**KyPSC Case No. 2025-00002**
**TABLE OF CONTENTS**

# VERIFICATION

**STATE OF OHIO** )
)
**COUNTY OF HAMILTON** )

**SS:**

The undersigned, Chad Donner, Principal Engineer, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of his knowledge, information and belief.

Chad Donner Affiant

Subscribed and sworn to before me by Chad Donner on this 21st day of February, 2025.


Adele M. Frisch
NOTARY PUBLIC

My Commission Expires: 1/5/2029

**VERIFICATION**

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

The undersigned, John Verderame, VP Fuels & Systems Optimization, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of his knowledge, information and belief.

John Verderame, Affiant

Subscribed and sworn to before me by John Verderame on this 24th day of FEBRUARY, 2025.

NOTARY PUBLIC

My Commission Expires: Nov. 16, 2027

**VERIFICATION**

**STATE OF INDIANA )**
**) SS:**
**COUNTY OF )**

The undersigned, Julie Walters, Senior EHS Consultant, being duly sworn, deposes and says that she has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of her knowledge, information and belief.

Julie Walters, Affiant

Subscribed and sworn to before me by Julie Walters on this 21st day of February, 2025.

Nathaniel Castillo
Notary Public - State of Indiana
County of Residence: Boone
Commission Number: NP0757650
My Commission Expires: 07-22-2032

NOTARY PUBLIC

My Commission Expires:

07-22-2032

# VERIFICATION

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

The undersigned, Nathan Gagnon, Managing Director IRP & Analytics, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of his knowledge, information and belief.

Nathan Gagnon, Affiant

Subscribed and sworn to before me by Nathan Gagnon on this 21 day of February, 2025.

BRIOSHA QUASHAY DAWKINS
NOTARY PUBLIC
GASTON COUNTY, NC

NOTARY PUBLIC

My Commission Expires: 10/07/2029

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-001**

**REQUEST:**

Please identify any substantive changes in the Application and Testimony filed by Duke in this docket with the corresponding Application and Testimony filed by Duke in Case No. 2024-00152.

**RESPONSE:**

Objection. This request is overly broad, unduly burdensome, and seeks information and analysis that is available to the Sierra Club. Without waiving said objection, and to the extent discoverable, see response to Staff DR-01-003.

**PERSON RESPONSIBLE:** Legal

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-002**

**REQUEST:**

Both Witness Donner, page 9, lines 18–20, and Witness Verderame, page 15, lines 5–9, identify MATS compliance as a benefit of the proposed limestone reagent conversion project. If the most recent MATS standards are rescinded by U.S. EPA, does Duke still intend to go forward with the proposed project? Please explain why or why not.

**RESPONSE:**

Yes, per Witness Verderame's testimony, page 6, lines 12-22 the lack of a competitive market for the MEL product presents a significant risk of further reagent supply cost increases and adversely impacts the competitiveness of the station maintaining the current MEL based WFGD system. In addition, there is a reagent scarcity risk of available MEL possessing the correct chemical content required to continue operating the WFGD placing the continued operation of the station at risk. The MATs compliance aspect of the project is purely a co-benefit to completing the limestone conversion project as many of the same aspects that allow conversion to limestone enhance fine particulate matter removal.

**PERSON RESPONSIBLE:** Chad Donner

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-003**

**REQUEST:**

Please refer to the Direct Testimony of Witness Donner, page 9, lines 18-20, where it states, "Additionally, maintaining the status quo will still result in capital expenditures to comply with MATS without the added benefit of lower on-going reagent operating expenses." Please provide the total capital expenditures required for East Bend to comply with MATs regulations.

**RESPONSE:**

Please reference Witness Donner's Direct Testimony "Attachment CMD-1" where the estimated cost to comply with the MATs regulations alone are separated out from the overall Limestone Conversion project cost.

**PERSON RESPONSIBLE:** Chad Donner

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-004**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 17, lines 3-12. Please provide the cost of the contract, in $/MWH, that Duke agreed to with its MEL supplier.

**RESPONSE:**

In reference to the Direct Testimony of Witness Verderame, page 17, lines 3-12, which discusses capacity, the cost of the contract in $/MWH is not related.

**PERSON RESPONSIBLE:** John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-005**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 17, lines 1-4. Please provide the supporting workbooks, with all formulas and links intact, used to develop the project savings for fuel and purchase power costs, reagent costs, and non-native off-system sales.

