

**PUBLIC SUPPLEMENTAL SIERRA-DR-02-006**

**REQUEST:**

Refer to Docket Number 2024-00152, application for a CPCN for converting the wet FGD from a quicklime to a limestone system.

- a. Please provide the capital, fixed O&M, and variable O&M costs associated with this retrofit.
- b. Were any of the costs in response to (a) included in the IRP modeling?
  - i. If so, please explain where these costs were included, including what inputs were changed and in what scenarios they were changed.
  - ii. If not, please explain why not.
- c. Please provide the annual costs of quicklime at East Bend assumed in the CPCN modeling.
- d. Were any of the costs in response to (c) included in the IRP modeling?
  - i. If so, please explain where these costs were included, including what inputs were changed and in what scenarios they were changed.
  - ii. If not, please explain why not.
- e. Please provide the annual costs of limestone (post conversion) at East Bend assumed in the CPCN modeling.
- f. Were any of the costs in response to (e) included in the IRP modeling?
  - i. If so, please explain where these costs were included, including what inputs were changed and in what scenarios they were changed.

- ii. If not, please explain why not.
- g. Please provide any analyses the Company conducted on the impacts of dispatch costs from converting the FGD.
- h. Please provide any analyses the Company conducted to estimate the costs and/or benefits of converting the FGD.
- i. Please provide any other analyses that the Company conducted to evaluate the decision to convert to limestone.

**SUPPLEMENTAL RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

After Duke Energy Kentucky filed its Limestone Conversion CPCN Application in late July 2024, its current MEL supplier approached the Company to discuss the potential for [REDACTED]

The Company has updated its response to this data request as a result.

- c. The projected annual costs of quicklime (no conversion) at East Bend updated to reflect the updated supply offer from the supplier are shown below.

Updated Lime Case (No Conversion)	2027	2028	2029
FGD Lime Cost (\$/TN)	\$228.5	\$235.4	\$242.4
Projected FGD Lime Annual Cost (\$M/Yr)	\$16.1	\$14.2	\$16.5

- g. Please see SIERRA-DR-02-006 Confidential Supplemental Attachment 1.

**ORIGINAL RESPONSE:**

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

- a. As discussed in Witness Donner’s direct testimony filed in Docket Number 2024-00152 on page 7, lines 10 through 19, the fully loaded estimated cost of construction (with material, engineering, internal and external labor, contingency, and escalation) is approximately \$125.8 million. The Company anticipates that

there will be minimal (<\$10,000 per year) incremental operation and maintenance costs (O&M), excluding the reagent commodity. See SIERRA-DR-02-006 Confidential Attachment 1 DEK Cost Breakdowns Tab for the projected limestone reagent cost post conversion.

- b. No.
  - i. N/A
  - ii. No, due to the timing of the IRP an earlier estimate was used. Capital costs for the limestone conversion in the IRP modeling were based off an earlier \$95 million estimate. This conversion cost can be found on the Fixed Costs input for East Bend in all portfolios. The only other adjustment modeled was the substitution of the quicklime reagent for limestone and the associated cost difference for making this change. The change in reagent cost can be found on the Energy Costs input. These were a base assumption and shared in all portfolios.
- c. The projected annual costs of quicklime (no conversion) at East Bend assumed in the initial CPCN modeling are shown below.

Base Lime Case (No Conversion)	2027	2028	2029
FGD Lime Cost (\$/TN)	\$356.4	\$375.2	\$395.0
Projected FGD Lime Annual Cost (\$M/Yr)	\$22.1	\$19.9	\$23.0

- d. No, costs from response c. were not used.
  - i. N/A
  - ii. IRP modeling assumed limestone reagent replaced quicklime reagent starting 1/1/2027 as a base assumption.
- e. The projected annual costs of limestone (post conversion) at East Bend assumed in the CPCN modeling are shown below.

Limestone Case (With Conversion)	2027	2028	2029
FGD Limestone Cost (\$/TN)	\$18.5	\$19.2	\$20.0
Projected FGD Limestone Annual Cost (\$M/Yr)	\$2.6	\$2.4	\$2.8

- f. Yes.
  - i. IRP modeling assumed limestone reagent replaced quicklime reagent starting 1/1/2027 as a base assumption. The \$/ton values from e. are the same values used to calculate the VOM rate found in the Energy Costs input in EnCompass.
  - ii. N/A
- g. Please see SIERRA-DR-02-006 Confidential Attachment 1.
- h. Please see SIERRA-DR-02-006 Confidential Attachment 1.
- i. In August 2023 Duke Energy evaluated the Limestone Conversion project through the Encompass model. This is the same Encompass model software that is used for IRP filings. Please see SIERRA-DR-02-006 Confidential Attachment 2.

**PERSON RESPONSIBLE:** Chad Donner – a., c., e.  
 Matt Kalemba – b., d., f., i.  
 Ryan Trogstad – g., h.

**CONFIDENTIAL PROPRIETARY TRADE  
SECRET**

**SIERRA-DR-02-006 CONFIDENTIAL  
SUPPLEMENTAL ATTACHMENT 1**

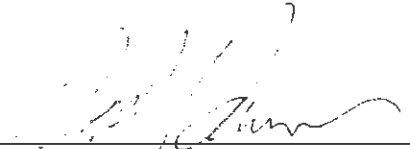
**FILED UNDER SEAL**



**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 supplemental 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 4<sup>th</sup> day of December, 2024.

  
\_\_\_\_\_  
NOTARY PUBLIC

My Commission Expires:



Brian Pokrywka, Attorney At Law  
NOTARY PUBLIC - STATE OF OHIO  
My commission has no expiration date  
Sec. 147.03 R.C.

