KyPSC Case No. 2024-00152
TABLE OF CONTENTS

VERIFICATION

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

The undersigned, John D. Swez, Managing Director, Trading and Dispatch, 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 D. Swez, Affiant

Subscribed and sworn to before me by John D. Swez on this 28 day of August, 2024.

NOTARY PUBLIC

My Commission Expires:

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

VERIFICATION

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

The undersigned, Tyler Cook, Engineer III, 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.

Tyler Cook

Tyler Cook, Affiant

Subscribed and sworn to before me by Tyler Cook on this 3rd day of October, 2024.

Sheila Lemoine

NOTARY PUBLIC

SHEILA LEMOINE
Notary Public, North Carolina
Lincoln County
My Commission Expires
July 21, 2029

My Commission Expires: July 21, 2029

VERIFICATION

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

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 26 day of September, 2024.

SHELIA JANETTE ROGERS
Notary Public-State at Large
KENTUCKY - Notary ID # KYNP66137
My Commission Expires 01-31-2027

NOTARY PUBLIC

My Commission Expires: 1-31-2027

VERIFICATION

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

The undersigned, Sarah Lawler, VP Rates & Regulatory Strategy, 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.

Sarah Lawler Affiant

Subscribed and sworn to before me by Sarah Lawler on this 1st day of October, 2024.

NOTARY PUBLIC

My Commission Expires: July 8, 2027

EMILIE SUNDERMAN
Notary Public
State of Ohio
My Comm. Expires
July 8, 2027

VERIFICATION

STATE OF NORTH CAROLINA)
)
COUNTY OF MECKLENBURG)

SS:

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.

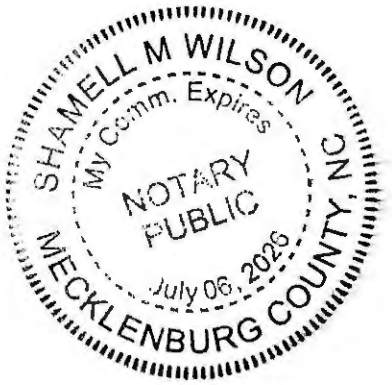
John Verderame

John Verderame, Affiant

Subscribed and sworn to before me by John Verderame on this 28 day of August, 2024.

NOTARY PUBLIC

My Commission Expires:



VERIFICATION

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

The undersigned, Matt Kalemba, 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 Kalemba Affiant

Subscribed and sworn to before me by Matt Kalemba on this 2 day of October 2024.

SHEILA LEMOINE
Notary Public, North Carolina
Lincoln County
My Commission Expires
July 21, 2029

NOTARY PUBLIC

My Commission Expires: July 21, 2029

VERIFICATION

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

The undersigned, J. Michael Geers, Manager Environmental Services, 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 30th day of September, 2024.

NOTARY PUBLIC

SHELIA JANETTE ROGERS
Notary Public-State at Large
KENTUCKY - Notary ID # KYNP66137
My Commission Expires 01-31-2027

My Commission Expires: 1-31-2027

VERIFICATION

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

The undersigned, Ryan Trogstad, Senior Data Science Consultant, 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.

Ryan Trogstad

Ryan Trogstad, Affiant

Subscribed and sworn to before me by Ryan Trogstad on this 5th day of September, 2024.

S. Jill Hamrick

NOTARY PUBLIC

My Commission Expires: 8/22/28

S Jill Hamrick
NOTARY PUBLIC
Mecklenburg County, NC
My Commission Expires August 22, 2028

VERIFICATION

STATE OF KENTUCKY)
) **SS:**
COUNTY OF JEFFERSON)

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 3rd day of September, 2024.

NOTARY PUBLIC

My Commission Expires: 09/20/2027

BENJAMIN BERDICHEVSKY
Notary Public - State at Large
Kentucky
My Commission Expires Sept. 20, 2027
Notary ID KYNP79738

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-001

REQUEST:

To the extent not already provided, please provide all confidential responses to Requests for Information issued by Duke.

RESPONSE:

The confidential responses have been provided pursuant to the terms of the confidentiality agreement. The Company will continue to provide confidential responses pursuant to those terms.

PERSON RESPONSIBLE: Legal

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-002

REQUEST:

To the extent not already provided, please provide any redacted documents included in the Company's initial filing and direct testimonies in non-redacted, electronic versions (machine readable, unprotected, with formulas intact).

RESPONSE:

This information has been provided pursuant to the terms of a confidentiality agreement.

PERSON RESPONSIBLE: Legal

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-003

REQUEST:

Please produce all workpapers, in electronic spreadsheet format with formulas intact, supporting each of the statements, testimonies, exhibits, and attachments included in the Company's initial filing and direct testimonies.

RESPONSE:

This information has been provided in response to discovery.

PERSON RESPONSIBLE: Legal

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

CONFIDENTIAL SIERRA-DR-01-004
(As to Attachment 2 only)

REQUEST:

For East Bend Unit 2, please provide the following historical annual data, from 2018 to present:

a. Fixed O&M cost

b. Non-fuel variable O&M cost

c. Fuel costs

d. Capital costs

e. Heat rate

f. Generation

g. Capacity rating

h. Capacity factor

i. Forced outage rate

j. Planned outage rate

k. Energy revenues

l. Capacity revenues

m. Ancillary services revenues

n. Unforced capacity ("UCAP")

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachment 2 only)

Objection. Duke Energy Kentucky objects to this request as overly broad and unduly burdensome, particularly the portion of the request seeking data from 2018-2024. Duke Energy Kentucky also objects to this request to the extent it seeks a calculation or compilation that has not already been performed and that Duke Energy Kentucky objects to performing. Duke Energy Kentucky objects to this request to the extent it seeks information not maintained by the Company in the ordinary course of business.

a. Please see SIERRA-DR-01-004 Attachment 1.

b. Please see objection. Duke Energy Kentucky does not maintain this information on an after the fact basis.

c. Please see SIERRA-DR-01-004 Confidential Attachment 2.

d. Please see SIERRA-DR-01-004 Attachment 1.

e. Please see SIERRA-DR-01-004 Confidential Attachment 2.

f. Please see SIERRA-DR-01-004 Confidential Attachment 2.

g. Please see SIERRA-DR-01-004 Confidential Attachment 2.

h. Please see SIERRA-DR-01-004 Confidential Attachment 2.

i. Please see SIERRA-DR-01-004 Confidential Attachment 2.

j. Please see objection. Duke Energy Kentucky does not maintain this information. Answering further, please see SIERRA-DR-01-004 Confidential Attachment 2 for Equivalent Planned Outage Rate (EPOR).

k. Please see SIERRA-DR-01-004 Confidential Attachment 2.

l. Total net capacity revenues are provided in the table below. Note that excess capacity revenues are sold and are only realized after the Company has utilized its

generation resources to satisfy its FRR Plan. Excess capacity sales may not occur in every year. Note that information is not available at a station level, so information provided for all of Duke Energy Kentucky.

2018	$	2,026,798
2019	$	0
2020	$	0
2021	$	0
2022	$	1,537,235
2023	$	1,300,148
2024 YTD Thru July	$	153,040

m. Ancillary services revenues, as defined by Duke Energy Kentucky, are provided in the table below. For the purposes of this response, Duke Energy Kentucky defines the following PJM Billing Line Items (BLI) as ancillary services; BLI 2330, BLI 2340, BLI 2360, BLI 2361, BLI 2362, BLI 2365, BLI 2366, BLI 2367, BLI 2368, and BLI 2380. Note that information is not available at a station level, so information provided for all of Duke Energy Kentucky.

2018	$	3,436,491
2019	$	2,592,872
2020	$	2,576,568
2021	$	2,651,276
2022	$	3,322,283
2023	$	2,562,808
2024 YTD Thru July	$	1,614,514

n. PJM Unforced capacity ("UCAP") period runs from June – May annually.

	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
East Bend	557.0	574.3	576.6	584.2	554.4	543.3	552.3

PERSON RESPONSIBLE: John D. Swez

Duke Energy Kentucky
Sierra Club
Case No. 2024-00152
Sierra-DR-01-04

(a.)

Station Name	O&M						
	2018	2019	2020	2021	2022	2023	YTD July 2024
DEK Other	$2,653,666	($13,039)	($88,286)	($311,722)	$240,828	($43,564)	($127,001)
East Bend Coal	$58,525,293	$50,360,969	$47,008,576	$50,281,246	$46,528,830	$47,434,646	$29,905,587
Regional Services & Other	$13,962	$23,217	$40,403	$73,749	$149,611	$145,136	$183,592
Total O&M	**$61,192,922**	**$50,371,147**	**$46,960,693**	**$50,043,273**	**$46,919,269**	**$47,536,218**	**$29,962,178**

(d.)

Station Name	Capital						
	2018	2019	2020	2021	2022	2023	YTD July 2024
DEK Other	$72,142	$209,260	($10,961)	$4,454	$123,316	$6,548,336	$64,796
East Bend Coal	$100,677,506	$51,973,993	$29,899,545	$28,402,337	$18,587,045	$31,595,442	$9,726,257
Regional Services & Other	$0	$12,460	$0	$0	$0	$0	$0
Total Capital	**$100,749,647**	**$52,195,713**	**$29,888,584**	**$28,406,791**	**$18,710,361**	**$38,143,779**	**$9,791,053**

NOTES:

DEK Other and Regional Services line costs are associated with the entire Duke Energy Kentucky region.

Duke Energy Kentucky does not track Fixed and Non-fuel Variable O&M Costs separately.

CONFIDENTIAL PROPRIETARY TRADE SECRET

SIERRA-DR-01-004
CONFIDENTIAL ATTACHMENT 2

FILED UNDER SEAL

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

CONFIDENTIAL SIERRA-DR-01-005
(As to Attachment only)

REQUEST:

For East Bend Unit 2, please provide the following projected annual data, for the years 2025 through 2046, or the latest year available if not available through 2046:

a. Fixed O&M cost

b. Non-fuel variable O&M cost

c. Fuel costs

d. Capital costs

e. Heat rate

f. Generation

g. Capacity rating

h. Capacity factor

i. Forced outage rate

j. Planned outage rate

k. Energy revenues

l. Capacity revenues

m. Ancillary services revenues

n. Unforced capacity ("UCAP")

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachment only)

a. Please see Fixed Costs in SIERRA-DR-01-005 Confidential Attachment.

b. Please see VOM in SIERRA-DR-01-005 Confidential Attachment.

c. Please see Fuel Costs in SIERRA-DR-01-005 Confidential Attachment.

d. Capital for existing units is not modeled in EnCompass and is not available on a unit level.

e. Please see Heat Rate in SIERRA-DR-01-005 Confidential Attachment. HR shown is average annual value.

f. Please see Generation in SIERRA-DR-01-005 Confidential Attachment.

g. Please see Max Capacity in SIERRA-DR-01-005 Confidential Attachment.

h. Please see Capacity Factor in SIERRA-DR-01-005 Confidential Attachment.

i. Please see Forced Outage Rate in SIERRA-DR-01-005 Confidential Attachment.

j. Please see Planned Outage Rate in SIERRA-DR-01-005 Confidential Attachment.

k. Please see Energy Value in SIERRA-DR-01-005 Confidential Attachment.

l. Represented by Capacity Value in EnCompass, no values were output so row is blank.

m. Represented by Ancillary Value in EnCompass, no values were output so row is blank.

n. Please see Firm Capacity in SIERRA-DR-01-005 Confidential Attachment.

PERSON RESPONSIBLE: Tyler Cook

CONFIDENTIAL PROPRIETARY TRADE SECRET

SIERRA-DR-01-005
CONFIDENTIAL ATTACHMENT

FILED UNDER SEAL

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-006

REQUEST:

Please provide the annual revenue requirements and present value revenue requirement (PVRR) for all portfolios and scenarios modeled.

RESPONSE:

Please see Direct Testimony of Sarah E. Lawler and Attachment SEL-1 for the estimated Rider ESM revenue requirement. The Company has not created a PVRR for the portfolios and scenarios modeled.

PERSON RESPONSIBLE: Chad Donner
Sarah Lawler

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

CONFIDENTIAL SIERRA-DR-01-007
(As to Attachments only)

REQUEST:

Please refer to the Direct Testimony of Chad M. Donner, at page 8, and answer the following requests:

a. Please provide the 2023 Request for Proposal (RFP) documents and responsive bids.

b. If the Company has issued an RFP for the MEL product since 2023, please identify each such RFP and provide RFP documents and responsive bids for each such RFP.

c. Please provide details of the evaluation that Duke conducted about "the possibility of mixing standard high calcium quicklime and magnesium hydroxide"

d. The Direct Testimony of J. Michael Geers, page 12, line 20, suggests that actual procurement and mixing occurred. Did this evaluation entail actual mixing of these components or was the evaluation limited to a paper study? Please provide any documents, results, reports, etc. pertaining to these studies.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachments only)

a. Please see SIERRA-DR-01-007(a) Confidential Attachments 1 and 2.

b. While the Company has not issued an RFP for the MEL product since 2023, the Company has actively continued to have discussions with numerous lime suppliers over the last year and a half looking for additional/alternative supplies.

c. The evaluation consisted of a simple mass balance to supplement the deficient amount of magnesium content provided in standard high calcium quicklime by means of adding magnesium hydroxide to match the magnesium content of the base MEL product.

d. Yes, actual mixing has been performed. There are two different approaches, and both have been used in the past for East Bend. First, dolomite (dry) which consists of approximately 50% magnesium oxide is blended with standard high calcium quicklime to net the correct blended percentage of magnesium. This process is a dry material handling process that requires multiple conveyors and belt scales that must be done at the lime supplier's facility. The result is a barge of pre blended product to the appropriate magnesium content that is then unloaded by the station into their existing process. Second, a magnesium hydroxide slurry is added directly to the station reagent slurry storage tank that is then fed directly into the WFGD absorbers. The first approach is more of a continuous production process and the latter is more of a batch process, however, the amount required by both addition methods are determined by the process outlined in the previous request answer. Both approaches are acceptable but one must be done offsite and the other can be done onsite.

PERSON RESPONSIBLE: John A. Verderame – a., b.
Chad Donner – c., d.

CONFIDENTIAL PROPRIETARY TRADE SECRET

SIERRA-DR-01-007( )
CONFIDENTIAL ATTACHMENTS 1 & 2

FILED UNDER SEAL

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-008

REQUEST:

Please explain how Duke's modeling in support of this CPCN application incorporates the EPA's updated Clean Air Act Section 111 rules, if at all.

RESPONSE:

The Encompass modeling described in response to STAFF-DR-02-008 included modeling of the proposed Clean Air Act Section 111 rules. Short-term modeling for purposes of the CPCN only ran through 2029, prior to the impact of updated CAA 111d rules.

PERSON RESPONSIBLE: Matthew Kalemba
Chad Donner

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-009

REQUEST:

If East Bend Unit 2 were converted to dual fuel operation, would the proposed conversion project still be necessary? Please explain why or why not in full, including providing supporting analyses and workpapers, if any.