**RESPONSE:**

Refer to Confidential Attachment JAV-2, provided with the Direct Testimony of Witness Verderame.

**PERSON RESPONSIBLE:** John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**PUBLIC SIERRA-DR-01-006**
**(As to Attachment (b) only)**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 17, lines 9-19.

a. Please provide the years over which the stochastic production cost modeling was performed.

b. Please provide the supporting workbooks, with all formulas and links intact, that support the stochastic production cost modeling.

**RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachment (b) only)**

a. The stochastic production cost modeling was performed for years 2026 through 2029.

b. Please see SIERRA-DR-01-006(b) Confidential Attachment.

**PERSON RESPONSIBLE:** John Verderame

# CONFIDENTIAL PROPRIETARY TRADE SECRET

# SIERRA-DR-01-006(b)
# CONFIDENTIAL ATTACHMENT

# FILED UNDER SEAL

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-007**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 15, lines 5–9, where it states, "These upgrades have the added benefit of allowing the Company to meet the newly enacted MATS revision with a stricter standard for fPM. Put another way, if the Company did not pursue the Limestone Conversion Project, a significant portion of the conversion work scope would still need to occur to meet this new MATs Rule fPM standard.

a. Please provide the cost of the conversion work scope that would still need to occur to meet the new MATs Rule fPM standard.
b. Please explain if the portion of the conversion work scope would still be required if East Bend was converted to operate 100% on natural gas.

**RESPONSE:**

a. Please reference "Attachment CMD-1" to witness Donner's testimony that separates out the limestone conversion scope that would still be required for MATs compliance and is estimated at approximately $24.8M.
b. Yes, with the MATs compliance deadline of July 2027, that leaves only 2yrs to permit, obtain state/federal approval, design, procure, construct, startup both the boiler conversion and gas pipeline. The ability to convert to 100% natural gas before the MATs compliance deadline is unlikely given that timeline.

**PERSON RESPONSIBLE:** Chad Donner

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**PUBLIC SIERRA-DR-01-008**
**(As to Attachments only)**

**REQUEST:**

Please refer to the Direct Testimony of Witness Gagnon, page 3, lines 3-6.

a. Please provide the EnCompass modeling input and output files for each modeling run performed as part of the 2024 IRP.

b. Please provide the supporting workbooks, with all formulas and links intact, used to develop the Present Value of Revenue Requirements ("PVRR") for each of the modeling runs performed as part of the 2024 IRP.

**RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachments only)**

Objection. This request seeks information that is irrelevant to these proceedings. Without waiving said objection, please see SIERRA-DR-01-003 Confidential Supplemental Attachments provided in Case No. 2024-00197 for the IRP modeling files.

Please see SIERRA-DR-01-008 Confidential Attachments 1 through 3 for projected ongoing capital and O&M spending for existing Duke Energy Kentucky generating units across the 20 cases presented in the 2024 IRP. These costs should be added to the costs that are outputs of the EnCompass modeling to calculate PVRRs. The confidential attachments contain more detailed instructions.

**PERSON RESPONSIBLE:** As to objection, Legal
As to response, Nathan Gagnon

# CONFIDENTIAL PROPRIETARY TRADE SECRET

# SIERRA-DR-01-008
# CONFIDENTIAL ATTACHMENTS 1-3

# FILED UNDER SEAL

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**PUBLIC SIERRA-DR-01-009**

**REQUEST:**

Please refer to the Direct Testimony of Witness Gagnon, page 10, lines 13 – 21, where it states, "At the time that forecasts and assumptions were developed for the IRP (late 2023), the economics of the conversion project were favorable in comparison to the cost of reagents that would be required without the conversion even if the unit were to stop burning coal by 2030." Please provide the economics of the conversion project, including capital and operational costs, that were evaluated at the time forecasts and assumptions were developed for the IRP.

**RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

The preliminary, planning-level cost estimate for the limestone project at the time IRP assumptions were developed was approximately [redacted]. This includes the cost of MATS compliance. If the Company did not complete the limestone project, it was estimated that it would still incur approximately [redacted] in MATS compliance costs. Upon completion of the limestone conversion project at the end of 2026, the Company estimated that VOM savings would amount to approximately [redacted]/MWh at East Bend. Assuming East Bend operated at an average capacity factor of approximately [redacted] from 2027 through 2029, the operating cost savings would offset the cost of the limestone project. This simple assessment does not account for portfolio-level benefits such as reduced net market purchases. For reference, the modeled capacity factors for East Bend

in the preferred portfolio in the 2024 IRP analysis are [redacted] in 2027, [redacted] in 2028, and [redacted] in 2029.

