

KyPSC Case No. 2024-00152
TABLE OF CONTENTS

<u>DATA REQUEST</u>	<u>WITNESS</u>	<u>TAB NO.</u>
STAFF-DR-03-001	John Verderame	1
STAFF-DR-03-002	Chad Donner Dan Simpson	2
STAFF-DR-03-003	Matt Kalembo Mike Geers	3
STAFF-DR-03-004	Chad Donner	4
STAFF-DR-03-005	John Verderame	5
STAFF-DR-03-006	John Swez	6
STAFF-DR-03-007	Matt Kalembo	7
STAFF-DR-03-008	Chad Donner	8
STAFF-DR-03-009	Chad Donner	9
STAFF-DR-03-010	Matt Kalembo	10
STAFF-DR-03-011	Matt Kalembo	11

VERIFICATION

STATE OF OHIO)
)
COUNTY OF HAMILTON) **SS:**

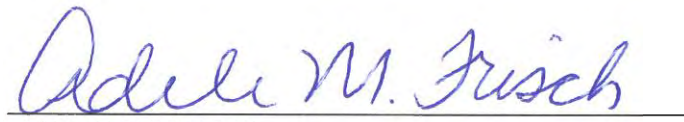
The undersigned, Chad Donner, Principal Engineer, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of his knowledge, information and belief.



Chad Donner Affiant

Subscribed and sworn to before me by Chad Donner on this 12TH day of NOVEMBER 2024.





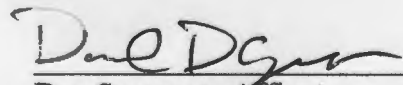
NOTARY PUBLIC

My Commission Expires: 1/5/2029

VERIFICATION

STATE OF KENTUCKY)
)
COUNTY OF JEFFERSON) SS:

The undersigned, Dan Sympson, General & Regulatory Strategy Director, 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.

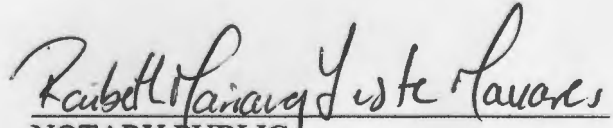


Dan Sympson, Affiant

Subscribed and sworn to before me by Dan Sympson on this 12th day of November, 2024.



RAIBETH MARIANG YUSTE MAVARES
Notary Public - State at Large
Kentucky
My Commission Expires April 30, 2028
Notary ID KYNP88247



NOTARY PUBLIC

My Commission Expires: April 30, 2028

VERIFICATION

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

The undersigned, Kimberly A. Hughes, Director, Coal Origination, being duly sworn, deposes and says that she has personal knowledge of the matters set forth in the foregoing data request, and that the answers contained therein are true and correct to the best of her knowledge, information, and belief.

Kimberly A. Hughes

Kimberly A. Hughes, Affiant

Subscribed and sworn to before me by Kimberly A. Hughes on this 12th day of november, 2024.

[Signature]

NOTARY PUBLIC

My Commission Expires:



VERIFICATION

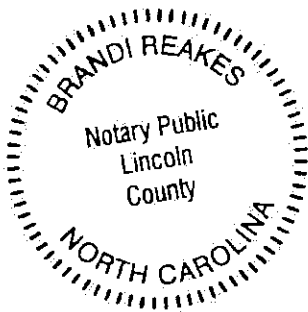
STATE OF NORTH CAROLINA)
) SS:
COUNTY OF MECKLENBURG)

The undersigned, Matt Kalembe, Vice President Integrated Resource Planning, 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.



Matt Kalembe Affiant

Subscribed and sworn to before me by Matt Kalembe on this 13 day of November 2024.





NOTARY PUBLIC


My Commission Expires: 2/1/2028

VERIFICATION

STATE OF OHIO)
)
COUNTY OF HAMILTON)

SS:

The undersigned, J. Michael Geers, Manager, EHS Energy Transition Group, 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.