RESPONSE:

Objection. The question is irrelevant and not likely to lead to the discovery of any admissible or relevant information. Without waiving said objection and to the extent discoverable, yes. Because the unit would be dual fueled, it would still be combusting large amounts of coal. As a result, the operation of the FGD system would still be required to control sulfur dioxide, other acid gases, mercury, PM, etc. This necessitates having a reliable supply of the necessary reagent to ensure proper operation.

PERSON RESPONSIBLE: As to objection, Legal
As to response, J. Michael Geers

SIERRA-DR-01-010

REQUEST:

If East Bend Unit 2 were converted to dual fuel operation:

a. How would that impact the usage of quicklime? If quicklime usage would be reduced, how much would it be reduced by?

b. If quicklime usage would be reduced, how much would there be in savings because of reduced quicklime usage?

RESPONSE:

a. Objection. The question is irrelevant and not likely to lead to the discovery of any admissible or relevant information. Without waiving said objection and to the extent discoverable, the timing of this CPCN is such that the conversion from using quicklime to limestone as an FGD reagent would be completed before the deadline for initiating dual fuel operation. As such, the replacement of quicklime usage to as a scrubber reagent would have already occurred. A smaller amount of quicklime is also used for fixation and stabilization of Wet FGD byproduct prior to it being placed in the landfill. This fixation lime however does not depend on the magnesium content. The use of quicklime for fixation is included in the modeling. The Wet FGD byproduct generated with limestone will be much improved and will require less lime to stabilize the product to be placed in the landfill.

b. See response to (a) above.

PERSON RESPONSIBLE: As to objection, Legal
As to response, J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-011

REQUEST:

If East Bend Unit 2 were converted to operate fully on natural gas, would the proposed conversion project still be necessary? Please explain why or why not in full, including providing supporting analyses and workpapers, if any.

RESPONSE:

Objection. The question is irrelevant and not likely to lead to the discovery of any admissible or relevant information. Without waiving said objection and to the extent discoverable, if East Bend Unit 2 were operated fully on natural gas, the FGD system would not be required to remove large amounts of sulfur dioxide as it currently does. As a result, it would not require the large amounts of reagent (lime or limestone) to combine with that SO2 that it currently utilizes. However, a study of how East Bend would operate when fully utilizing natural gas has not been performed at this time.

PERSON RESPONSIBLE: As to objection, Legal
As to response, J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-012

REQUEST:

Please confirm that the Company did not evaluate the retirement and replacement of East Bend Unit 2 among the alternatives considered. If anything but confirmed, please explain.

RESPONSE:

Confirmed.

PERSON RESPONSIBLE: John A. Verderame

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-013

REQUEST:

Please confirm that Duke's 2021 IRP modeling found that, in scenarios with carbon regulation and a base or low gas rate, East Bend Unit 2's economically optimal retirement date was 2027. If anything but confirmed, please explain.

RESPONSE:

Objection. This request seeks information that not relevant to this proceeding and is not likely to lead to the discovery or admissibility of any relevant or admissible evidence. Moreover, this request is further objectionable insofar as it seeks information that is publicly available and already in the possession of and/ or accessible to the Sierra Club. As such, this request is interpreted as intending to harass. Without waiving said objections and to the extent discoverable, the Company's 2021 IRP speaks for itself which confirms East Bend Unit 2's economic optimal retirement date was 2027.

PERSON RESPONSIBLE: As to objection, Legal
As to response, Matthew Kalemba

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-014

REQUEST:

Please confirm that Duke's 2024 IRP modeling did not evaluate East Bend Unit 2 retirement dates earlier than 2029. If anything but confirmed, please explain.

RESPONSE:

Objection. This request seeks information that is both beyond the scope of and irrelevant to this proceeding and is not likely to lead to the discovery of relevant or admissible evidence. Without waiving said objection and to the extent discoverable, confirmed.

PERSON RESPONSIBLE: As to objection, Legal
As to response, Matthew Kalemba

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-015

REQUEST:

Please confirm that Duke's 2024 IRP modeling did not include the capital costs of the proposed conversion project. If anything but confirmed, please explain.

RESPONSE:

Deny. The 2024 IRP assumed the limestone conversion as part of its base case.

PERSON RESPONSIBLE: Matthew Kalemba

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-016

REQUEST:

Please explain how Duke's modeling in support of this CPCN application incorporates the EPA's Good Neighbor Rule, if at all.

RESPONSE:

Objection. The question is irrelevant and not likely to lead to the discovery of any admissible or relevant information. Without waiving said objection and to the extent discoverable, the cost for the operation of the SCR used to control NOx emissions is not impacted by the type of reagent used in the FGD system. As a result there is no significant difference in compliance costs for the Good Neighbor Program.

PERSON RESPONSIBLE: As to objection, Legal
As to response, J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-017

REQUEST:

Has Duke conducted any analysis of the potential costs and timing for such costs at East Bend to comply with EPA's Good Neighbor Plan? If so, please provide all documents reflecting such analyses. If not, why not?

RESPONSE:

Objection. The question is irrelevant and not likely to lead to the discovery of any admissible or relevant information. Without waiving said objection and to the extent discoverable, the operation of the SCR used to control NOx emissions operates independently of the FGD system and is agnostic to the type of reagent used in the FGD system.

PERSON RESPONSIBLE: As to objection, Legal
As to response, J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-018

REQUEST:

Confirm that Kentucky is part of the Group 3 Trading Program under EPA's Update to the Cross-State Air Pollution Rule ("CSAPR"). If not confirmed, please explain which Trading Group to which Kentucky belongs.

RESPONSE:

No. Group 2. See Federal ''Good Neighbor Plan'' for the 2015 Ozone National Ambient Air Quality Standards: Response to Judicial Stays of SIP Disapproval Action for Certain States (Federal Register /Vol. 88, No. 145 /Monday, July 31, 2023)

PERSON RESPONSIBLE: J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-019

REQUEST:

Please provide the total number of NOx credit purchases under CSAPR and cost by year for East Bend from 2017 to present.

RESPONSE:

Objection that the request is overly broad and unduly burdensome and seeks information that is beyond the scope of and irrelevant to this proceeding. Moreover, this request misconstrues facts insofar as the SCR used for NOx control is located physically ahead of the Wet FGD system and thus its operation is not dependent upon the operation of the Wet FGD system. Moreover, the Wet FGD system does not impact NOx emissions.

Without waving said objections, and to the extent discoverable, the Company has not purchased any seasonal NOx allowances for compliance purposes under CSAPR for the compliance seasons of 2019 through 2023.

PERSON RESPONSIBLE: As to objections, Legal
As to response, J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-020

REQUEST:

Does Duke have a forecast for NOx credit costs under EPA's Good Neighbor Plan? If yes, please provide all forecasts through 2046. If not, why?

RESPONSE:

Objection. The question misconstrues facts and is irrelevant and not likely to lead to the discovery of any admissible or relevant information. Without waiving said objection and to the extent discoverable, refer to response SIERRA-DR-01-019.

PERSON RESPONSIBLE: As to objection, Legal
As to response, J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-021

REQUEST:

Please explain how Duke's modeling in support of this CPCN application incorporates the EPA's updated Effluent Limitation Guidelines ("ELG") Rule, if at all.

RESPONSE:

EPA's Supplemental Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (the "2024 rule") establishes a no discharge limit for FGD wastewater, BATW, and CRL at sites combusting coal to be met no later than December 31, 2029. East Bend is well equipped to meet the limits in the 2024 rule by having equipment installed to meet the no discharge limits for both FGD wastewater and Bottom Ash Transport Water. The remaining category of Combustion Residual Leachate is a separate matter related to landfill operation. While this rule is still under evaluation, it is believed that there are no incremental costs associated with the limestone conversion related to this rule.

PERSON RESPONSIBLE: J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-022

REQUEST:

Has Duke conducted any analysis of the compliance costs at East Bend to comply with EPA's ELG Rule at East Bend?

a. If so, please provide all documents reflecting such analyses. If not, why not?

b. Identify the total cost of the projects the Company intends to undertake or has undertaken at East Bend to comply with the ELG Rule.

c. State the year these costs have been or will be incurred.

d. Please identify and describe each itemized capital expenditure required to complete the ELG Rule compliance project.

e. Could any of those ELG Rule expenditures be avoided by making a commitment to cease burning coal under the ELG Rule's alternative closure provisions? If so, please identify each specific avoidable cost.

f. Please provide all evaluations of the technical or engineering compliance options for the ELG Rule for East Bend.

g. Produce all evaluation(s) that the Company performed to determine that incurring any avoidable ELG Rule costs at East Bend is in customers' best interest (i.e., present value of retrofit versus retirement analyses). For any such evaluation, provide the following data:

    i. All workpapers, with formulas intact.

ii. Provide a list of all capital expenditures associated with ELG Rule compliance included in each modeled scenario and provide the cost of each.

iii. PJM Energy price forecasts (with and without CO2 price)

iv. PJM Capacity price forecasts (with and without CO2 price)

v. CO2 price forecasts

vi. Coal price ($/MMBtu)

vii. Gas price ($/MMBtu)

viii. Heat rate (Btu)

ix. Capital expenditures ($)

x. Variable Operation and Maintenance ($/MWh)

xi. Fixed Operation and Maintenance ($/MW)

xii. For each replacement resource available to the model, provide each of the following inputs for each resource at the highest level of granularity used in conducting the retrofit analysis:

1. Replacement resource options
2. Replacement resource size (MW)
3. Year replacement resource is available (year)
4. Cost of replacement resource option ($/MW)
5. Annual capacity factor
6. Year of transmission upgrade (if required)
7. Cost of transmission upgrade (if required)

RESPONSE:

Objection. This request is overly broad, unduly burdensome, and beyond the scope and otherwise irrelevant and unlikely to lead to the discovery of any relevant information to the current proceeding. Without waiving said objection, and to the extent discoverable, see response to SIERRA-DR-01-021.

PERSON RESPONSIBLE: As to objection, Legal
As to response, J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-023

REQUEST:

Please explain how Duke's modeling in support of this CPCN application incorporates the EPA's Coal Combustion Residual ("CCR") rule, if at all.

RESPONSE:

Objection, this request is vague, ambiguous and contains undefined terms and is unclear as to which version of CCR rulemaking is being referenced. As such responding to this request would require unreasonable speculation and guesswork. Moreover, this request seeks information that is not relevant to these proceedings and is not likely to lead to the discovery of any relevant or admissible evidence. Without waiving said objection, and to the extent discoverable, the actions required for compliance the various iterations of the CCR rules have either been taken or are associated with legacy operations of the plant not associated with this application or the current operation of the FGSD system.

PERSON RESPONSIBLE: As to objection, Legal
As to response, J. Michal Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-024

REQUEST:

Has Duke conducted any analysis of the compliance costs at East Bend to comply with EPA's CCR Rule at East Bend?

a. If so, please provide all documents reflecting such analyses. If not, why not?
b. Identify the total cost of the projects the Company intends to undertake or has undertaken at East Bend to comply with the CCR Rule.
c. State the year these costs have been or will be incurred.
d. Please identify and describe each itemized capital expenditure required to complete the CCR Rule compliance project.
e. State whether any of those costs are included in Duke's test year, and if so, identify the specific costs included.

RESPONSE:

a.-d. Objection, this request is vague, ambiguous and contains undefined terms and is unclear as to which version of CCR rulemaking is being referenced. As such responding to this request would require unreasonable speculation and guesswork. Moreover, this request seeks information that is not relevant to these proceedings and is not likely to lead to the discovery of any relevant or admissible evidence. Without waiving said objection, and to the extent discoverable, the actions required for compliance the various iterations of the CCR rules have either been taken or are associated with legacy operations of the plant not associated with this application or the current operation of the FGSD system.

e. There is no test year. This is not a base rate case.

PERSON RESPONSIBLE: As to objection, Legal
As to response, J. Michael Geers – a. – d.
Sarah E. Lawler – e.

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-025

REQUEST:

Please explain how Duke's modeling in support of this CPCN application incorporates the EPA's updated Mercury Air Toxics Standards ("MATS") rule, if at all.

RESPONSE:

The limestone conversion's design incorporates the measures necessary to maintain compliance with the MATS rule as the unit converts from using quick lime to limestone. As a result, there are no additional costs modeled as part of this conversion. The measures required that will be implemented in the years leading up the compliance date of the revised MATS rule are outside the scope of this project and would be required regardless of whether lime or limestone is used. No additional modeling is required.

PERSON RESPONSIBLE: J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-026

REQUEST:

Has Duke conducted any analysis of the potential costs and timing for such costs at East Bend to comply with EPA's MATS rule? If so, please provide all documents reflecting such analyses. If not, why not?

RESPONSE:

Please refer to the response to SIERRA-DR-01-025.

PERSON RESPONSIBLE: J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-027

REQUEST:

Please explain how Duke's modeling in support of this CPCN application incorporates possible Regional Haze compliance costs, if at all.

RESPONSE:

East Bend's FGD system is well performing and the conversion to limestone is anticipated to maintain that high level of performance. In Kentucky's Regional Haze State Implementation Plan for the Second Planning Period (June 4, 2024), Kentucky did not select East Bend to complete a BART analysis. As such, currently there are no anticipated additional requirements associated with Regional Haze at East Bend, thus no further analysis has been undertaken.

PERSON RESPONSIBLE: J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-028

REQUEST:

Has Duke conducted any analysis of the potential compliance costs at East Bend to comply with EPA's Regional Haze Rule for the second planning period, 40 C.F.R. § 51.308? If so, please provide all documents reflecting such analyses. If not, why not?

RESPONSE:

Please see response to SIERRA-DR-01-027.

PERSON RESPONSIBLE: J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-029

REQUEST:

Please provide the following for Duke Kentucky, with supporting workpapers (in electronic, machine-readable format):

a. Annual peak load since 2015 (or earliest available).

b. Annual PJM capacity reserve requirement since 2015 (or earliest available).

c. Annual sales since 2015 (or earliest available).

d. Annual generation since 2015 (or earliest available).

e. Annual off-system energy sales in GWhs since 2015 (or earliest available).

f. Annual off-system energy sales revenues in dollars since 2015 (or earliest available).

RESPONSE:

Objection. This request seeks information that is overly broad and unduly burdensome in scope as seeking ten years or more of data, as well as of public record, and thus is equally accessible to the Sierra Club. Objecting further, this request seeks information that is not relevant to this proceeding nor is it likely to lead to the discovery of any relevant or admissible information. Without waiving said objection and to the extent discoverable, please see the following answers.

a. The annual peak load can be found in the Duke Energy Kentucky FERC Form 1, page 401b, column d.

b. See table below.