**PERSON RESPONSIBLE:** Nathan Gagnon

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-010**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 5, lines 11-13, and specify the "higher percentage of magnesium oxide" which Duke has actually used in the MEL scrubber, on a monthly basis, for the last 5 years.

**RESPONSE:**

The supply specification for the East Bend flue gas desulfurization magnesium enhanced lime (MEL) supply has a minimum required amount of available magnesium oxide (MgO) of 6.0% and a maximum of 9.0%. The lime supplier is required to meet the contractual obligations of the lime supply contract and the MEL specification.

**PERSON RESPONSIBLE:** Chad Donner

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-011**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 6, lines 1-3, and provide the expenses associated with lime reagent stabilization additives and disposal of the waste sludge, on a monthly basis, for the last 5 years.

**RESPONSE:**

See "East Bend CCR Operations and Maintenance Cost" below for disposal costs and the costs associated with the WSP lime reagent stabilization additives. East Bend landfill operations for the disposal of the waste sludge are based on an annual fixed price O&M contract. The amount of material being hauled to the landfill is expected to go down with the limestone conversion due to the improved dewatering characteristics of the limestone waste sludge, however, the Company has not analyzed the impact as part of the benefits of the project.

## East Bend CCR Operations and Maintenance Cost

### Historical 5 Year Actuals

| Activity | Time Range | Actual Cost |
|---|---|---|
| LHP and LF Management | 09/2019 - 09/2024 | $14,935,420.87 |
| Landfill Temporary Cover | 09/2019 - 09/2024 | $2,609,174.38 |
| Dust Control | 09/2019 - 09/2024 | $1,750,322.73 |
| Minor Maintenance | 09/2019 - 09/2024 | $455,652.60 |
| WSP Lime Cost | 01/2020 - 12/2024 | $12,579,021.00 |

| Total | Annual Avg |
|---|---|
| $32,329,591.58 | $6,465,918.32 |

**PERSON RESPONSIBLE:** Chad Donner

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-012**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 6, line 14. What is the basis of the expected "significant increase of further cost increases."

**RESPONSE:**

As stated in the Direct Testimony of Witness Verderame, the risk of further cost increases is the result of a lack of a competitive market. Currently, there is only one available supplier with whom the Company can transact for the MEL product. Should the Company be unable to secure the appropriate quantity and quality of lime, the station would then be unable to operate the WFGD and therefore would be unable to comply with environmental regulations and be forced offline either temporarily or potentially permanently. Due to the necessity of the reagent for operations, reliance upon one supplier with the capacity to supply the product, significantly reduces any price negotiation leverage with the supplier and leaves the Company in the vulnerable position of potentially having to accept whatever price the supplier deems appropriate.

**PERSON RESPONSIBLE:** John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-013**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 6, line 19. Please specify what is meant by the "correct chemical content."

**RESPONSE:**

As stated in the Direct Testimony of Witness Verderame, Page 5, lines 11-14, the MEL WFGD scrubbing technology depends on a highly specialized version of quicklime containing a higher percentage of magnesium oxide which, when added to the absorber with the lime reagent, dissolves and facilitates high SO2 removal. To further define the correct chemical content, the lime product must have a minimum of 6.0% available MgO as CaO equivalent to work in the scrubber.

**PERSON RESPONSIBLE:** John Verderame
Chad Donner

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-014**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 6, line 21. Please specify what is meant by "reagents."

**RESPONSE:**

In the Direct Testimony of Witness Verderame, page 6, line 21, reagents refer to MEL – Magnesium Enhanced Lime.

**PERSON RESPONSIBLE:** John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**PUBLIC SIERRA-DR-01-015**
**(As to Attachments only)**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 8, lines 4-6. Provide all documents associated with Duke's attempt to negotiate more competitive pricing structures including alternative contract lengths.

**RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachments only)**

Please see SIERRA-DR-01-015 Confidential Attachments 1 through 5. The attachments represent the written negotiations between the parties; however, additional negotiations between the parties were verbal and not documented.