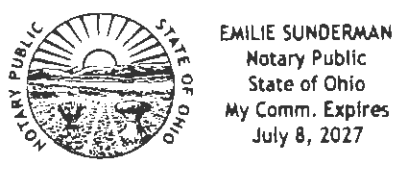
J. Michael Geers Affiant

Subscribed and sworn to before me by J. Michael Geers on this 15th day of November, 2024.



NOTARY PUBLIC

My Commission Expires: July 8, 2027



PUBLIC STAFF-DR-03-001

REQUEST:

Provide a status update associated with the negotiations of the supply offer for the lime reagent referenced in the motion for stay of proceeding filed October 11, 2024.

- a. If Duke Kentucky has reached a final agreement, provide the agreement.
- b. If Duke Kentucky has not reached a final agreement, provide a monthly update of the ongoing evaluation of the supply offer until this case is final or the Commission orders otherwise. Include in the monthly updates the status of negotiations, the date of the next meeting to discuss the offer and provide any updated drafts of the agreement.
- c. Confirm that, should Duke Kentucky reach an agreement prior to a final Order being issued in this matter, it intends to withdraw this application. If not confirmed, explain the response.

RESPONSE:

CONFIDENTIAL PROPRIETY TRADE SECRET

- a. Duke Energy Kentucky has not executed a final agreement with its MEL supplier.
- b. The Company has been negotiating price, term and terms and conditions with its MEL supplier through a series of extensions since the end of the 5th Amendment on June 30, 2023. The current lime price has been established through June 30, 2025. The Parties have reached an agreement in principle on

commercial terms, but final terms and conditions have not been executed. The Company is currently in the process of drafting the commercial contract to memorialize the agreement terms and conditions. In brief the agreement in principle is as follows:

- [Redacted]

- [Redacted]

- [Redacted]

- [Redacted]

- [Redacted]

- [Redacted]

[REDACTED]

- c. Duke Energy Kentucky does not intend to withdraw its CPCN filing upon execution of the Agreement. As outlined above in response to STAFF-DR-03-001(b) the Agreement is structured to accommodate any Order issued by the Commission in this proceeding.

PERSON RESPONSIBLE: John A. Verderame

Duke Energy Kentucky
Case No. 2024-00152
STAFF Third Set of Data Requests
Date Received: November 8, 2024

STAFF-DR-03-002

REQUEST:

If the Commission were to approve Duke Kentucky's application and proposed current and future projects, provide a timeline, using both specific month and year, with the information set forth below. Include in the response, considerations for PJM approval, Commission approval, and procurement/construction of the projects.

- a. When the Wet Flue Gas Desulfurization conversion project construction would begin;
- b. When the Wet Flue Gas Desulfurization conversion project would be fully constructed and useful;
- c. When Duke Kentucky would file an application with the Commission to convert East Bend to a dual fuel unit and the date for when the unit would be fully and useful as proposed in Duke Kentucky's 2024 Integrated Resource Plan (IRP);¹
- d. When Duke Kentucky would file an application with the Commission to convert East Bend from a dual fuel unit to a natural gas combined cycle (NGCC) unit; and
- e. When the East Bend NGCC unit would be fully constructed and useful as proposed in Duke Kentucky's 2024 IRP.

¹ Case No. 2024-00197, *Electronic 2024 Integrated Resource Plan of Duke Energy Kentucky, Inc.* (filed June 21, 2024).

RESPONSE:

- a. Currently the WFGD conversion project construction is estimated to kick-off during the 4th quarter of 2025.
- b. Currently the WFGD conversion project is estimated to be fully constructed and useful late 4th quarter of 2026.
- c. Currently it is estimated that Duke Energy Kentucky would submit a CPCN for a dual fuel gas co-firing project during the 4th quarter of 2025 and the project would be fully useful as proposed in the IRP in early 2029 pending gas pipeline completion.
- d. Duke Energy Kentucky would file an application with the Commission 6-7 years before a NGCC is needed to be in-service. It should be noted that under the US EPA 111d Update, East Bend could not be “converted” from dual fuel to a NGCC. The dual fuel unit would have to be retired by January 1, 2039, and a new NGCC would need to be constructed and placed into service. The Company’s plan would include a new NGCC to be constructed at the existing East Bend site where there is sufficient land and transmission capacity. The new unit would be able to use the pipeline that would be constructed for the dual fuel operation.
- e. For the 2024 IRP Preferred Portfolio, the NGCC application would be filed in 2032 – 2033 for a needed in-service by 2039.