Annual PJM Install Reserve Margin
(based on Base Residual Auction)

Delivery Year	Install Reserve Margin (%)	Forecasted Pool Requirement
2014/2015	15.3	1.0809
2015/2016	15.4	1.0859
2016/2017	15.6	1.0902
2017/2018	15.7	1.0916
2018/2019	15.7	1.0835
2019/2020	16.5	1.0881
2029/2021	16.6	1.0892
2021/2022	15.8	1.0898
2022/2023	14.5	1.0868
2023/2024	14.4	1.0863
2024/2025	14.7	1.0894
2025/2026	17.8	0.9387
2026/2027	18.6	0.9367

c. The annual energy sales can be found in the Duke Energy Kentucky FERC Form 1, page 401b, column b.

d. The annual net generation can be found in the Duke Energy Kentucky FERC Form 1, page 402-403, line 12.

e. Annual off-system energy sales in kWh can be found in the following reviews of Duke Energy Kentucky's application of its Fuel Adjustment Clause (FAC) by the Commission for the 5-year period 2019-2023.

- The November and December 2023 sales in kWh and dollars have not been reviewed by the Commission; therefore, they are listed here.
    i. Nov 23: 18,721,060 kWh; $727,192
    ii. Dec 23: 22,291,050 kWh; $831,099
- Case No. 2024-00140, STAFF-DR-01-013 Attachment, May 23 – Oct 23
- Case No. 2024-00148, STAFF-DR-01-013 Attachment, Nov 22 – Apr 23

- Case No. 2023-00012, STAFF-DR-01-013 Attachment, Nov 20 – Oct 22
- Case No. 2022-00267, STAFF-DR-01-013 Attachment, Nov 21 – Apr 22
- Case No. 2022-00040, STAFF-DR-01-013 Attachment, May 21 – Oct 21
- Case No. 2021-00296, STAFF-DR-01-013 Attachment, Nov 20 – Apr 21
- Case No. 2021-00057, STAFF-DR-01-013 Attachment, Nov 18 – Oct 20
- Case No. 2020-00249, STAFF-DR-01-013 Attachment, Nov 19 – Apr 20
- Case No. 2020-00008, STAFF-DR-01-013 Attachment, May 19 – Oct 19
- Case No. 2020-00230, STAFF-DR-01-013 Attachment, Nov 18 – Apr 19

f. Annual off-system energy sales in dollars can be found in the reviews of Duke Energy Kentucky's application of its Fuel Adjustment Clause (FAC) by the Commission listed in Item (e).

PERSON RESPONSIBLE: As to objection, Legal
As to response, John Swez

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-030

REQUEST:

For East Bend, please provide the following:

a. Historical capital expenditures since 2010.

b. Projected capital expenditures through 2036.

c. Provide a specific accounting of all projects and capital expenditures already scheduled or planned at East Bend 2 over the next ten years.

d. For each capital expenditure involving more than $1 million, please provide all analyses of the present value of those investments versus retirement or replacement. If the Company did not perform any such analysis, why not?

RESPONSE:

a. Objection. This request is overly broad, and unduly burdensome as to scope and seeks information that is neither relevant nor likely to lead to the discovery or admissibility of any relevant evidence. Moreover, this request is further objectionable insofar as it is duplicative of information requested in response to Sierra Club 4(d), and therefore is interpreted as intending to harass. Without waiving said objection, and to the extent discoverable, please see response to Sierra Club 4(d).

b. Objection. This request is overly broad, and unduly burdensome as to scope and seeks information that is neither relevant nor likely to lead to the discovery or admissibility of any relevant evidence. Moreover, this request is further

objectionable insofar as it is duplicative of information requested in response to Sierra Club 5(d), and therefore is interpreted as intending to harass. Without waiving said objection, and to the extent discoverable, please see response to Sierra Club 5(d).

c. Steam Production Plant accounting is generally used for capital projects at East Bend.

d. Objection. Duke Energy Kentucky does not calculate the present value of individual capital expenditures, rather it is calculated on an overall expansion plan.

PERSON RESPONSIBLE: As to objection, Legal
As to response, Matthew Kalemba

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-031

REQUEST:

Please provide the Company's three most-recent commodity and power market price forecasts. Indicate the date of each forecast.

RESPONSE:

Please see SIERRA-DR-01-031 Attachment.

PERSON RESPONSIBLE: John D. Swez

Power Prices - AD Hub

	6/14/2024		7/19/2024		8/16/2024	
	Average On-Peak	Average Off-Peak	Average On-Peak	Average Off-Peak	Average On-Peak	Average Off-Peak
6/1/2024	$ 66.86	$ 32.49				
7/1/2024	$ 86.90	$ 41.65	$ 49.23	$ 27.69		
8/1/2024	$ 69.35	$ 34.35	$ 54.50	$ 29.05	$38.14	$23.55
9/1/2024	$ 53.55	$ 28.00	$ 44.80	$ 26.60	$38.90	$25.10
10/1/2024	$ 45.85	$ 31.70	$ 41.75	$ 29.25	$39.10	$27.00
11/1/2024	$ 46.25	$ 37.30	$ 42.45	$ 35.00	$39.50	$32.05
12/1/2024	$ 49.15	$ 40.00	$ 46.50	$ 38.65	$45.15	$38.75
1/1/2025	$ 62.35	$ 50.70	$ 61.00	$ 49.00	$58.00	$47.35
2/1/2025	$ 52.35	$ 41.05	$ 50.80	$ 40.60	$49.55	$39.00
3/1/2025	$ 42.50	$ 36.65	$ 42.80	$ 35.40	$41.85	$34.95
4/1/2025	$ 41.40	$ 31.10	$ 41.00	$ 29.70	$40.60	$29.85
5/1/2025	$ 44.10	$ 29.80	$ 43.90	$ 28.35	$42.95	$28.45
6/1/2025	$ 51.40	$ 29.75	$ 46.55	$ 26.45	$45.35	$28.05
7/1/2025	$ 76.25	$ 38.55	$ 68.55	$ 35.95	$64.30	$35.50
8/1/2025	$ 68.20	$ 32.80	$ 61.65	$ 31.30	$57.15	$31.20
9/1/2025	$ 53.40	$ 31.55	$ 50.45	$ 28.90	$47.70	$29.35
10/1/2025	$ 46.65	$ 32.20	$ 44.65	$ 31.70	$43.35	$31.50
11/1/2025	$ 46.55	$ 37.60	$ 45.50	$ 37.40	$43.85	$36.10
12/1/2025	$ 50.25	$ 42.15	$ 48.60	$ 40.70	$48.35	$41.40
1/1/2026	$ 67.15	$ 53.25	$ 65.05	$ 51.10	$64.45	$51.30
2/1/2026	$ 56.20	$ 48.35	$ 54.60	$ 46.55	$54.15	$46.65
3/1/2026	$ 45.15	$ 34.60	$ 44.20	$ 33.35	$43.60	$33.65
4/1/2026	$ 41.45	$ 32.15	$ 41.25	$ 31.45	$40.05	$30.65
5/1/2026	$ 45.00	$ 30.15	$ 44.55	$ 29.00	$43.25	$27.95
6/1/2026	$ 52.15	$ 31.10	$ 47.45	$ 30.45	$46.30	$29.75
7/1/2026	$ 78.50	$ 37.65	$ 73.05	$ 37.25	$68.75	$36.60
8/1/2026	$ 70.10	$ 34.95	$ 65.05	$ 34.50	$61.45	$33.95
9/1/2026	$ 51.90	$ 30.60	$ 50.15	$ 30.15	$49.00	$29.45
10/1/2026	$ 46.70	$ 32.35	$ 46.50	$ 33.45	$45.10	$32.80
11/1/2026	$ 46.50	$ 37.00	$ 47.40	$ 37.90	$45.90	$37.15
12/1/2026	$ 52.20	$ 43.70	$ 51.80	$ 44.45	$50.15	$43.45
1/1/2027	$ 69.05	$ 55.90	$ 65.10	$ 54.50	$63.70	$53.45
2/1/2027	$ 62.55	$ 50.40	$ 59.10	$ 49.30	$57.85	$48.35
3/1/2027	$ 46.15	$ 36.95	$ 45.85	$ 35.60	$44.30	$34.85
4/1/2027	$ 42.50	$ 31.15	$ 42.50	$ 31.50	$41.40	$30.80
5/1/2027	$ 44.45	$ 30.55	$ 44.40	$ 29.45	$43.30	$28.25
6/1/2027	$ 49.70	$ 29.90	$ 49.45	$ 29.00	$48.20	$27.55
7/1/2027	$ 79.40	$ 39.10	$ 73.55	$ 36.70	$70.50	$36.15
8/1/2027	$ 72.10	$ 36.25	$ 66.90	$ 34.00	$64.05	$33.65
9/1/2027	$ 51.90	$ 30.10	$ 51.60	$ 29.05	$50.10	$29.45
10/1/2027	$ 48.55	$ 31.50	$ 47.00	$ 31.50	$45.15	$31.70
11/1/2027	$ 47.95	$ 37.10	$ 46.35	$ 37.00	$44.60	$35.20
12/1/2027	$ 54.40	$ 45.80	$ 52.40	$ 45.55	$50.25	$43.35
1/1/2028	$ 69.50	$ 53.45	$ 64.95	$ 52.00	$63.15	$51.55
2/1/2028	$ 62.90	$ 47.60	$ 58.75	$ 46.30	$57.20	$45.90
3/1/2028	$ 51.45	$ 37.75	$ 48.20	$ 35.05	$45.45	$34.00
4/1/2028	$ 47.40	$ 34.00	$ 44.35	$ 31.75	$41.80	$30.90
5/1/2028	$ 49.30	$ 33.75	$ 46.25	$ 31.55	$43.75	$30.65
6/1/2028	$ 53.30	$ 32.85	$ 49.95	$ 30.65	$47.30	$29.80
7/1/2028	$ 75.20	$ 38.95	$ 71.55	$ 36.30	$70.30	$35.25
8/1/2028	$ 68.75	$ 35.60	$ 65.35	$ 33.10	$64.10	$32.25
9/1/2028	$ 52.50	$ 33.15	$ 49.20	$ 30.90	$46.50	$30.05
10/1/2028	$ 47.65	$ 33.75	$ 44.60	$ 31.55	$42.15	$30.65
11/1/2028	$ 50.70	$ 37.90	$ 47.45	$ 35.25	$44.80	$34.20
12/1/2028	$ 61.80	$ 50.50	$ 57.80	$ 47.00	$54.55	$45.65
1/1/2029	$ 73.80	$ 57.55	$ 67.05	$ 54.95	$63.20	$51.45
2/1/2029	$ 67.35	$ 51.85	$ 61.00	$ 49.35	$57.55	$46.20
3/1/2029	$ 53.55	$ 40.50	$ 49.00	$ 38.90	$46.45	$36.70
4/1/2029	$ 48.95	$ 33.60	$ 44.80	$ 32.45	$42.60	$30.65
5/1/2029	$ 51.10	$ 33.20	$ 46.80	$ 32.00	$44.35	$30.10
6/1/2029	$ 55.05	$ 32.40	$ 50.45	$ 31.15	$47.85	$29.25
7/1/2029	$ 74.00	$ 38.50	$ 67.70	$ 37.00	$64.25	$34.95
8/1/2029	$ 67.80	$ 35.00	$ 62.15	$ 33.70	$59.00	$31.85
9/1/2029	$ 54.30	$ 32.60	$ 49.80	$ 31.35	$47.30	$29.45
10/1/2029	$ 49.40	$ 33.20	$ 45.30	$ 32.00	$43.10	$30.10
11/1/2029	$ 52.65	$ 37.20	$ 48.20	$ 35.80	$45.70	$33.75
12/1/2029	$ 64.40	$ 49.30	$ 59.00	$ 47.20	$55.85	$44.40