**PERSON RESPONSIBLE:** John Verderame

# CONFIDENTIAL PROPRIETARY TRADE SECRET

# SIERRA-DR-01-015
# CONFIDENTIAL ATTACHMENTS 1-5

# FILED UNDER SEAL

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-016**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 8, line 17. Please provide the names of all members of "My Team."

**RESPONSE:**

Objection. This request seeks information that is irrelevant, not likely to lead to the discovery of any relevant or admissible evidence. Without waiving said objection, and to the extent discoverable, the respective team members are Adam Pritchard, Lead Originator and Kimberly Hughes, Director, Coal Origination.

**PERSON RESPONSIBLE:** As to objection, Legal
As to response, John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**PUBLIC SIERRA-DR-01-017**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 9, line 6. Please provide the name of the "current MEL supplier."

**RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

In reference to the Direct Testimony of Witness Verderame, page 9, line 6, the name of the current MEL supplier is [redacted].

**PERSON RESPONSIBLE:** John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**PUBLIC SIERRA-DR-01-018**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 6, lines 21-23. Please provide all documents pertinent to the "discussions" noted in these lines.

**RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

As referenced in the Direct Testimony of Witness Verderame, page 9, lines 21-23, a meeting at the request of [redacted] was held in Charlotte, NC on September 3, 2024. This was an in-person meeting attended by representatives of Duke Energy and [redacted]. No documents were produced. There were several follow up discussions by telephone to discuss a new transaction for the MEL product to Duke Energy Kentucky.

**PERSON RESPONSIBLE:** John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**PUBLIC SIERRA-DR-01-019**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 10, line 6. What is the "primary source"?

**RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

In the Direct Testimony of Witness Verderame, page 10, line 6, the primary source is [redacted].

**PERSON RESPONSIBLE:** John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**PUBLIC SIERRA-DR-01-020**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 10, lines 7-8. What is the "secondary source"?

**RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

In the Direct Testimony of Witness Verderame, page 10, lines 7-8, the secondary source is [redacted].

**PERSON RESPONSIBLE:** John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-021**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 10, lines 13-14. What is the expected month/year of the "completion of the conversion project"?

**RESPONSE:**

The currently expected in-service date for the limestone conversion is May 2027 ahead of the MATs compliance deadline of July 2027.

**PERSON RESPONSIBLE:** Chad Donner

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-022**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 10, lines 22-23. What is Duke's basis for asserting that there is a "lack of a functioning competitive market"?

**RESPONSE:**

A functioning competitive market is a market in which multiple suppliers of a product are available, and no company has power to dominate the market. Duke Energy's basis for asserting a lack of a functioning competitive market is the lack of supply offers received in response to Duke Energy's Request for Proposal. There is currently only one supplier with the ability to provide the MEL product at the volume and chemical composition required by Duke Energy Kentucky.

**PERSON RESPONSIBLE:** John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-023**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 11, line 23. What is the basis for the statement that "no alternative MEL supplies were available"?

**RESPONSE:**

In response to the Duke Energy Kentucky 2023 Request for Proposal for Lime Products, there were only two potential MEL suppliers that had the volume and correct chemical content to operate East Bend's WFGD. One subsequently withdrew their bid leaving only one possible supplier, with no supply alternatives.

**PERSON RESPONSIBLE:** John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-024**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 13, line 4. Please identify the starting month and year for "some time."

**RESPONSE:**

Initial project discussions and internal stakeholder engagement began in late 2020 and continued until an official preliminary engineering effort was kicked off in February of 2022.

**PERSON RESPONSIBLE:** Chad Donner

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-025**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 13, line 5. Define "complexity."

**RESPONSE:**

Complexity in this context refers to the conversion of a WFGD process initially designed for magnesium enhanced lime-based chemistry and converting it to a limestone-based chemistry. WFGD's initially designed for MEL are typically smaller than their typical limestone WFGD counterparts and therefore require the use of a buffer additive chemical to help enhance the SO2 removal process on limestone. This is in addition to the complexity and need to replace the reagent preparation process in order to grind the required volume of limestone to match the performance of the MEL WFGD.

**PERSON RESPONSIBLE:** Chad Donner

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-026**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 13, lines 10-11. Provide the monthly reagent costs for the last 5 years, or since the time period denoted by "recent years," whichever is longer.