PERSON RESPONSIBLE:

Chad Donner – a., b., c.
Dan Simpson – d., e.

Duke Energy Kentucky
Case No. 2024-00152
STAFF Third Set of Data Requests
Date Received: November 8, 2024

STAFF-DR-03-003

REQUEST:

Refer to Duke Kentucky's 2024 IRP page 4;

- a. Provide a summary of the costs of the East Bend Dual Fuel Operation Project that is included in the plan;
- b. Provide a detailed analysis of the impact the Dual Fuel Operation Project is expected to have on the economic viability of the East Bend Facility.
- c. Explain how Duke Kentucky's proposed environmental compliance plan would be utilized at East Bend if the unit is converted to dual fuel. Include in the response whether Duke Kentucky would anticipate refiling an updated environmental compliance plan before the East Bend conversion or if Duke Kentucky's current environmental compliance plan would comply with the East Bend conversion.

RESPONSE:

- a. The DFO conversion to make East Bend a 50% NG capable was modeled as \$84.2M (2025\$ escalated @ 2.5% to 2030) with an annual levelized pipeline/FT cost of \$17.228M per year while operating on DFO.
- b. Dual Fuel Operation enhances the economic viability of East Bend in several ways:
 - i. Provides fuel flexibility to protect against market volatility including fluctuating coal and PJM power prices. This fuel flexibility provides more value than converting East Bend to burn 100% natural gas because

the relatively low efficiency of East Bend on 100% natural gas would make it not competitive in the PJM marketplace.

- ii. Allows time for a more orderly transition out of coal, particularly under the EPA CAA Section 111 rules which requires coal assets to be retired by 2032 unless they are fully converted to natural gas or dual fuel operation.
 - iii. The DFO project provides an additional level of reliability versus relying on the aging coal handling facilities. If the coal handling facilities were to experience an outage, the unit could still be dispatched on natural gas if needed.
 - iv. Dispatching East Bend on natural gas leads to lower operating costs at East Bend versus burning 100% coal including lower reagent costs.
- c. In the May 2024 final 111 GHG rule, EPA created a subcategory for units that would meet an emission limit based on co-firing with natural gas that would represent 40% of the heat input. Converting East Bend to dual fuel operation as stated in the IRP would reduce the amount of coal fired, but not eliminate it. The WFGD system using limestone as a reagent would still be required for operation, although the amount of reagent required would change. As a result, implementing both the Limestone Conversion and converting to dual fuel operation in response to the May 2024 111 GHG Rule would allow East Bend to comply with the set of regulations currently applicable to the station.

PERSON RESPONSIBLE: Matthew Kalemba
Michael Geers

**Duke Energy Kentucky
Case No. 2024-00152
STAFF Third Set of Data Requests
Date Received: November 8, 2024**

STAFF-DR-03-004

REQUEST:

Refer to Duke Kentucky's response to Commission Staff's Second Request for Information, Item 8. Provide a detailed explanation for the limestone conversion project cost difference between the Midwest Resource Planning Model of \$58 million versus Duke Kentucky's estimate of \$125.8 million.

RESPONSE:

The \$58M figure was an unloaded figure based on a very preliminary estimate from August of 2022 that was subsequently used to test the value of the Limestone Conversion project in August of 2023. Since that time, more detailed engineering and scope analysis has been performed as the basis for what was submitted with the CPCN application. In addition, there have been two additional years of labor and material cost escalation from the initial high-level estimate.