Gas Prices -Henry Hub + Tetco M1

	6/14/2024		7/19/2024		8/16/2024	
	Henry Hub	Tetco M1	Henry Hub	Tetco M1	Henry Hub	Tetco M1
6/1/2024	$ 2.49	$ (0.62)				
7/1/2024	$ 2.88	$ (0.31)	$ 2.63	$ (0.43)		
8/1/2024	$ 2.96	$ (0.29)	$ 2.13	$ (0.30)	$1.91	$ (0.43)
9/1/2024	$ 2.94	$ (0.29)	$ 2.17	$ (0.27)	$2.12	$ (0.25)
10/1/2024	$ 3.01	$ (0.35)	$ 2.30	$ (0.35)	$2.25	$ (0.31)
11/1/2024	$ 3.36	$ (0.17)	$ 2.77	$ (0.21)	$2.63	$ (0.24)
12/1/2024	$ 3.78	$ (0.12)	$ 3.32	$ (0.10)	$3.16	$ (0.15)
1/1/2025	$ 4.04	$ (0.10)	$ 3.61	$ (0.09)	$3.44	$ (0.09)
2/1/2025	$ 3.87	$ (0.11)	$ 3.46	$ (0.09)	$3.30	$ (0.09)
3/1/2025	$ 3.47	$ (0.10)	$ 3.10	$ (0.08)	$2.96	$ (0.08)
4/1/2025	$ 3.18	$ (0.08)	$ 2.91	$ (0.05)	$2.83	$ (0.12)
5/1/2025	$ 3.20	$ (0.11)	$ 2.95	$ (0.08)	$2.88	$ (0.11)
6/1/2025	$ 3.35	$ (0.09)	$ 3.11	$ (0.06)	$3.02	$ (0.09)
7/1/2025	$ 3.53	$ (0.10)	$ 3.29	$ (0.07)	$3.18	$ (0.11)
8/1/2025	$ 3.56	$ (0.10)	$ 3.33	$ (0.07)	$3.22	$ (0.11)
9/1/2025	$ 3.52	$ (0.09)	$ 3.30	$ (0.06)	$3.19	$ (0.09)
10/1/2025	$ 3.59	$ (0.11)	$ 3.36	$ (0.08)	$3.25	$ (0.12)
11/1/2025	$ 3.85	$ 0.04	$ 3.65	$ 0.05	$3.53	$ (0.02)
12/1/2025	$ 4.25	$ 0.05	$ 4.07	$ 0.10	$3.94	$ 0.02
1/1/2026	$ 4.52	$ 0.04	$ 4.09	$ 0.18	$4.20	$ 0.10
2/1/2026	$ 4.28	$ 0.06	$ 3.92	$ 0.19	$3.96	$ 0.13
3/1/2026	$ 3.75	$ 0.05	$ 3.50	$ 0.18	$3.42	$ 0.11
4/1/2026	$ 3.38	$ 0.05	$ 3.29	$ 0.16	$3.07	$ 0.09
5/1/2026	$ 3.40	$ 0.05	$ 3.33	$ 0.17	$3.10	$ 0.11
6/1/2026	$ 3.56	$ 0.05	$ 3.52	$ 0.17	$3.24	$ 0.11
7/1/2026	$ 3.73	$ 0.05	$ 3.72	$ 0.17	$3.39	$ 0.10
8/1/2026	$ 3.75	$ 0.05	$ 3.77	$ 0.17	$3.43	$ 0.10
9/1/2026	$ 3.72	$ 0.05	$ 3.73	$ 0.17	$3.40	$ 0.10
10/1/2026	$ 3.79	$ 0.05	$ 3.80	$ 0.17	$3.46	$ 0.10
11/1/2026	$ 4.06	$ 0.05	$ 4.13	$ 0.17	$3.73	$ 0.10
12/1/2026	$ 4.49	$ 0.05	$ 4.60	$ 0.17	$4.13	$ 0.10
1/1/2027	$ 4.74	$ 0.05	$ 4.43	$ 0.17	$4.39	$ 0.10
2/1/2027	$ 4.49	$ 0.05	$ 4.24	$ 0.17	$4.17	$ 0.10
3/1/2027	$ 3.88	$ 0.05	$ 3.79	$ 0.17	$3.56	$ 0.10
4/1/2027	$ 3.41	$ 0.05	$ 3.56	$ 0.17	$3.10	$ 0.10
5/1/2027	$ 3.42	$ 0.05	$ 3.61	$ 0.17	$3.11	$ 0.10
6/1/2027	$ 3.57	$ 0.05	$ 3.81	$ 0.17	$3.24	$ 0.10
7/1/2027	$ 3.75	$ 0.05	$ 4.03	$ 0.17	$3.39	$ 0.10
8/1/2027	$ 3.76	$ 0.05	$ 4.08	$ 0.17	$3.43	$ 0.10
9/1/2027	$ 3.72	$ 0.05	$ 4.04	$ 0.17	$3.40	$ 0.10
10/1/2027	$ 3.80	$ 0.05	$ 4.11	$ 0.17	$3.47	$ 0.10
11/1/2027	$ 4.09	$ 0.05	$ 4.47	$ 0.17	$3.72	$ 0.10
12/1/2027	$ 4.50	$ 0.05	$ 4.98	$ 0.17	$4.12	$ 0.10
1/1/2028	$ 4.74	$ 0.05	$ 4.58	$ 0.17	$4.39	$ 0.10
2/1/2028	$ 4.51	$ 0.05	$ 4.39	$ 0.17	$4.15	$ 0.10
3/1/2028	$ 3.87	$ 0.05	$ 3.92	$ 0.17	$3.48	$ 0.10
4/1/2028	$ 3.33	$ 0.05	$ 3.69	$ 0.17	$2.98	$ 0.10
5/1/2028	$ 3.35	$ 0.05	$ 3.73	$ 0.17	$3.01	$ 0.10
6/1/2028	$ 3.51	$ 0.05	$ 3.94	$ 0.17	$3.16	$ 0.10
7/1/2028	$ 3.68	$ 0.05	$ 4.17	$ 0.17	$3.34	$ 0.10
8/1/2028	$ 3.70	$ 0.05	$ 4.22	$ 0.17	$3.38	$ 0.10
9/1/2028	$ 3.66	$ 0.05	$ 4.18	$ 0.17	$3.35	$ 0.10
10/1/2028	$ 3.73	$ 0.05	$ 4.26	$ 0.17	$3.39	$ 0.10
11/1/2028	$ 3.98	$ 0.05	$ 4.63	$ 0.17	$3.64	$ 0.10
12/1/2028	$ 4.40	$ 0.05	$ 5.16	$ 0.17	$4.08	$ 0.10
1/1/2029	$ 4.68	$ 0.05	$ 4.73	$ 0.17	$4.33	$ 0.10
2/1/2029	$ 4.43	$ 0.05	$ 4.54	$ 0.17	$4.08	$ 0.10
3/1/2029	$ 3.75	$ 0.05	$ 4.06	$ 0.17	$3.37	$ 0.10
4/1/2029	$ 3.24	$ 0.05	$ 3.81	$ 0.17	$2.89	$ 0.10
5/1/2029	$ 3.26	$ 0.05	$ 3.86	$ 0.17	$2.93	$ 0.10
6/1/2029	$ 3.43	$ 0.05	$ 4.08	$ 0.17	$3.11	$ 0.10
7/1/2029	$ 3.61	$ 0.05	$ 4.31	$ 0.17	$3.31	$ 0.10
8/1/2029	$ 3.64	$ 0.05	$ 4.37	$ 0.17	$3.34	$ 0.10
9/1/2029	$ 3.60	$ 0.05	$ 4.32	$ 0.17	$3.31	$ 0.10
10/1/2029	$ 3.69	$ 0.05	$ 4.40	$ 0.17	$3.38	$ 0.10
11/1/2029	$ 3.99	$ 0.05	$ 4.78	$ 0.17	$3.65	$ 0.10
12/1/2029	$ 4.42	$ 0.05	$ 5.33	$ 0.17	$4.05	$ 0.10

Indicative Coal Prices

	6/14/2024			7/19/2024			8/16/2024		
	Ohio 100 Barge	ILB 11000 HS	ILB 11500 HS	Ohio 100 Barge	ILB 11000 HS	ILB 11500 HS	Ohio 100 Barge	ILB 11000 HS	ILB 11500 HS
6/1/2024	$ 46.25	$ 35.00	$ 44.00						
7/1/2024	$ 46.25	$ 35.00	$ 44.00	$ 46.00	$ 35.00	$ 44.00			
8/1/2024	$ 46.25	$ 35.00	$ 44.00	$ 45.75	$ 35.50	$ 44.50	$45.75	$36.25	$ 45.25
9/1/2024	$ 46.25	$ 35.00	$ 44.00	$ 45.75	$ 35.50	$ 44.50	$46.00	$36.75	$ 45.50
10/1/2024	$ 46.50	$ 35.50	$ 44.50	$ 45.75	$ 35.75	$ 44.75	$46.00	$36.75	$ 45.50
11/1/2024	$ 46.50	$ 35.50	$ 44.50	$ 45.75	$ 35.75	$ 44.75	$46.00	$36.75	$ 45.50
12/1/2024	$ 46.50	$ 35.50	$ 44.50	$ 45.75	$ 35.75	$ 44.75	$46.00	$36.75	$ 45.50
1/1/2025	$ 46.75	$ 37.25	$ 45.75	$ 46.50	$ 37.00	$ 45.50	$46.50	$37.50	$ 45.75
2/1/2025	$ 46.75	$ 37.25	$ 45.75	$ 46.50	$ 37.00	$ 45.50	$46.50	$37.50	$ 45.75
3/1/2025	$ 46.75	$ 37.25	$ 45.75	$ 46.50	$ 37.00	$ 45.50	$46.50	$37.50	$ 45.75
4/1/2025	$ 46.75	$ 37.25	$ 45.75	$ 46.50	$ 37.00	$ 45.50	$46.50	$37.50	$ 45.75
5/1/2025	$ 46.75	$ 37.25	$ 45.75	$ 46.50	$ 37.00	$ 45.50	$46.50	$37.50	$ 45.75
6/1/2025	$ 46.75	$ 37.25	$ 45.75	$ 46.50	$ 37.00	$ 45.50	$46.50	$37.50	$ 45.75
7/1/2025	$ 46.75	$ 37.25	$ 45.75	$ 46.50	$ 37.00	$ 45.50	$46.50	$37.50	$ 45.75
8/1/2025	$ 46.75	$ 37.25	$ 45.75	$ 46.50	$ 37.00	$ 45.50	$46.50	$37.50	$ 45.75
9/1/2025	$ 46.75	$ 37.25	$ 45.75	$ 46.50	$ 37.00	$ 45.50	$46.50	$37.50	$ 45.75
10/1/2025	$ 46.75	$ 37.25	$ 45.75	$ 46.50	$ 37.00	$ 45.50	$46.50	$37.50	$ 45.75
11/1/2025	$ 46.75	$ 37.25	$ 45.75	$ 46.50	$ 37.00	$ 45.50	$46.50	$37.50	$ 45.75
12/1/2025	$ 46.75	$ 37.25	$ 45.75	$ 46.50	$ 37.00	$ 45.50	$46.50	$37.50	$ 45.75
1/1/2026	$ 48.25	$ 37.75	$ 46.25	$ 48.00	$ 38.50	$ 47.00	$48.00	$38.50	$ 46.75
2/1/2026	$ 48.25	$ 37.75	$ 46.25	$ 48.00	$ 38.50	$ 47.00	$48.00	$38.50	$ 46.75
3/1/2026	$ 48.25	$ 37.75	$ 46.25	$ 48.00	$ 38.50	$ 47.00	$48.00	$38.50	$ 46.75
4/1/2026	$ 48.25	$ 38.75	$ 47.25	$ 48.00	$ 38.50	$ 47.00	$48.00	$38.50	$ 46.75
5/1/2026	$ 48.25	$ 38.75	$ 47.25	$ 48.00	$ 38.50	$ 47.00	$48.00	$38.50	$ 46.75
6/1/2026	$ 48.25	$ 38.75	$ 47.25	$ 48.00	$ 38.50	$ 47.00	$48.00	$38.50	$ 46.75
7/1/2026	$ 48.25	$ 38.75	$ 47.25	$ 48.00	$ 38.50	$ 47.00	$48.00	$38.75	$ 47.00
8/1/2026	$ 48.25	$ 38.75	$ 47.25	$ 48.00	$ 38.50	$ 47.00	$48.00	$38.75	$ 47.00
9/1/2026	$ 48.25	$ 38.75	$ 47.25	$ 48.00	$ 38.50	$ 47.00	$48.00	$38.75	$ 47.00
10/1/2026	$ 48.25	$ 38.75	$ 47.25	$ 48.00	$ 38.50	$ 47.00	$48.00	$38.75	$ 47.00
11/1/2026	$ 48.25	$ 38.75	$ 47.25	$ 48.00	$ 38.50	$ 47.00	$48.00	$38.75	$ 47.00
12/1/2026	$ 48.25	$ 38.75	$ 47.25	$ 48.00	$ 38.50	$ 47.00	$48.00	$38.75	$ 47.00
1/1/2027	$ 50.00	$ 40.50	$ 49.00	$ 49.75	$ 40.00	$ 48.50	$49.75	$40.25	$ 48.50
2/1/2027	$ 50.00	$ 40.50	$ 49.00	$ 49.75	$ 40.00	$ 48.50	$49.75	$40.25	$ 48.50
3/1/2027	$ 50.00	$ 40.50	$ 49.00	$ 49.75	$ 40.00	$ 48.50	$49.75	$40.25	$ 48.50
4/1/2027	$ 50.00	$ 40.50	$ 49.00	$ 49.75	$ 40.00	$ 48.50	$49.75	$40.25	$ 48.50
5/1/2027	$ 50.00	$ 40.50	$ 49.00	$ 49.75	$ 40.00	$ 48.50	$49.75	$40.25	$ 48.50
6/1/2027	$ 50.00	$ 40.50	$ 49.00	$ 49.75	$ 40.00	$ 48.50	$49.75	$40.25	$ 48.50
7/1/2027	$ 50.00	$ 40.50	$ 49.00	$ 49.75	$ 40.00	$ 48.50	$49.75	$40.25	$ 48.50
8/1/2027	$ 50.00	$ 40.50	$ 49.00	$ 49.75	$ 40.00	$ 48.50	$49.75	$40.25	$ 48.50
9/1/2027	$ 50.00	$ 40.50	$ 49.00	$ 49.75	$ 40.00	$ 48.50	$49.75	$40.25	$ 48.50
10/1/2027	$ 50.00	$ 40.50	$ 49.00	$ 49.75	$ 40.00	$ 48.50	$49.75	$40.25	$ 48.50
11/1/2027	$ 50.00	$ 40.50	$ 49.00	$ 49.75	$ 40.00	$ 48.50	$49.75	$40.25	$ 48.50
12/1/2027	$ 50.00	$ 40.50	$ 49.00	$ 49.75	$ 40.00	$ 48.50	$49.75	$40.25	$ 48.50
1/1/2028	$ 51.92	$ 41.65	$ 50.39	$ 51.66	$ 41.13	$ 49.87	$51.66	$41.39	$ 49.87
2/1/2028	$ 51.92	$ 41.65	$ 50.39	$ 51.66	$ 41.13	$ 49.87	$51.66	$41.39	$ 49.87
3/1/2028	$ 51.92	$ 41.65	$ 50.39	$ 51.66	$ 41.13	$ 49.87	$51.66	$41.39	$ 49.87
4/1/2028	$ 51.92	$ 41.65	$ 50.39	$ 51.66	$ 41.13	$ 49.87	$51.66	$41.39	$ 49.87
5/1/2028	$ 51.92	$ 41.65	$ 50.39	$ 51.66	$ 41.13	$ 49.87	$51.66	$41.39	$ 49.87
6/1/2028	$ 51.92	$ 41.65	$ 50.39	$ 51.66	$ 41.13	$ 49.87	$51.66	$41.39	$ 49.87
7/1/2028	$ 51.92	$ 41.65	$ 50.39	$ 51.66	$ 41.13	$ 49.87	$51.66	$41.39	$ 49.87
8/1/2028	$ 51.92	$ 41.65	$ 50.39	$ 51.66	$ 41.13	$ 49.87	$51.66	$41.39	$ 49.87
9/1/2028	$ 51.92	$ 41.65	$ 50.39	$ 51.66	$ 41.13	$ 49.87	$51.66	$41.39	$ 49.87
10/1/2028	$ 51.92	$ 41.65	$ 50.39	$ 51.66	$ 41.13	$ 49.87	$51.66	$41.39	$ 49.87
11/1/2028	$ 51.92	$ 41.65	$ 50.39	$ 51.66	$ 41.13	$ 49.87	$51.66	$41.39	$ 49.87
12/1/2028	$ 51.92	$ 41.65	$ 50.39	$ 51.66	$ 41.13	$ 49.87	$51.66	$41.39	$ 49.87
1/1/2029	$ 53.85	$ 42.79	$ 51.77	$ 53.58	$ 42.26	$ 51.25	$53.58	$42.53	$ 51.25
2/1/2029	$ 53.85	$ 42.79	$ 51.77	$ 53.58	$ 42.26	$ 51.25	$53.58	$42.53	$ 51.25
3/1/2029	$ 53.85	$ 42.79	$ 51.77	$ 53.58	$ 42.26	$ 51.25	$53.58	$42.53	$ 51.25
4/1/2029	$ 53.85	$ 42.79	$ 51.77	$ 53.58	$ 42.26	$ 51.25	$53.58	$42.53	$ 51.25
5/1/2029	$ 53.85	$ 42.79	$ 51.77	$ 53.58	$ 42.26	$ 51.25	$53.58	$42.53	$ 51.25
6/1/2029	$ 53.85	$ 42.79	$ 51.77	$ 53.58	$ 42.26	$ 51.25	$53.58	$42.53	$ 51.25
7/1/2029	$ 53.85	$ 42.79	$ 51.77	$ 53.58	$ 42.26	$ 51.25	$53.58	$42.53	$ 51.25
8/1/2029	$ 53.85	$ 42.79	$ 51.77	$ 53.58	$ 42.26	$ 51.25	$53.58	$42.53	$ 51.25
9/1/2029	$ 53.85	$ 42.79	$ 51.77	$ 53.58	$ 42.26	$ 51.25	$53.58	$42.53	$ 51.25
10/1/2029	$ 53.85	$ 42.79	$ 51.77	$ 53.58	$ 42.26	$ 51.25	$53.58	$42.53	$ 51.25
11/1/2029	$ 53.85	$ 42.79	$ 51.77	$ 53.58	$ 42.26	$ 51.25	$53.58	$42.53	$ 51.25
12/1/2029	$ 53.85	$ 42.79	$ 51.77	$ 53.58	$ 42.26	$ 51.25	$53.58	$42.53	$ 51.25

Coal blends will be dependent upon utilization of Limestone or Quicklime

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-032

REQUEST:

Please provide total energy and ancillary service market revenues for East Bend, for the period 2019–2024.