**RESPONSE:**

1/1/2020 – 6/30/2020 - $110.00
7/1/2020 – 6/31/2021 - $115.50
7/1/2021 – 6/30/2022 - $121.28
7/1/2022 – 6/30/2023 - $127.34
7/1/2023 – 6/30/2024 - $280.00
7/1/2024 – 6/30/2025 - $300.00

**PERSON RESPONSIBLE:** John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-027**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 14, lines 7-10. Provide the breakout of the capital costs just associated with "upgrades to East Bend's WFGD" that would be needed to meet MATS compliance regardless of the Limestone Conversion Project.

**RESPONSE:**

Please reference "Attachment CMD-1" to witness Donner's testimony that separates out the limestone conversion scope that would still be required for MATs compliance and is estimated at approximately $24.8M.

**PERSON RESPONSIBLE:** Chad Donner

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**PUBLIC SIERRA-DR-01-028**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 21, lines 17-18. Provide the basis for the assertion that "there was no high calcium quicklime capacity to be found in the market," including the time period of when this search was conducted and how the search was conducted, including contacts with any/all persons.

**RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

After soliciting the market with a Request for Proposal in April 2023, there were two offers to provide the MEL product to East Bend. One offer was from the current supplier, and the second offer was submitted by [redacted]. On May 11, 2023, [redacted] withdrew their bid as they had double committed the tons and were unable to honor their offer.

On May 23, 2023, [redacted] visited Duke Energy facility to communicate their regret in supplying an offer and subsequently withdrawing. They provided the tons had been committed elsewhere as the reason for the withdraw.

From that point through current day, several communications have taken place with [redacted] as well as [redacted] to inquire if a quicklime product has become available. No volume has been available since the Duke Energy Request for Proposal solicited the market in April 2023. Inquiries into quicklime availability have also been made to [redacted].

None of these companies had the capacity to meet the East Bend quicklime demand nor were able to supply the Mag content requirement.

In addition, inquiries were made to a limestone supplier to ascertain the possibility of constructing and operating a lime kiln on their property. The supplier communicated major hurdles with environmental permitting therefore eliminating this potential alternative.

All options to seek alternative sources of high magnesium and standard quicklime have been exhausted with no viable alternatives or options to replace [redacted] as the supplier at this time.

**PERSON RESPONSIBLE:** John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-029**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 21, lines 21-23. Provide the basis for the $95/ton figure cited.

**RESPONSE:**

Please refer to Duke Energy Kentucky Case No. 2024-00152 – Confidential STAFF-DR-01-022.

**PERSON RESPONSIBLE:** John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-030**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 22, line 2. Provide the basis for the 60,000 tons figure.

**RESPONSE:**

In reference to the Direct Testimony of Witness Verderame, page 22, line 2, the 60,000 tons figure refers to the potential amount of quicklime used at the WFGD per year and was provided as an example for usage.

**PERSON RESPONSIBLE:** John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-031**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 24, lines 18-21. Provide the rationale for the "18 months to complete" figure and how that is consistent with the "mid-2026" construction commencement and "Spring 2027" project completion dates.

**RESPONSE:**

"Mid-2026" was meant to reference the construction mobilization that is actually estimated to take place in March 2026 and is expected to complete by May 2027. The "18 months to complete" includes procurement and contracting activities to support construction that cannot be executed until the CPCN is approved.

**PERSON RESPONSIBLE:** Chad Donner

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**PUBLIC SIERRA-DR-01-032**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 26, lines 5-7 and page 10, lines 20-23. Please explain the apparently dramatic MEL market shift from a "lack of industry demand" noted in 2020, to a shortage of supply you now refer to as a "scarcity risk," resulting in "a lack of a functioning competitive market for the MEL product."

**RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

As stated in the Direct Testimony of Witness Verderame Pg 26, Lines 5 – 7: 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 that time, Coal Generation stations located along the Ohio River had started to retire or converted to an alternative limestone reagent, decreasing demand for the MEL product. At the beginning of 2022, [redacted] reopened their [redacted] operation. As coal generation retirements loom, the quicklime suppliers have found alternative markets for their product with increasing demand and price. In addition, there are only two suppliers with quicklime that meet East Bend's chemistry requirements. Of these two, one is the current supplier and the other has no availability.