PERSON RESPONSIBLE: Chad Donner

**CONFIDENTIAL PROPRIETARY TRADE
SECRET**

**STAFF-DR-03-005
CONFIDENTIAL ATTACHMENT**

FILED UNDER SEAL

**Duke Energy Kentucky
Case No. 2024-00152
STAFF Third Set of Data Requests
Date Received: November 8, 2024**

**PUBLIC STAFF-DR-03-005
(As to Attachment only)**

REQUEST:

Refer to the Application, page 6, paragraph 15, and the Direct Testimony of John Verderame, pages 14–16. Provide the cost estimate details for each of the three alternatives considered including:

- a. Limestone conversion project;
- b. Alternative lime source; and
- c. On-Site mixing of a Mag-Lime product.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachment only)

- a. **Limestone Conversion Project:** There have been no additional updates to the cost estimate details previously provided in the Company’s supplemental response to STAFF-DR-01-021. Please see STAFF-DR-03-005 Confidential Attachment for a summarized view of the original Lime vs. Limestone costs and the supplemental Lime vs. Limestone costs incorporating in the newly proposed lime price.
- b. **Alternative lime source:** There have been no additional updates to the cost estimate details previously provided in the Company’s supplemental response to STAFF-DR-01-022.

- c. **On-Site mixing of a Mag-Lime product:** There have been no additional updates to the cost estimate details previously provided in the Company's response to STAFF-DR-01-022.

PERSON RESPONSIBLE: John A. Verderame

**Duke Energy Kentucky
Case No. 2024-00152
STAFF Third Set of Data Requests
Date Received: November 8, 2024**

STAFF-DR-03-006

REQUEST:

Refer to the Direct testimony of Sierra Club witness Chelsea Hotaling, page 6, line 15, detailing the analysis of Duke Kentucky provided data which indicates that the East Bend facility incurred negative net revenue. Provide for years 2018 through 2024 year to date, the following revenue and cost profile for the East Bend facility:

- a. Total gross revenue;
- b. Total costs; and
- c. Total net revenue.

RESPONSE:

- a. Please see STAFF-DR-03-006 Attachment for total Operating Revenues, total Operating Expense and total Net Operating Revenues for the East Bend facility.
- b. See response to (a) above.
- c. See response to (a) above.

PERSON RESPONSIBLE: John Swez

STAFF-DR-03-006
East Bend Net Operating Revenue

	Energy Market Revenue	Ancillary Services Revenue **	Capacity Revenue**	Total Operating Revenue	Fuel Cost	Total O&M Cost (East Bend Coal)***	Total Operating Expense (Excluding Depreciation & Amortization)	Net Operating Revenue	Capital Expense (East Bend Coal)
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	\$ (21,583,952.65)	\$ 100,677,505.70
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	\$ (34,771,369.32)	\$ 51,973,992.96
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	\$ (43,473,794.32)	\$ 29,899,544.96
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	\$ (18,309,759.17)	\$ 28,402,336.88
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	\$ 82,208,249.65	\$ 18,587,045.22
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	\$ (57,997,716.69)	\$ 31,595,442.07
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	\$ (31,827,152.69)	\$ 9,726,257.46
	\$ 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	\$ (125,755,495.20)	\$ 270,862,125.25

Notes:

* Through July 2024 to tie back to Hotaling testimony time period

** Ancillary Services and Capacity revenue is not available at a station level, so information provided for all of Duke Energy Kentucky. Additionally, capacity revenue is the revenue of capacity sold to PJM after the 3% FRR holdback

*** East Bend Coal only. In addition, Duke Energy Kentucky does not track actual Fixed and non-fuel Variable O&M separately. All actual O&M expense is captured in the O&M expense provided in SIERRA-DR-01-004 Attachment 1. Therefore, there is no need to add in additional non-fuel variable O&M.

Duke Energy Kentucky
Case No. 2024-00152
STAFF Third Set of Data Requests
Date Received: November 8, 2024

STAFF-DR-03-007

REQUEST:

Refer to Duke Kentucky’s response to Sierra Club’s First Request for Information, Item 15. Provide specific references, including page numbers, to indicate that the \$125.8 million cost associated with the limestone conversion project are included in the 2024 IRP base case scenario.