RESPONSE:

Objection. This request is overly broad, unduly burdensome and is cumulative and duplicative insofar as it seeks information previously requested by the Sierra Club in other data requests submitted in this set. Therefore, this request is interpreted as intending to harass. Without waiving said objection and to the extent discoverable, please refer to confidential responses to SIERRA-DR-01-004, subparts (k) and (m).

PERSON RESPONSIBLE: As to objection, Legal
As to response, John Swez

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-033

REQUEST:

Please provide total projected energy and ancillary service market revenues for East Bend, for the period 2025–2046.

RESPONSE:

Please see confidential responses to SIERRA-DR-01-005, subparts (k), (l) and (m).

PERSON RESPONSIBLE: Tyler Cook

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-034

REQUEST:

Please provide unredacted, in native format with all formulae intact, all analyses or assessments that study the value of continued operation (e.g., all retirement studies, unit condition assessments, or deactivation assessments) conducted since 2015, for East Bend Generating Station, including, but not limited to, all studies, presentations, reports, or other assessments conducted to determine how to comply with any existing, impending, or potential environmental regulation.

RESPONSE:

Objection. This request is overbroad and unduly burdensome, seeks information that is beyond the scope of, irrelevant to, nor is it likely to lead to the discovery of any information that is relevant or admissible to this proceeding. Duke Energy Kentucky is not requesting, pursuant to KRS 278.264, to retire East Bend. Moreover, this request is further objectionable, as it is duplicative of other Sierra Club requests and thus is interpreted as intending to harass. Further, this request is objectionable to the extent it seeks information that is protected under the doctrines of attorney-client privilege and/or work product. Finally, this request is objectionable insofar as it seeks information that is publicly available and accessible to the Sierra Club. Without waiving said objections, and to the extent discoverable, please see decommissioning studies submitted in Case No.'s 2022-00372 and 2017-00321. For assessments regarding existing, impending, or potential environmental regulations, see direct testimony of Michael Geers and responses to Sierra

Club DR-01-16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, and 28. Additionally, see Duke Energy Kentucky's filed 2024 IRP which assesses the impacts of the final EPA CAA 111 Rule update.

PERSON RESPONSIBLE: As to objections, Legal
As to response, Matthew Kalemba
J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-035

REQUEST:

For each retirement study or unit condition assessment in response to Sierra Club 1.34 above:

a. State which modeling software was used to conduct the analysis.

b. State the date that the analysis was performed.

c. State whether the units were modeled with an economic (market) or self-commitment (must run) status for each year of the analysis.

d. State the date of each forecast or projection used in the analysis.

e. State the regulation or rationale behind each retirement date(s) studied.

f. Provide all underlying workbooks with formulas intact that were used to

g. Identify all transmission grid updates or changes that would be needed to allow for the retirement of East Bend.

h. Produce all analyses or assessments of the impact that retirement of each unit would have on capacity adequacy, transmission grid stability, transmission grid support, voltage support, or transmission system reliability.

i. Provide each of the following inputs for each modeled scenario:

i. Heat rate (Btu);

ii. Projected Ongoing Capital expenditures ($);

iii. Variable Operation and Maintenance ($/MWh);

iv. Fixed Operation and Maintenance ($/MW);

v. Environmental compliance capital expenditures;

vi. All transmission upgrade costs assumed, if any ($);

vii. PJM energy price forecasts (with and without CO_2 price);

viii. PJM capacity price forecasts (with and without CO_2 price);

ix. CO_2 price forecasts;

x. Coal price ($/MMBtu); and

xi. Gas price ($/MMBtu)

RESPONSE:

Objection. This request is overbroad and unduly burdensome, seeks information that is beyond the scope of, irrelevant to, nor is it likely to lead to the discovery of any information that is relevant or admissible to this proceeding. Duke Energy Kentucky is not requesting, pursuant to KRS 278.264, to retire East Bend. Moreover, this request is further objectionable, as it is duplicative of other Sierra Club requests and thus is interpreted as intending to harass. Further, this request is objectionable to the extent it seeks information that is protected under the doctrines of attorney-client privilege and/or work product. Finally, this request is objectionable insofar as it seeks information that is publicly available and accessible to the Sierra Club. Without waiving said objections, and to the extent discoverable, please see decommissioning studies submitted as part of the Direct Testimony of Jeffrey T. Kopp in Case No.'s 2022-00372 and 2017-00321. These decommissioning studies were performed by Mr. Kopp with 1898 & Co/ Burns and McDonnel Engineering Company. For assessments regarding existing, impending, or potential environmental regulations, see direct testimony of Michael Geers and responses to Sierra Club DR-01-16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, and 28.

PERSON RESPONSIBLE: As to objections, Legal
As to response, J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-036

REQUEST:

Please refer to the Direct Testimony of Witness Donner, page 7, lines 3-7.

a. Please provide the total timeline needed for the conversion to be completed.

b. Please identify which critical components have the estimated 52-54 week lead time and specify the lead time for each such component.

c. For each critical component, please explain where the component is manufactured.

RESPONSE:

a. The Company estimates 30 months.

b. The grinding mills have a 54-week lead time. The Electrical PDC has a 42-week lead time.

c. Objection. This sub-part calls for speculation. At this time, we do not know where the long lead items will be manufactured as they have not been awarded.

PERSON RESPONSIBLE: As to objection, Legal
As to response, Troy Wilhelm

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-037

REQUEST:

Please refer to the Direct Testimony of Witness Donner, page 7, lines 11-12, where the total estimated cost of construction is reported at $125.8 million. Please provide the annual revenue requirements for this project over the proposed recovery period.

RESPONSE:

Please see Attachment SEL-1 to Sarah E. Lawler's Direct Testimony for the 2024 to 2029 revenue requirement. The data for future years is not available.

PERSON RESPONSIBLE: Sarah E. Lawler

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-038

REQUEST:

Please refer to the Direct Testimony of Witness Donner, page 9.

a. Please provide an unredacted version of the table presented in between lines 2 and 3 of the testimony.

b. Please explain how Duke developed the values under the "Future Projections" for years 2025-2029 as shown in the table.

c. Please provide the source of the lime and limestone costs.

d. Please explain the intended meaning of "materially" as used on line 19.

RESPONSE:

a. This information was previously provided pursuant to the terms of the signed Confidentiality Agreement on September 19, 2024.

b. The future projected lime costs were derived by applying the average past actual annual escalation rate to the current lime contract pricing and expanded out for future projections.

c. The public values represented in the table are actual historical MEL contract pricing for East Bend station compared to actual historical limestone contract pricing delivered to nearby units withing the Duke Energy fleet.

d. The intent of this comment is that the overall WFGD process is not changing substantially. Currently the East Bend WFGD operates under a MEL (Inhibited Oxidation) process and the conversion will maintain a (Inhibited Oxidation)

process which minimizes additional capital expenditure by maintaining the same primary and secondary dewatering process & equipment.

PERSON RESPONSIBLE: Chad Donner

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-039

REQUEST:

Please refer to the Direct Testimony of Witness Verderame, page 6, lines 2-6, where it states that "The expenses associated with lime reagent, stabilization additives and disposal of the waste sludge produced by the process result in very high WFGD operating costs which adversely affect the competitiveness of the East Bend Station in today's power markets." Please provide the annual WFGD operating costs for the East Bend Station in the most-recent five-year period available.

RESPONSE:

Please see SIERRA-DR-01-039 Attachment.

PERSON RESPONSIBLE: Chad Donner
John A. Verderame

Please refer to the Direct Testimony of Witness Verderame, page 6, lines 2-6, where it states that "The expenses associated with lime reagent, stabilization additives and disposal of the waste sludge produced by the process result in very high WFGD operating costs which adversely affect the competitiveness of the East Bend Station in today's power markets." Please provide the annual WFGD operating costs for the East Bend Station in the most-recent five year period available.

O&M Costs- 2019-2023					
Cost Type	**2019**	**2020**	**2021**	**2022**	**2023**
WFGD Operating Costs	$5,310,210	$5,516,664	$4,758,036	$5,671,535	$2,671,767
WFGD Reagent Costs - Lime	$10,275,281	$9,161,247	$10,261,705	$12,298,771	$14,025,598
Grand Total	**$15,585,491**	**$14,677,911**	**$15,019,741**	**$17,970,306**	**$16,697,365**

SIERRA-DR-01-040

REQUEST:

Please refer to the Direct Testimony of Witness Verderame, page 7, lines 6-7, where it states "The Company reached an interim agreement, but at more than double the price of the prior contract."

a. Please state the term of the interim agreement that the Company reached with the supplier.

b. Before the interim agreement was reached, how often was the Company contracting with this particular supplier? (*i.e.*, were contracts entered into for one year, five years, etc.)

c. Please explain how long the Company has been contracting with this supplier.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET

a. [redacted]

b. Duke Energy Kentucky has historically entered into [redacted] supply agreements with this supplier.

c. The supplier has been the provider of the MEL lime product to East Bend since the plant began operations in the early 1980's.

PERSON RESPONSIBLE: John A. Verderame

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-041

REQUEST:

Please refer to the Direct Testimony of Witness Verderame, page 7, lines 12-13. Please explain the period(s) of time contemplated by the phrase "long-term contract," and to the extent that the Company and the supplier discussed particular term lengths, please identify each specific term length discussed.

RESPONSE:

Long-Term contracts are referred to as any term greater than one year. Duke Energy Kentucky was willing to entertain terms of any length, up to and including the potential end of life of East Bend Station that could potentially provide value to the customer and reliability of lime supply. The Company was only able to negotiate a two year contract.

PERSON RESPONSIBLE: John A. Verderame

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-042

REQUEST:

Please refer to the Direct Testimony of Witness Verderame, page 8, lines 1-3, which states, "As the capacity factor of East Bend 2 deteriorates, customers will be more exposed to purchased power, while continuing to pay for East Bend to sit idle." Please provide the monthly off-system sales and purchases Duke Energy Kentucky has made since 2019.

RESPONSE:

Objection. This request seeks information that is of public record, and thus is equally accessible to the Sierra Club. Objecting further, this request seeks information that is not relevant to this proceeding nor is it likely to lead to the discovery of any relevant or admissible information. Without waiving said objection and to the extent discoverable, please see the following answers.

Monthly off-system sales are of public record. See SIERRA-DR-01-029, subpart (e).

Monthly purchases are of public record and can be found in the monthly Fuel Adjustment Clause (FAC) filings on the psc.ky.gov website.

PERSON RESPONSIBLE: As to objection, Legal
John A. Verderame

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-043

REQUEST:

Please refer to the Direct Testimony of Witness Verderame, page 9, lines 3-6, where it states that "Duke Energy Kentucky has been examining the possibility of a change to the MEL WFGD process for some time. However, given the cost of the investment, its complexity, and the accessibility of lime reagent, it previously did not make clear economic sense for customers."

a. Please explain when Duke Energy Kentucky first started evaluating the possibility of a change to the MEL WFGD process.
b. Please provide the estimated cost of converting to the MEL WFGD process at the time that Duke Energy Kentucky first began evaluating the possibility of a change to the MEL WFGD process.

RESPONSE:

a. Duke Energy Kentucky's engineers started an internal evaluation in 2021 and kicked off a technical feasibility study in 2022.
b. At the time, the evaluation was focused on technical feasibility and a full comprehensive conversion cost evaluation was not completed at that time outside of very high-level costs.

PERSON RESPONSIBLE: Chad Donner

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

CONFIDENTIAL SIERRA-DR-01-044
(As to Attachment only)

REQUEST:

Please refer to the Direct Testimony of Witness Verderame, page 9, lines 10-11, which states, "It is only in the recent years that the MEL reagent costs have climbed exponentially, and supply became a concern."

a. Please provide the MEL reagent costs for the past ten years. Please provide these broken out by commodity and transportation costs.

b. Please explain when Duke Energy Kentucky was first made aware that supply was a concern.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachment only)

a. Please see SIERRA-DR-01-044 Confidential Attachment.

b. Duke Energy Kentucky has received reliable supply and competitive pricing on its lime supply agreements from the current supplier since the 1980's. In Q1, 2020, Duke Energy Kentucky received notice from the supplier of the operational suspension of its MEL mining operation due to a lack of industry demand for the MEL product. However, the supplier made the commitment to honor the contractual obligations from an alternative affiliated mine which would require additional chemical processing to meet East Bend's WFGD system specifications. 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 meet environmental requirements. During the April 2023 Request for Proposal, Duke Energy Kentucky became aware of both the significant MEL product price increase as well as lack of availability of both MEL and quicklime when the other known alternative of MEL lime withdrew its bid due to other contractual commitments and no other viable quicklime bids were received.

PERSON RESPONSIBLE: John A. Verderame

CONFIDENTIAL PROPRIETARY TRADE SECRET

SIERRA-DR-01-044
CONFIDENTIAL ATTACHMENT

FILED UNDER SEAL

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-045

REQUEST:

Please refer to the Company's CPCN Application, Exhibit 4, AECOM's Preliminary Engineering Report, at page 5 of 78. Please state approximately when "Duke Energy approached AECOM to assess the technical feasibility of converting the FGD system …."

RESPONSE:

A formal RFP was requested in February of 2022.

PERSON RESPONSIBLE: Chad Donner

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-046

REQUEST:

Please refer to the Direct Testimony of Witness Verderame, page 9, referencing an RFP solicitation. Please provide the date when the RFP was released and the date upon which Duke Energy Kentucky received responses to the RFP.

RESPONSE:

The solicitation was sent to market participants on March 29, 2023, with bids due back on or before 5:00pm Eastern Time on Friday, April 26th, 2023. The Request for Proposal was solicited to potential suppliers of hydrated lime, MEL and quicklime and was submitted on behalf of all Duke Energy jurisdictions.

PERSON RESPONSIBLE: John A. Verderame

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-047

REQUEST:

Please refer to the Direct Testimony of Witness Verderame, page 13, lines 16-19, where it states, "Finally, as discussed below and not included in the $166.1 million impact above, the project saves $6.1 million in fuel and purchase power costs, $18.6 million in reagent costs, and $3 million in additional non-native off-system sales margin on average per year."

a. Please explain how the fuel and purchase power costs, reagent costs, and additional non-native off-system sales margin were calculated.

b. Please explain the difference between the $3 million in additional non-native off-system sales margin and the energy market impact of $15.8 million per year referenced on page 13, lines 5-6 of Witness Verderame's testimony.