**PERSON RESPONSIBLE:** John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-033**

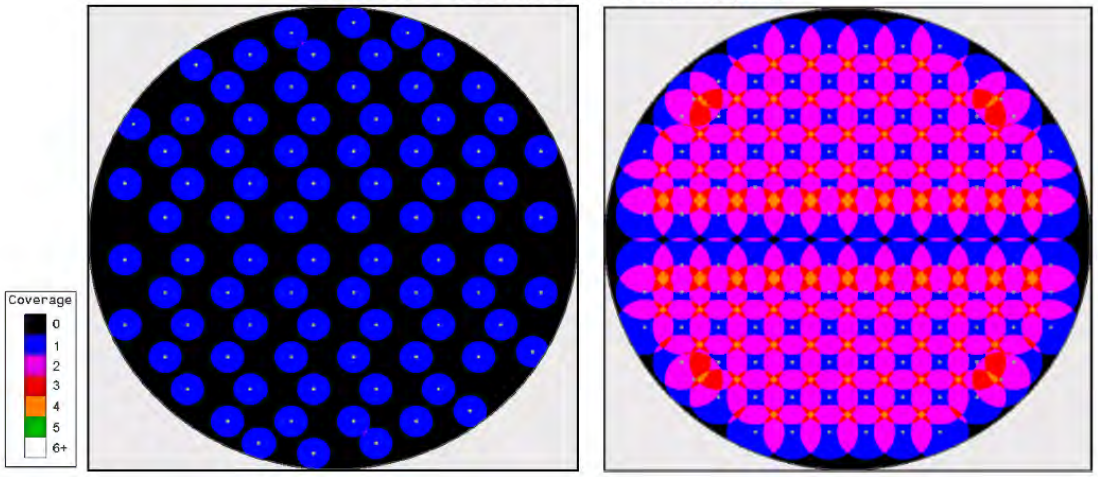
**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 27, line 18. What "co-benefit" would accrue to assist in MATS compliance with the implementation of the Limestone Conversion Project that would not otherwise be possible with the MEL WFGD. Provide each and every such co-benefit, with supporting data.

**RESPONSE:**

Because limestone is a less reactive reagent, more work needs to be put into the process by means of increased liquid to gas ratio and improved spray coverage and overlap. The current maximum liquid to gas (L/G) capability of the existing WFGD is 46 gallons/1000 cu.ft. of treated flue gas and will increase to approximately 62. The number of spray nozzles will increase from 82 90-degree angle nozzles to 124 120-degree angle nozzles. The combination of these two improvements will vastly increase the spray flow and distribution within the absorber tower as seen by the diagram below. The dead zones for fine particulate to freely migrate through the absorber tower can clearly be seen on the left diagram and can be contrasted to the upgraded multiple levels of spray overlap on the diagram to the right. However, with increased absorber recirculation flow, the mist eliminator wash system intensity also has to be upgraded to prevent increased potential of mist eliminator fouling.

**Exhibit 5: Current Versus Proposed Absorber Recycle Spray Pattern**




Existing Spray Coverage
82 Single Hollow Cone nozzles
90-degree spray angle

Proposed Spray Coverage
124 Single Hollow Cone nozzles
120-degree spray angle

**PERSON RESPONSIBLE:** Chad Donner

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-034**

**REQUEST:**

Please refer to the Direct Testimony of Witness Verderame, page 28, lines 2-3. What is the basis of the "supply chain tightening"?

**RESPONSE:**

Per the Direct Testimony of Witness Verderame, page 28, lines 2-3, the potential exists for supply chain tightening, among many other potential cost drivers that would likely increase the cost of the Limestone Conversion in the future. The global supply chain is subject to pressures and constraints on the movement of goods, with factors like high demand, production bottlenecks and geopolitical issues contributing to limited availability and potential price increases.

**PERSON RESPONSIBLE:** John Verderame

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-035**

**REQUEST:**

Please refer to the Direct Testimony of Witness Geers, page 11, lines 6-7.

a. Provide each project associated with "refurbished and upgraded its ESP precipitator."

b. Provide the timing and costs for each such project and its impact on reducing PM emissions from the ESP.

**RESPONSE:**

During maintenance outages, normal maintenance is performed on precipitator components. The last rebuild was done in 2018 for $43M. Each project on the ESP was done to ensure continuous compliance with state and federal rules.

**PERSON RESPONSIBLE:** Julie L. Walters

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-036**

**REQUEST:**

Please refer to the Direct Testimony of Witness Geers, page 11, line 8. Provide the name of the dry sorbent.

