL would
21 provide more certainty to the vendor and therefore a greater likelihood of an equitable
22 contract. Duke states that it does not have minimum quantities in any of its other contracts in

⁵ Duke Response to Sierra Club Request No. 01-041.

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1 order to protect its and its stakeholders’ interests. But the purpose of a minimum quantity
2 contract would be to protect Duke and its customers from costly market fluctuations, whereas
3 the proposed limestone conversion project would saddle its customers with an unnecessary
4 \$125 million project.

5 Fourth, Duke’s position with regards to MEL supply risk is illogical and contradictory.
6 On the one hand, Duke is proposing to move forward with the Limestone Conversion Project
7 because, in Duke’s view, the MEL market is not functioning properly,⁶ and there is a risk
8 that an existing MEL operation might fold at any time.⁷ Yet, in the same breath, Duke
9 acknowledges that it is getting less interest from MEL vendors because of the many other
10 potential customers that these vendors have in other industries – i.e., there is much demand
11 for lime.⁸ Both cannot be true. The existence of significant demand for a product does not
12 itself signal a poorly functioning market, and Duke has offered no evidence on the ability for
13 expanding supply to meet that demand—only speculation.

14 **Q. What do you make of the Company’s outlook for the MEL supply market?**

15 A. Duke assumes a static view of the market rather than a dynamic view of the market, which is
16 illogical. If there is a greater demand for lime because new and emerging technologies are
17 using lime, then there is an incentive for other producers to join the market and an incentive
18 for existing producers to maintain and expand production. The basics of supply and demand
19 mean that if there is a growing demand, we will get new market participants. Duke’s static
20 view of the market is wrong.

⁶ *E.g.*, Rebuttal Testimony of John A. Verderame at 18, 20.

⁷ *E.g.*, Rebuttal Testimony of John A. Verderame at 4 (claiming risk that supplier ceases operation).

⁸ Rebuttal Testimony of John A. Verderame at 2 (explaining that supplier willingness to enter into longer term supply contract impacted by “market prices and demand from other industries, including steel production and lithium battery production.”).

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IV. CONCLUSION

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Q. WHAT ARE YOUR RECOMMENDATIONS TO THE COMMISSION?

A. The Commission should deny Duke’s requested CPCN as insufficiently supported without further analysis. Rather than rushing ahead with a significant capital investment before all potentially reasonable alternatives have been evaluated, it would be more reasonable for Duke to (i) accept the [REDACTED] MEL contract that provides it with the certainty it needs to operate through mid-2030; and (ii) use that time to evaluate reasonable alternatives like full gas conversion, construction of a new combined cycle gas plant or other resource options such as renewables, and implement these so that it is ready to generate electric power using these reasonable alternatives by mid-2030.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

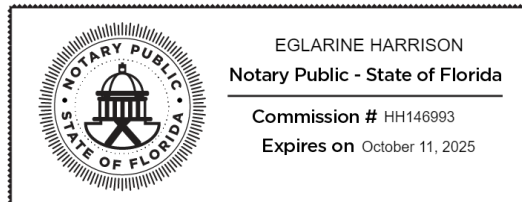
Ranajit Sahu

State of Florida
County of Palm Beach

Sworn to (or affirmed) and subscribed before me by means of online notarization,
this 12/05/2024 by Ranajit Sahu.


Eglarine Harrison

___ Personally Known OR ___ Produced Identification
Type of Identification Produced DRIVER LICENSE



Notarized remotely online using communication technology via Proof.