RESPONSE:

a. Please see STAFF-DR-01-021 Confidential Attachment. Specifically, see the Duke Energy Kentucky Cost Breakdowns tab for the calculation of the annual average savings of $6.1 million in fuel and purchase power expense as well as the $18.6 million in reagent cost savings and the Off System Sales tab for the calculation of the $3 million in additional non-native off-system sales margin.

b. The energy market impact of $15.8 million per year referenced on page 13, lines 5-6 of Witness Verderame's testimony refers to the estimated cost of replacement energy incurred should the limestone conversion project not take place and the Company be unable to purchase the MEL reagent causing East Bend Station to be

forced off-line. Please see Verderame Direct Testimony Footnote 7 Replacement Energy calculation at the bottom of page 13. The projected $3 million in additional net non-native sales revenue is based on the forecasted increase in economic generation at East Bend Station should the limestone conversion project take place.

PERSON RESPONSIBLE: Ryan Trogstad – a.
John Swez – b.

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

CONFIDENTIAL SIERRA-DR-01-048
(As to Attachments only)

REQUEST:

Please refer to the Direct Testimony of Witness Verderame, page 14, lines 5-7, where it states, "Stochastic production cost modeling shows that conversion to a limestone reagent process is economic in most future scenarios with reduced variable operational costs of ~$12.03/MWh reducing dispatch cost …."

a. Please confirm if the stochastic production cost modeling was performed using the EnCompass software. If the EnCompass software was not used, please provide the name of the software used.
b. Please provide, in machine readable format, the hourly market price forecasts modeled for each scenario.
c. Please provide the modeling period for the stochastic production cost modeling.
d. Please provide the modeling input and output files, in machine readable format, used to perform the stochastic production cost modeling.
e. Please explain what modeling inputs were modeled with stochastic inputs.
f. Please explain how the stochastic inputs were developed.
g. Please explain which scenarios are included in the "conversion to a limestone reagent process is economic in most future scenarios."
h. Please provide the scenarios in which the conversion to a limestone reagent process is not economic.

i. Please provide the off-system sales and purchases for the scenarios evaluated in the stochastic production cost modeling.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachments only)

a. Stochastic production cost modeling was performed using PowerSIMM, a product of Ascend Analytics.

b. Objection. This request is overly broad, unduly burdensome, and otherwise unreasonable as it would require the Company to provide millions of data points with hourly data in files too large to transfer. Without waiving said objection, and to the extent discoverable, the Company is able to provide the information on a monthly basis. Please see SIERRA-DR-01-048(b) Attachment 1 for the monthly power, natural gas and fuel oil market price inputs. Please see STAFF-DR-02-001 Confidential Attachment 1 and STAFF-DR-02-001 Confidential Attachment 2 for the monthly coal market price inputs.

c. Dispatch was simulated hourly from 1/1/26 through 12/31/2029, with the evaluated period being from 1/1/2027 through 12/31/2029.

d. Objection. This request is overly broad, unduly burdensome, and otherwise unreasonable as it would require the Company to provide millions of data points with hourly data in output files too large to transfer. Without waiving said objection, and to the extent discoverable, the Company is able to provide monthly average output files. Please see SIERRA-DR-01-048(d) Confidential Attachment 1 for additional key modeling assumptions for East Bend, modeled in these scenarios. Please see SIERRA-DR-01-48(d) Confidential Attachment 2 for the monthly mean output file.

e. Market prices (power, gas, and coal), Duke Energy Kentucky load, and forced outages were modeled with stochastic inputs.

f. Please see SIERRA-DR-01-048(f) Confidential Attachment.

g. All modeled scenarios were economic. The phrase "most future scenarios" was not intended to imply other portfolios were analyzed and would have been better stated by omitting "most."

h. No modeled scenarios were uneconomic. Please see response to (g) above.

i. Please see response to (d) above.

PERSON RESPONSIBLE: As to objection, Legal
As to response, Ryan Trogstad

	NYMEX NG Henry Hub Fwd+	NYMEX HO NY Harbor	Chicago City Gate Basis+	TETCO M1-30 Basis+	AD Hub DA MTM	
	1220	7480	4165	7530	9848	
curve_dt	CME	CME	ICE	ICE	Average of ONPEAK_PRICE	Average of OFFPEAK_PRICE
4/1/2024	1.575	2.6156	-0.125	-0.0775	30.6	24.32
5/1/2024	1.837	2.6271	-0.1725	-0.1925	33.9	23.35
6/1/2024	2.074	2.6258	-0.1975	-0.18	41.15	26.3
7/1/2024	2.405	2.6254	-0.23	-0.1675	65.05	37.5
8/1/2024	2.511	2.6253	-0.2475	-0.17	58.05	32.45
9/1/2024	2.507	2.6269	-0.36	-0.1825	47.15	30.3
10/1/2024	2.599	2.6276	-0.455	-0.285	43.55	32
11/1/2024	2.997	2.6222	-0.255	-0.2425	43.75	38.4
12/1/2024	3.506	2.6092	0.2825	-0.1225	50.1	44.25
1/1/2025	3.79	2.5988	0.875	-0.1	63.3	55.1
2/1/2025	3.611	2.5826	0.885	-0.11	53.2	46.15
3/1/2025	3.25	2.5609	-0.075	-0.0975	46.35	40
4/1/2025	3.054	2.5346	-0.1425	-0.1	45.3	35.55
5/1/2025	3.113	2.5183	-0.1775	-0.1475	47.55	33.4
6/1/2025	3.276	2.505	-0.2075	-0.1325	51.75	33
7/1/2025	3.444	2.4958	-0.2475	-0.1425	72.65	41.7
8/1/2025	3.486	2.4881	-0.265	-0.1425	66.15	36.8
9/1/2025	3.446	2.4831	-0.3875	-0.1325	53	33.75
10/1/2025	3.494	2.4784	-0.4475	-0.1525	49.05	35.95
11/1/2025	3.813	2.471	-0.23	-0.0075	50.1	43
12/1/2025	4.228	2.4614	0.2775	-0.0125	54.85	48.7
1/1/2026	4.465	2.4545	0.84	-0.1375	70.1	57.2
2/1/2026	4.256	2.4459	0.8575	-0.0975	58.3	52.7
3/1/2026	3.72	2.4353	-0.085	-0.135	49.8	42.85
4/1/2026	3.341	2.4198	-0.175	-0.09563	47.35	37
5/1/2026	3.339	2.4086	-0.285	-0.11641	48.85	37.1
6/1/2026	3.494	2.3991	-0.2975	-0.11114	54.3	35.75
7/1/2026	3.664	2.3965	-0.27	-0.11454	77.35	46.1
8/1/2026	3.697	2.3959	-0.27	-0.10943	69.15	42.9
9/1/2026	3.656	2.3924	-0.2675	-0.11288	56.45	35.6
10/1/2026	3.711	2.3868	-0.395	-0.112	52.5	38.75
11/1/2026	4.004	2.3785	-0.1825	-0.11221	53	43.05
12/1/2026	4.422	2.3698	0.24	-0.11163	59.2	55.5
1/1/2027	4.671	2.3693	0.8025	-0.11218	68.4	58.25
2/1/2027	4.465	2.3638	0.8025	-0.112	61.55	52.45
3/1/2027	3.824	2.3579	-0.095	-0.112	51.2	45.75
4/1/2027	3.341	2.3467	-0.185	-0.11195	47.15	38
5/1/2027	3.325	2.3386	-0.2875	-0.11203	49	37.3

6/1/2027	3.475	2.3279	-0.3	-0.11199	55.15	36.4
7/1/2027	3.635	2.3314	-0.2725	-0.11199	78.5	45.7
8/1/2027	3.662	2.3293	-0.2725	-0.11199	70.95	42.25
9/1/2027	3.61	2.3267	-0.2725	-0.112	56.6	36.55
10/1/2027	3.67	2.327	-0.275	-0.11199	53.35	37.3
11/1/2027	3.974	2.3241	-0.1275	-0.11199	52.55	42.9
12/1/2027	4.391	2.3193	0.175	-0.11199	62	56.1
1/1/2028	4.63	2.3262	0.6675	-0.11199	71.6	60.15
2/1/2028	4.412	2.323897	0.7125	-0.11199	64.75	53.9
3/1/2028	3.761	2.323644	0.0875	-0.11199	53.1	42.4
4/1/2028	3.263	2.318633	-0.02	-0.11199	48.8	38.05
5/1/2028	3.263	2.316522	-0.285	-0.11199	50.75	37.8
6/1/2028	3.413	2.312011	-0.295	-0.11199	54.9	36.75
7/1/2028	3.573	2.321501	-0.27	-0.11199	73.4	43.5
8/1/2028	3.603	2.32559	-0.27	-0.11199	67.05	39.9
9/1/2028	3.563	2.329179	-0.27	-0.11199	54.3	37.1
10/1/2028	3.617	2.335469	-0.2725	-0.11199	49.15	37.8
11/1/2028	3.932	2.338758	-0.0175	-0.11199	52.4	42.6
12/1/2028	4.365	2.339947	0.2875	-0.11199	63.9	56.75
1/1/2029	4.58	2.343848	0.7675	-0.11199	72.65	63.95
2/1/2029	4.379	2.344529	0.6225	-0.11199	66.15	57.8
3/1/2029	3.709	2.344213	-0.0025	-0.11199	52.8	45.3
4/1/2029	3.158	2.339194	-0.105	-0.11199	48.2	37.45
5/1/2029	3.152	2.337076	-0.265	-0.11199	50.55	36.85
6/1/2029	3.301	2.332558	-0.275	-0.11199	54.55	36.05
7/1/2029	3.459	2.34204	-0.25	-0.11199	73.25	42.65
8/1/2029	3.507	2.346122	-0.25	-0.11199	67	39.15
9/1/2029	3.473	2.349703	-0.25	-0.11199	53.75	36.25
10/1/2029	3.537	2.355986	-0.2525	-0.11199	48.65	36.85
11/1/2029	3.884	2.359267	-0.0275	-0.11199	52.2	41.45
12/1/2029	4.326	2.360449	0.2775	-0.11199	63.7	54.95

CONFIDENTIAL PROPRIETARY TRADE SECRET

SIERRA-DR-01-048(d)
CONFIDENTIAL ATTACHMENTS 1 & 2

FILED UNDER SEAL

CONFIDENTIAL PROPRIETARY TRADE SECRET

SIERRA-DR-01-048(f)
CONFIDENTIAL ATTACHMENT

FILED UNDER SEAL

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

CONFIDENTIAL SIERRA-DR-01-049
(As to Attachment 1 only)

REQUEST:

Please refer to the Direct Testimony of Witness Verderame page 14, lines 12-14, where it states, "This modeling showed a net decrease in forecasted dispatch costs of $12.78/MWh in the 2027 through 2029 operating period when operating on limestone."

a. Please confirm that Variable Operations and Maintenance ("VOM") costs are included in the forecasted dispatch costs.

b. Please provide the forecasted VOM for East Bend from 2025 to 2029 without the limestone conversion.

c. Please provide the forecasted VOM for East Bend from 2025 to 2029 with the limestone conversion.

d. Please provide the historical VOM for East Bend from 2019 through 2024.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachment 1 only)

a. Confirmed.

b. Non-Reagent VOM costs without the limestone conversion were $1.65, constant through the modeled period. Please see SIERRA-DR-01-049 Confidential Attachment 1 for annual reagent components for the periods available.

c. Non-Reagent VOM costs with the limestone conversion were $1.65, constant through the modeled period. Please see SIERRA-DR-01-049 Confidential Attachment 1 for annual reagent components for the periods available.

d. Please see SIERRA-DR-01-049 Attachment 2.

PERSON RESPONSIBLE: Ryan Trogstad – a., b., c.
John D. Swez – d.

CONFIDENTIAL PROPRIETARY TRADE SECRET

SIERRA-DR-01-049
CONFIDENTIAL ATTACHMENT 1

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East Bend VOM Rates Used in Disptach and Commitment
2019-2024

Year	$/MWH	$/HR	$/Cycle
2019	$1.54	$500	$120,000
2020	$1.35	$440	$124,000
2021	$1.22	$410	$123,000
2022	$1.99	$580	$132,000
2023	$1.65	$500	$154,000
2024	$1.65	$500	$154,000

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-050

REQUEST:

Please refer to Attachment SEL-1 and SEL-2. Please provide the supporting workbook, with all formulas and links intact, used to develop Attachment SEL-1 and SEL-2.

RESPONSE:

Attachment SEL-1 did not have any supporting workbooks. Please see SIERRA-DR-01-050 Attachment for the supporting workbook for Attachment SEL-2.

PERSON RESPONSIBLE: Sarah E. Lawler

Line No.	Rate Code	Level of Demand (a) (kW)	Level of Use (b) (kWh)	Current Bill [1] (c) ($)	2025 Proposed Bill (d) ($)	2025 Dollar Incr/(Decr) (d - c) (e) ($)	2025 Percent Incr/(Decr) (e / c) (f) (%)	2026 Proposed Bill (g) ($)	2026 Dollar Incr/(Decr) (g - c) (h) ($)	2026 Percent Incr/(Decr) (h / c) (i) (%)	2027 Proposed Bill (j) ($)	2027 Dollar Incr/(Decr) (j - c) (k) ($)	2027 Percent Incr/(Decr) (k / c) (l) (%)	2028 Proposed Bill (m) ($)	2028 Dollar Incr/(Decr) (m - c) (n) ($)	2028 Percent Incr/(Decr) (n / c) (o) (%)	2029 Proposed Bill (p) ($)	2029 Dollar Incr/(Decr) (p - c) (q) ($)	2029 Percent Incr/(Decr) (q / c) (r) (%)
1	RS	N/A	1,000	$ 127.64	$ 128.96	$ 1.32	1.0342%	$ 131.27	$ 3.63	2.8439%	$ 130.36	$ 2.72	2.1310%	$ 129.89	$ 2.25	1.7628%	$ 129.97	$ 2.33	1.8254%
2																			
3	DS	30	9,000	$ 1,126.13	$ 1,144.72	$ 18.59	1.6508%	$ 1,177.08	$ 50.95	4.5243%	$ 1,164.33	$ 38.20	3.3921%	$ 1,157.71	$ 31.58	2.8043%	$ 1,158.79	$ 32.66	2.9002%
4																			
5	DP	246	66,667	$ 7,623.63	$ 7,710.79	$ 87.16	1.1433%	$ 7,862.54	$ 238.91	3.1338%	$ 7,802.72	$ 179.09	2.3491%	$ 7,771.69	$ 148.06	1.9421%	$ 7,776.74	$ 153.11	2.0084%
6																			
7	DT	3,840	2,267,189	$ 172,276.25	$ 173,864.24	$ 1,587.99	0.9218%	$ 176,628.76	$ 4,352.51	2.5265%	$ 175,538.93	$ 3,262.68	1.8939%	$ 174,973.66	$ 2,697.41	1.5657%	$ 175,065.66	$ 2,789.41	1.6191%
8																			
9	TT	4,822	1,000,000	$ 107,485.79	$ 108,678.59	$ 1,192.80	1.1097%	$ 110,755.12	$ 3,269.33	3.0416%	$ 109,936.51	$ 2,450.72	2.2800%	$ 109,511.91	$ 2,026.12	1.8850%	$ 109,581.02	$ 2,095.23	1.9493%
10																			
11	EH	N/A	9,400	$ 888.48	$ 897.79	$ 9.31	1.0479%	$ 913.99	$ 25.51	2.8712%	$ 907.60	$ 19.12	2.1520%	$ 904.29	$ 15.81	1.7794%	$ 904.83	$ 16.35	1.8402%
12																			
13	SP	N/A	500	$ 88.96	$ 90.11	$ 1.15	1.2927%	$ 92.10	$ 3.14	3.5297%	$ 91.32	$ 2.36	2.6529%	$ 90.91	$ 1.95	2.1920%	$ 90.97	$ 2.01	2.2594%
14																			
15	GSFL	5	700	$ 434.32	$ 440.88	$ 6.56	1.5104%	$ 452.30	$ 17.98	4.1398%	$ 447.80	$ 13.48	3.1037%	$ 445.47	$ 11.15	2.5672%	$ 445.85	$ 11.53	2.6547%

[1] Based on rates in effect for June 2024.