RESPONSE:

For clarity, the Company’s response to SIERRA-DR-01-015 did not include the cost of the project; however, it did state that the “2024 IRP assumed the limestone conversion as part of its base case.” Notwithstanding that clarification, the 2024 IRP identified the cost of the limestone conversion project that was included in the base case scenario in confidential “Table H.2 – Generation Operational Characteristics” on page 151. The cost included in the IRP more closely aligns with the target cost of the project versus the \$125.8 million cost which is the upper end cost estimate of the project used in the CPCN filing to account for potential contingencies.

PERSON RESPONSIBLE: Matthew Kalemba

**Duke Energy Kentucky
Case No. 2024-00152
STAFF Third Set of Data Requests
Date Received: November 8, 2024**

STAFF-DR-03-008

REQUEST:

If the Commission approves Duke Kentucky's proposal to convert East Bend to dual fuel generation as proposed in Duke Kentucky's 2024 IRP, provide the cost estimate for the conversion. Include in this estimate a specific breakdown for each portion of the project.

RESPONSE:

Currently the estimated cost for the East Bend dual fuel conversion with 50% gas co-fire capability is approximately \$90M. At this time a specific breakdown of the cost for the East Bend dual fuel project is not known, however, the total project cost has been scaled off the Duke Energy dual fuel conversion project experience in North Carolina. A preliminary engineering study for East Bend will be executed to determine a more detailed scope and cost.

PERSON RESPONSIBLE: Chad Donner

Duke Energy Kentucky
Case No. 2024-00152
STAFF Third Set of Data Requests
Date Received: November 8, 2024

STAFF-DR-03-009

REQUEST:

If Duke Kentucky’s proposed environmental compliance project is not approved, provide the estimated expense to convert the current East Bend generation unit to a dual fuel generation unit as described in Duke Kentucky’s 2024 IRP. Include in this estimate a specific breakdown for each phase of the project, including permitting, engineering, and construction.

RESPONSE:

Refer to the response to STAFF-DR-03-008 for the cost to convert the East Bend generating unit to a dual fuel generation unit, the cost for the dual fuel conversion alone will not be impacted if the Limestone Conversion project is not approved. However, if the Limestone Conversion project is not approved, approximately \$25M in additional WFGD upgrades would be required to comply with new MATs compliance regulations for filterable particulate. Reference “Supplemental Attachment CMD-1 EB Limestone Conversion Cost Estimate” for estimated breakdown of WFGD absorber only upgrades required to meet new MATs compliance regulations.

PERSON RESPONSIBLE: Chad Donner

**Duke Energy Kentucky
Case No. 2024-00152
STAFF Third Set of Data Requests
Date Received: November 8, 2024**

PUBLIC STAFF-DR-03-010

REQUEST:

Provide the estimated expense to convert East Bend from a dual fuel generation unit to an NGCC as proposed in Duke Kentucky’s 2024 IRP. Include in this estimate a specific breakdown for each portion of the project.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET

In compliance with EPA’s CAA 111(d), as detailed in the 2024 IRP, East Bend will convert to dual fuel generation by 2030 and must retire before 2039. A natural gas combined cycle unit is proposed as replacement generation for East Bend. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

PERSON RESPONSIBLE: Matthew Kalemba

Duke Energy Kentucky
Case No. 2024-00152
STAFF Third Set of Data Requests
Date Received: November 8, 2024

STAFF-DR-03-011

REQUEST:

Specifically, provide a cite to the record in Case No. 2024-00197, where the estimated capital expense related to this environmental compliance project, as proposed is discussed or included. If not included in that case, explain why this project was not included in that plan.

RESPONSE:

The Limestone Conversion was specifically identified in the DEK IRP on page 151 in Table H.2; as well as, in response to the following data requests in the IRP docket:

- KSES-DR-02-008
- SIERRA-DR-01-003
- SIERRA-DR-02-002
- SIERRA-DR-02-006

PERSON RESPONSIBLE: Matthew Kalemba