**RESPONSE:**

Hydrated lime.

**PERSON RESPONSIBLE:** Julie L. Walters

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-037**

**REQUEST:**

Please refer to the Direct Testimony of Witness Geers, page 11, line 10. Provide the quantity of dry sorbent injected in each of the two locations noted, by day, for the time period beginning July 1, 2021 through June 30, 2023 (i.e., the period covered by the Daily PM data in Exhibit 3.

**RESPONSE:**

There are two screw feeders that feed lime injection at the East Bend. The amount of sorbent inject is dependent on how much SO3 control that is needed. The range of sorbent used can be 0-1,000 lb/hr for the economizer outlet and 0-400 lb/hr for the SCR outlet.

**PERSON RESPONSIBLE:** Julie L. Walters

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-038**

**REQUEST:**

Please refer to the Direct Testimony of Witness Geers, page 15, lines 3-5.

a. Provide details of the upgrades including "replacement of the absorber system," "new spray equipment" and any others.

b. Provide support for how these upgrades will "address the finer particulate created by using limestone-based reagents."

c. Explain whether any such upgrade would be needed to address the "finer particulate created" if the MEL WFGD continued to operate as it does presently.

**RESPONSE:**

Please see Exhibit 5 to the Application.

**PERSON RESPONSIBLE:** Julie L. Walters

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-039**

**REQUEST:**

Please refer to the Direct Testimony of Witness Geers, page 15, lines 8-9. Explain why "a significant portion of the conversion work would still need to occur."

**RESPONSE:**

Please see response to SIERRA-DR-01-033 for a detailed explanation.

**PERSON RESPONSIBLE:** Chad Donner

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-040**

**REQUEST:**

Please refer to the Direct Testimony of Witness Geers, page 15, lines 20-22, stating "This data uses PM CEMS certification procedures specified in the MATS rule, but these procedures will change under the new rule." Please specify which "procedures will change" under the new MATS rule.

**RESPONSE:**

The reduction in the filterable particulate limit will affect the Quality Assurance-Quality Control procedures of the PM CEMS. Refer to the response to SIERRA-DR-01-041.

**PERSON RESPONSIBLE:** Julie L. Walters

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-041**

**REQUEST:**

Please refer to the Direct Testimony of Witness Geers, page 15, lines 20-22, stating "This data uses PM CEMS certification procedures specified in the MATS rule, but these procedures will change under the new rule." Please specify which "procedures will change" under the new MATS rule.

**RESPONSE:**

The reduction in the filterable particulate limit affects the Quality Assurance-Quality Control (QA-QC) criteria of the continuous emissions monitoring systems for filterable particulate (PM CEMS) required under 40 CFR Part 60, Appendix F, Procedure 2.

**PERSON RESPONSIBLE:** Julie L. Walters

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-042**

**REQUEST:**

Please refer to the Direct Testimony of Witness Geers, page 16, line 15. Please provide detail on what is meant by "any carry over in the flue gas from the WFGD system" and whether the amount of carry over can be accurately predicted at this time.

**RESPONSE:**

The carry over in the flue gas is comprised mainly moisture droplets from the WFGD system. These droplets contain dissolved solids and because of the monitoring requirements these solid get reported out as fPM.

**PERSON RESPONSIBLE:** Julie L. Walters

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-043**

**REQUEST:**

Please refer to the Direct Testimony of Witness Geers, page 18, lines 12-13. Provide the basis for why the "current performance of the WFGD is not sufficient to achieve the new MATS fPM limit."

**RESPONSE:**

Objection. This question has been previously asked and answered. Without waving said objection, the current FGD system cannot continually comply with the new MATS limit as shown by the East Bend fPM Data in Exhibit 3 of the application.

**PERSON RESPONSIBLE:** As to objection, Legal
As to response, Julie L. Walters

**Duke Energy Kentucky**
**Case No. 2025-00002**
**SIERRA First Set Data Requests**
**Date Received: February 14, 2025**

**SIERRA-DR-01-044**

**REQUEST:**

Please refer to the Direct Testimony of Witness Geers, page 18, lines 12-13. Provide the basis for why the "current performance of the WFGD is not sufficient to achieve the new MATS fPM limit."

**RESPONSE:**

Please see response to SIERRA-DR-01-033 for a detailed explanation.

**PERSON RESPONSIBLE:** Chad Donner