KYPSC No.2

	Sheet No.30 - 3rd Revised		Sheet No. 76 original	Sheet No. 78 6th R		Sheet No. 80 3rd R	Sheet No. 82 19th R
			ESMR	DSMR	HEA	FAC	PSM
	Customer	Energy	Bill	Energy	Customer	Energy	Energy
	$	$/kWH	**%**	$/kWH	$	$/kWH	$/kWH
Rate							
Jan	13.00	0.099654	10.55%	0.001352	0.30	0.014570	-0.003700
Feb	13.00	0.099654	13.56%	0.001352	0.30	0.005495	-0.003700
Mar	13.00	0.099654	4.35%	0.001352	0.30	0.009372	-0.001237
Apr	13.00	0.099654	9.39%	0.001352	0.30	0.003491	-0.001237
May	13.00	0.099654	10.82%	0.001352	0.30	0.008721	-0.001237
Jun	13.00	0.108033	8.18%	0.001352	0.30	-0.002602	0.002097
Jul							
Aug							
Sep							
Oct							
Nov							
Dec							

kWH Input

1000	Fuel		Customer	Energy								
Total	FAC	CUSTOMER+ENERGY			**Calc**		1,000		1,000		1,000	1,000
146.56	14.57	112.65	13.30	104.71	Jan	13.00	99.65	13.99	1.35	0.30	14.57	3.70
140.25	5.50	112.65	13.30	104.71	Feb	13.00	99.65	16.75	1.35	0.30	5.50	3.70
130.35	9.37	112.65	13.30	102.24	Mar	13.00	99.65	5.43	1.35	0.30	9.37	1.24
130.21	3.49	112.65	13.30	102.24	Apr	13.00	99.65	11.18	1.35	0.30	3.49	1.24
137.71	8.72	112.65	13.30	102.24	May	13.00	99.65	13.45	1.35	0.30	8.72	1.24
127.64	(2.60)	121.03	13.30	107.29	Jun	13.00	108.03	9.65	1.35	0.30	(2.60)	(2.10)
-	-	-	-	-	Jul	-	-	-	-	-	-	-
-	-	-	-	-	Aug	-	-	-	-	-	-	-
-	-	-	-	-	Sep	-	-	-	-	-	-	-
-	-	-	-	-	Oct	-	-	-	-	-	-	-
-	-	-	-	-	Nov	-	-	-	-	-	-	-
-	-	-	-	-	Dec	-	-	-	-	-	-	-

Est. $ Incr.		Est. % Incr.
1.32	estimated increase to typical bill in 2025	1.1224%

KYPSC No.2

										Sheet No. 40 3rd Revised			Sheet No. 76 original	Sheet No. 78 6th R		Sheet No. 80 3rd R	Sheet No. 82 19th R	
													ESMR	DSMR	HEA	FAC	PSM	Base Fuel
						Customer		Demand		Energy	Energy	Energy	Bill	Energy	Customer	Energy	Energy	(Do not include in Total)
						Single	Three											
						Phase	Phase	<=15 kW	>15 kW	<=6000 kWh	>6000<=300*kW	>300* kW						
						$	$	$/kW	$/kW	$/kWH	$/kWH	$/kWH	**%**	$/kWH	$	$/kWH	$/kWH	
					Rate													
					Jan	15.00	30.00	0.00	10.21	0.101188	0.062801	0.051751	19.05%	0.003503	0.00	0.014570	-0.003700	0.025401
					Feb	15.00	30.00	0.00	10.21	0.101188	0.062801	0.051751	23.20%	0.003503	0.00	0.005495	-0.003700	0.025401
					Mar	15.00	30.00	0.00	10.21	0.101188	0.062801	0.051751	7.16%	0.003503	0.00	0.009372	-0.001237	0.025401
Primary Metering (Y,N)					Apr	15.00	30.00	0.00	10.21	0.101188	0.062801	0.051751	15.20%	0.003503	0.00	0.003491	-0.001237	0.025401
n					May	15.00	30.00	0.00	10.21	0.101188	0.062801	0.051751	17.42%	0.003503	0.00	0.008721	-0.001237	0.025401
Service/Phase (1, 3)					Jun	15.00	30.00	0.00	10.21	0.109567	0.071180	0.060130	13.08%	0.003503	0.00	-0.002602	0.002097	0.033780
1					Jul													
kW Input					Aug													
30					Sep													
kWH Input					Oct													
9,000					Nov													
billed kWh					Dec													
9,000	Fuel		Customer	Energy														
		CUSTOMER+E			**Calc**													
Total	FAC	NERGY			**Inputs**	1	-	15	15	6,000	3,000	-		9,000		9,000	9,000	9,000
1,312.02	131.13	168.15	15.00	860.36	Jan	15.00	-	-	153.15	607.13	188.40	-	152.38	31.53	-	131.13	33.30	228.61
1,263.54	49.46	168.15	15.00	860.36	Feb	15.00	-	-	153.15	607.13	188.40	-	185.58	31.53	-	49.46	33.30	228.61
1,146.37	84.35	168.15	15.00	838.19	Mar	15.00	-	-	153.15	607.13	188.40	-	55.69	31.53	-	84.35	11.13	228.61
1,155.98	31.42	168.15	15.00	838.19	Apr	15.00	-	-	153.15	607.13	188.40	-	118.22	31.53	-	31.42	11.13	228.61
1,220.31	78.49	168.15	15.00	838.19	May	15.00	-	-	153.15	607.13	188.40	-	135.48	31.53	-	78.49	11.13	228.61
1,126.13	(23.42)	168.15	15.00	883.60	Jun	15.00	-	-	153.15	657.40	213.54	-	97.80	31.53	-	(23.42)	(18.87)	304.02
-	-	-	-	-	Jul	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Aug	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Sep	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Oct	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Nov	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Dec	-	-	-	-	-	-	-	-	-	-	-	-	-

estimated increase to typical bill:

1,051.75

2025	2026	2027	2028	2029	
1.7676%	4.8448%	3.6317%	3.0025%	3.1049%	Est. % Incr. on ESM Billing Factor
$ 18.59	$ 50.95	$ 38.20	$ 31.58	$ 32.66	Est. $ Incr.
1.6508%	4.5243%	3.3921%	2.8043%	2.9002%	Est. % Incr. on Total Bill

KYPSC No.2

Primary Metering (Y,N)	**n**	
Service/Phase (1, 3, P)	**3**	
kW Input		
On peak	**3839.88**	
Off peak	**33.48**	
kWH Input		
On peak	**603007.68**	**ENTER ON and OFF PEAK VALUES**
Off peak	**1664181.675**	**if AVAILABLE**
Total		**or ENTER TOTAL (but not BOTH)**
billed kWh		
On peak	**603,008**	
Off peak	**1,664,182**	
Total	**2,267,189**	

	Sheet No. 41 3rd Revised											Sheet No. 76 original	Sheet No. 78 6th R		Sheet No. 80 3rd R	Sheet No. 82 19th R	
	Customer			Demand Summer		Winter			On Peak	Energy On Peak	Off Peak	ESMR Bill	DSMR Energy	HEA Customer	FAC Energy	PSM Energy	Base Fuel (Do not include in Total)
	Single Phase	Three Phase	Primary	On Peak	Off Peak	On Peak	Off Peak	Distribution	Summer	Winter	Year Round						
Rate	$	$	$	$/kW	$/kW	$/kW	$/kW	$/kW	$/kWH	$/kWH	$/kWH	**%**	$/kWH	$	$/kWH	$/kWH	
Jan	63.50	127.00	138.00	14.02	1.26	13.26	1.26	6.23	0.045679	0.043669	0.037671	19.05%	0.003503	0.00	0.014570	-0.003700	0.025401
Feb	63.50	127.00	138.00	14.02	1.26	13.26	1.26	6.23	0.045679	0.043669	0.037671	23.20%	0.003503	0.00	0.005495	-0.003700	0.025401
Mar	63.50	127.00	138.00	14.02	1.26	13.26	1.26	6.23	0.045679	0.043669	0.037671	7.16%	0.003503	0.00	0.009372	-0.001237	0.025401
Apr	63.50	127.00	138.00	14.02	1.26	13.26	1.26	6.23	0.045679	0.043669	0.037671	15.20%	0.003503	0.00	0.003491	-0.001237	0.025401
May	63.50	127.00	138.00	14.02	1.26	13.26	1.26	6.23	0.045679	0.043669	0.037671	17.42%	0.003503	0.00	0.008721	-0.001237	0.025401
Jun	63.50	127.00	138.00	14.02	1.26	13.26	1.26	6.23	0.054058	0.052048	0.046050	13.08%	0.003503	0.00	-0.002602	0.002097	0.033780
Jul																	0.000000
Aug																	0.000000
Sep																	0.000000
Oct																	0.000000
Nov																	0.000000
Dec																	0.000000

these fields only populate if you have the ON and OFF peak values

Total	Fuel FAC	CUSTOMER+ENERGY	Customer	Energy	**Calc Inputs**																
						-	1	-	3,840	33	3,840	33	3,873	603,008.00	603,008.00	1,664,182.00		2,267,189		2,267,189	2,267,189
237,032.93	33,032.94	127.00	127.00	105,354.72	Jan	-	127.00	-	-	-	50,916.81	42.18	24,131.03	-	26,332.76	62,691.40	23,428.24	7,941.96	-	33,032.94	8,388.60
221,561.98	12,458.20	127.00	127.00	105,354.72	Feb	-	127.00	-	-	-	50,916.81	42.18	24,131.03	-	26,332.76	62,691.40	28,532.03	7,941.96	-	12,458.20	8,388.60
204,641.51	21,248.10	127.00	127.00	99,770.64	Mar	-	127.00	-	-	-	50,916.81	42.18	24,131.03	-	26,332.76	62,691.40	8,405.75	7,941.96	-	21,248.10	2,804.51
200,747.03	7,914.76	127.00	127.00	99,770.64	Apr	-	127.00	-	-	-	50,916.81	42.18	24,131.03	-	26,332.76	62,691.40	17,844.62	7,941.96	-	7,914.76	2,804.51
215,210.69	19,772.16	127.00	127.00	99,770.64	May	-	127.00	-	-	-	50,916.81	42.18	24,131.03	-	26,332.76	62,691.40	20,450.87	7,941.96	-	19,772.16	2,804.51
172,276.25	(5,899.23)	54,004.30	127.00	112,420.25	Jun	-	127.00	-	53,835.12	42.18	-	-	-	32,597.00	-	76,635.58	11,750.93	7,941.96	-	(5,899.23)	(4,754.30)
-	-	-	-	-	Jul	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Aug	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Sep	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Oct	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Nov	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Dec	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Hours On Peak	Hours Off Peak	Hours Total	Number of weekdays in the month		**Holiday**	**When**	**Date** 2019				
											2,267,189
198.00	546	744.00	22.00	Jan-19	New Year's Day	January 1	1/1/2019				57,588.88
171.00	501	672.00	19.00	Feb-19	President's Day	The 3rd Monday in February	2/18/2019				57,588.88
189.00	555	744.00	21.00	Mar-19	Good Friday	Easter is first Sunday which after	4/19/2019				57,588.88
198.00	522	720.00	22.00	Apr-19							57,588.88
198.00	546	744.00	22.00	May-19	Memorial Day	The last Monday in May	5/27/2019				57,588.88
180.00	540	720.00	20.00	Jun-19							76,585.66
198.00	546	744.00	22.00	Jul-19	Independence Day	July 4	7/4/2019				-
198.00	546	744.00	22.00	Aug-19							-
180.00	540	720.00	20.00	Sep-19	Labor Day	The 1st Monday in September	9/2/2019				-
198.00	546	744.00	22.00	Oct-19	Columbus Day	The 2nd Monday in October	10/14/2019				-
171.00	549	720.00	19.00	Nov-19	Veteran's Day	November 11	11/11/2019	Thanksgiving Day	The 4th Thursday in November	11/28/2019	-
189.00	555	744.00	21.00	Dec-19	Christmas Day	December 25	12/25/2019				-
		8,760.00									

estimated increase to typical bill:

89,838.89

	2025		2026		2027		2028		2029	
	1.7676%		4.8448%		3.6317%		3.0025%		3.1049%	Est. % Incr. on ESM Billing Factor
$	1,587.99	$	4,352.51	$	3,262.68	$	2,697.41	$	2,789.41	Est. $ Incr.
	0.9218%		2.5265%		1.8939%		1.5657%		1.6191%	Est. % Incr. on Total Bill
	91,426.88		94,191.40		93,101.57		92,536.30		92,628.30	
	173,864.24		176,628.76		175,538.93		174,973.66		175,065.66	

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		Sheet No. 42 3rd Revised				Sheet No. 76 original	Sheet No. 78 6th R		Sheet No. 80 3rd R	Sheet No. 82 19th R	
						ESMR	DSMR	HEA	FAC	PSM	Base Fuel
		Customer			Energy	Bill	Energy	Customer	Energy	Energy	(Do not include in Total)
		Single Phase	Three Phase	Primary							
		$	$	$	$/kWH	**%**	$/kWH	$	$/kWH	$/kWH	
	Rate										
	Jan	15.00	30.00	117.00	0.078414	19.05%	0.003503	0.00	0.014570	-0.003700	0.025401
	Feb	15.00	30.00	117.00	0.078414	23.20%	0.003503	0.00	0.005495	-0.003700	0.025401
	Mar	15.00	30.00	117.00	0.078414	7.16%	0.003503	0.00	0.009372	-0.001237	0.025401
	Apr	15.00	30.00	117.00	0.078414	15.20%	0.003503	0.00	0.003491	-0.001237	0.025401
	May	15.00	30.00	117.00	0.078414	17.42%	0.003503	0.00	0.008721	-0.001237	0.025401
	Jun	15.00	30.00	117.00	0.086793	13.08%	0.003503	0.00	-0.002602	0.002097	0.033780
	Jul										
	Aug										
	Sep										
Service/Phase (1, 3, P)	Oct										
1	Nov										
kWH Input	Dec										

9,400	Fuel		Customer	Energy								
		CUSTOMER+E			**Calc**							
Total	FAC	NERGY			**Inputs**	1	-	-	9,400		9,400	
1,067.44	136.96	819.80	15.00	804.80	Jan	15.00	-	-	737.09	110.69	32.93	-
1,006.25	51.65	819.80	15.00	804.80	Feb	15.00	-	-	737.09	134.80	32.93	-
924.69	88.10	796.65	15.00	781.65	Mar	15.00	-	-	737.09	39.94	32.93	-
914.26	32.82	796.65	15.00	781.65	Apr	15.00	-	-	737.09	84.80	32.93	-
975.81	81.98	796.65	15.00	781.65	May	15.00	-	-	737.09	97.18	32.93	-
888.48	(24.46)	844.07	15.00	829.07	Jun	15.00	-	-	815.85	68.87	32.93	-
-	-	-	-	-	Jul	-	-	-	-	-	-	-
-	-	-	-	-	Aug	-	-	-	-	-	-	-
-	-	-	-	-	Sep	-	-	-	-	-	-	-
-	-	-	-	-	Oct	-	-	-	-	-	-	-
-	-	-	-	-	Nov	-	-	-	-	-	-	-
-	-	-	-	-	Dec	-	-	-	-	-	-	-

81.98	796.65	15.00	781.65	May	15.00	-	-	737.09	97.18	32.93	-	81.98	11.63	238.77
(24.46)	844.07	15.00	829.07	Jun	15.00	-	-	815.85	68.87	32.93	-	(24.46)	(19.71)	317.53
-	-	-	-	Jul	-	-	-	-	-	-	-	-	-	-
-	-	-	-	Aug	-	-	-	-	-	-	-	-	-	-
-	-	-	-	Sep	-	-	-	-	-	-	-	-	-	-
-	-	-	-	Oct	-	-	-	-	-	-	-	-	-	-
-	-	-	-	Nov	-	-	-	-	-	-	-	-	-	-
-	-	-	-	Dec	-	-	-	-	-	-	-	-	-	-

estimated increase to typical bill:

526.54

2025	2026	2027	2028	2029	
1.7676%	4.8448%	3.6317%	3.0025%	3.1049%	Est. % Incr. on ESM Billing Factor
$ 9.31	$ 25.51	$ 19.12	$ 15.81	$ 16.35	Est. $ Incr.
1.0479%	2.8712%	2.1520%	1.7794%	1.8402%	Est. % Incr. on Total Bill
897.79	913.99	907.60	904.29	904.83	

KYPSC No.2

						Sheet No. 44 3rd Revised			Sheet No. 76 original	Sheet No. 78 6th R		Sheet No. 80 3rd R	Sheet No. 82 19th R	
									ESMR	DSMR	HEA	FAC	PSM	Base Fuel
						Minimum	Energy 540 to 720	Energy <540	Bill	Energy	Customer	Energy	Energy	(Do not include in Total)
						$	$/kWH	$/kWH	**%**	$/kWH	$	$/kWH	$/kWH	
					Rate									
					Jan	3.65	0.103034	0.118449	19.05%	0.003503	0.00	0.014570	-0.003700	0.025401
					Feb	3.65	0.103034	0.118449	23.20%	0.003503	0.00	0.005495	-0.003700	0.025401
					Mar	3.65	0.103034	0.118449	7.16%	0.003503	0.00	0.009372	-0.001237	0.025401
					Apr	3.65	0.103034	0.118449	15.20%	0.003503	0.00	0.003491	-0.001237	0.025401
					May	3.65	0.103034	0.118449	17.42%	0.003503	0.00	0.008721	-0.001237	0.025401
					Jun	3.65	0.111413	0.126828	13.08%	0.003503	0.00	-0.002602	0.002097	0.033780
					Jul									
					Aug									
					Sep									
Rated Capacity (kW)					Oct									
5					Nov									
Hours Use					Dec									
700	Fuel		Customer	Energy										
		CUSTOMER+E			**Calc**									
Total	FAC	NERGY			**Inputs**	-	3,500	-		3,500		3,500	3,500	700
506.94	51.00	25.21	-	25.21	Jan	-	360.62	-	70.11	12.26	-	51.00	12.95	17.78
490.45	19.23	25.21	-	25.21	Feb	-	360.62	-	85.39	12.26	-	19.23	12.95	17.78
435.75	32.80	16.59	-	16.59	Mar	-	360.62	-	25.74	12.26	-	32.80	4.33	17.78
444.06	12.22	16.59	-	16.59	Apr	-	360.62	-	54.63	12.26	-	12.22	4.33	17.78
470.34	30.52	16.59	-	16.59	May	-	360.62	-	62.61	12.26	-	30.52	4.33	17.78
434.32	(9.11)	4.92	-	4.92	Jun	-	389.95	-	48.56	12.26	-	(9.11)	(7.34)	23.65
-	-	-	-	-	Jul	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Aug	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Sep	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Oct	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Nov	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Dec	-	-	-	-	-	-	-	-	-

estimated increase to typical bill:

371.22					
2025	2026	2027	2028	2029	
1.7676%	4.8448%	3.6317%	3.0025%	3.1049%	Est. % Incr. on ESM Billing Factor
$ 6.56	$ 17.98	$ 13.48	$ 11.15	$ 11.53	Est. $ Incr.
1.5104%	4.1398%	3.1037%	2.5672%	2.6547%	Est. % Incr. on Total Bill
440.88	452.30	447.80	445.47	445.85	

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		Sheet No.43 - 3rd Revised		Sheet No. 76 original	Sheet No. 78 6th R		Sheet No. 80 3rd R	Sheet No. 82 19th R	
				ESMR	DSMR	HEA	FAC	PSM	Base Fuel
		Customer	Energy	Bill	Energy	Customer	Energy	Energy	(Do not include in Total)
		$	$/kWH	**%**	$/kWH	$	$/kWH	$/kWH	
	Rate								
	Jan	15.00	0.123760	19.05%	0.003503	0.00	0.014570	-0.003700	0.025401
	Feb	15.00	0.123760	23.20%	0.003503	0.00	0.005495	-0.003700	0.025401
	Mar	15.00	0.123760	7.16%	0.003503	0.00	0.009372	-0.001237	0.025401
	Apr	15.00	0.123760	15.20%	0.003503	0.00	0.003491	-0.001237	0.025401
	May	15.00	0.123760	17.42%	0.003503	0.00	0.008721	-0.001237	0.025401
	Jun	15.00	0.132139	13.08%	0.003503	0.00	-0.002602	0.002097	0.033780
	Jul								
	Aug								
	Sep								
	Oct								
	Nov								
kWH Input	Dec								

500	Fuel		Customer	Energy									
Total	FAC	CUSTOMER+ENERGY			**Calc**		500		500		500	500	500
100.68	7.29	76.88	15.00	65.48	Jan	15.00	61.88	12.91	1.75	-	7.29	1.85	12.70
98.95	2.75	76.88	15.00	65.48	Feb	15.00	61.88	15.73	1.75	-	2.75	1.85	12.70
88.70	4.69	76.88	15.00	64.25	Mar	15.00	61.88	4.76	1.75	-	4.69	0.62	12.70
91.11	1.75	76.88	15.00	64.25	Apr	15.00	61.88	10.12	1.75	-	1.75	0.62	12.70
95.20	4.36	76.88	15.00	64.25	May	15.00	61.88	11.59	1.75	-	4.36	0.62	12.70
88.96	(1.30)	81.07	15.00	66.77	Jun	15.00	66.07	8.49	1.75	-	(1.30)	(1.05)	16.89
-	-	-	-	-	Jul	-	-	-	-	-	-	-	-
-	-	-	-	-	Aug	-	-	-	-	-	-	-	-
-	-	-	-	-	Sep	-	-	-	-	-	-	-	-
-	-	-	-	-	Oct	-	-	-	-	-	-	-	-
-	-	-	-	-	Nov	-	-	-	-	-	-	-	-
-	-	-	-	-	Dec	-	-	-	-	-	-	-	-

estimated increase to typical bill:

64.88					
2025	2026	2027	2028	2029	
1.7676%	4.8448%	3.6317%	3.0025%	3.1049%	Est. % Incr. on ESM Billing Factor
$ 1.15	$ 3.14	$ 2.36	$ 1.95	$ 2.01	Est. $ Incr.
1.2927%	3.5297%	2.6529%	2.1920%	2.2594%	Est. % Incr. on Total Bill
90.11	92.10	91.32	90.91	90.97	

KYPSC No.2

						Sheet No. 45 3rd Revised				Sheet No. 76 original	Sheet No. 78 6th R		Sheet No. 80 3rd R	Sheet No. 82 19th R	
										ESMR	DSMR	HEA	FAC	PSM	Base Fuel
						Customer	Demand	Energy <=300*kW	Energy >300* kW	Bill	Energy	Customer	Energy	Energy	(Do not include in Total)
						$	$/kW	$/kWH	$/kWH	%	$/kWH	$	$/kWH	$/kWH	
					Rate										
					Jan	117.00	9.37	0.062178	0.052875	19.05%	0.003503	0.00	0.014570	-0.003700	0.025401
					Feb	117.00	9.37	0.062178	0.052875	23.20%	0.003503	0.00	0.005495	-0.003700	0.025401
					Mar	117.00	9.37	0.062178	0.052875	7.16%	0.003503	0.00	0.009372	-0.001237	0.025401
					Apr	117.00	9.37	0.062178	0.052875	15.20%	0.003503	0.00	0.003491	-0.001237	0.025401
					May	117.00	9.37	0.062178	0.052875	17.42%	0.003503	0.00	0.008721	-0.001237	0.025401
Primary Metering (Y,N)					Jun	117.00	9.37	0.070557	0.061254	13.08%	0.003503	0.00	-0.002602	0.002097	0.033780
Y					Jul										
kW Input					Aug										
246.2					Sep										
kWH Input					Oct										
66,667					Nov										
billed kWh					Dec										
65,667	Fuel		Customer	Energy											
		CUSTOMER+E			**Calc**										
Total	FAC	NERGY			**Inputs**		246	65,667	-		65,667		65,667	65,667	65,667
8,948.63	956.77	2,423.89	117.00	4,556.04	Jan	117.00	2,306.89	4,083.04	-	1,011.92	230.03	-	956.77	242.97	1,668.01
8,573.14	360.84	2,423.89	117.00	4,556.04	Feb	117.00	2,306.89	4,083.04	-	1,232.37	230.03	-	360.84	242.97	1,668.01
7,802.38	615.43	2,423.89	117.00	4,394.30	Mar	117.00	2,306.89	4,083.04	-	368.75	230.03	-	615.43	81.23	1,668.01
7,830.27	229.24	2,423.89	117.00	4,394.30	Apr	117.00	2,306.89	4,083.04	-	782.83	230.03	-	229.24	81.23	1,668.01
8,288.04	572.68	2,423.89	117.00	4,394.30	May	117.00	2,306.89	4,083.04	-	897.16	230.03	-	572.68	81.23	1,668.01
7,623.63	(170.87)	2,423.89	117.00	4,725.59	Jun	117.00	2,306.89	4,633.27	-	645.01	230.03	-	(170.87)	(137.70)	2,218.23
-	-	-	-	-	Jul	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Aug	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Sep	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Oct	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Nov	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Dec	-	-	-	-	-	-	-	-	-	-

estimated increase to typical bill:

4,931.26					
2025	2026	2027	2028	2029	
1.7676%	4.8448%	3.6317%	3.0025%	3.1049%	Est. % Incr. on ESM Billing Factor
$ 87.16	$ 238.91	$ 179.09	$ 148.06	$ 153.11	Est. $ Incr.
1.1433%	3.1338%	2.3491%	1.9421%	2.0084%	Est. % Incr. on Total Bill
7,710.79	7,862.54	7,802.72	7,771.69	7,776.74	

KYPSC No.2

				Sheet No. 51 3rd Revised										Sheet No. 76 original	Sheet No. 78 6th R		Sheet No. 80 3rd R	Sheet No. 82 19th R	
				Demand					Energy					ESMR	DSMR	HEA	FAC	PSM	Base Fuel
				Customer	Summer		Winter		Summer		Winter			Bill	Energy	Customer	Energy	Energy	(Do not include in Total)
					On Peak	Off Peak	On Peak	Off Peak	On Peak	Off Peak	On Peak	Off Peak							
Primary Metering (Y,N)	**n**		**Rate**	$	$/kW	$/kW	$/kW	$/kW	$/kWH	$/kWH	$/kWH	$/kWH	**%**	$/kWH	$	$/kWH	$/kWH	
			Jan	500.00	9.08	1.38	7.45	1.38	0.056864	0.046869	0.054360	0.046869	19.05%	0.000514	0.00	0.014570	-0.003700	0.025401
kW Input			Feb	500.00	9.08	1.38	7.45	1.38	0.056864	0.046869	0.054360	0.046869	23.20%	0.000514	0.00	0.005495	-0.003700	0.025401
On peak	**4821.85**		Mar	500.00	9.08	1.38	7.45	1.38	0.056864	0.046869	0.054360	0.046869	7.16%	0.000514	0.00	0.009372	-0.001237	0.025401
Off peak	**178.15**		Apr	500.00	9.08	1.38	7.45	1.38	0.056864	0.046869	0.054360	0.046869	15.20%	0.000514	0.00	0.003491	-0.001237	0.025401
			May	500.00	9.08	1.38	7.45	1.38	0.056864	0.046869	0.054360	0.046869	17.42%	0.000514	0.00	0.008721	-0.001237	0.025401
			Jun	500.00	9.08	1.38	7.45	1.38	0.065243	0.055248	0.062739	0.055248	13.08%	0.000514	0.00	-0.002602	0.002097	0.033780
kWH Input			Jul																
On peak	**306,980**	**ENTER ON and OFF PEAK VALUES**	Aug																
Off peak	**693,020**	**if AVAILABLE**	Sep																
Total		**or ENTER TOTAL (but not BOTH)**	Oct																
			Nov																
billed kWh			Dec																
On peak	**306,980**																		
Off peak	**693,020**																		
Total	**1,000,000**																		

Fuel		Customer	Energy			these fields only populate if you have the ON and OFF peak values												
	CUSTOMER+ENE				**Calc**													
Total	FAC	RGY			**Inputs**		4,822	178	4,822	178	306,980	693,020	306,980	693,020		1,000,000		1,000,000	1,000,000	1,000,000.00
116,936.38	14,570.00	500.00	500.00	4,214.00	Jan	500.00	-	-	35,922.78	245.85	-	-	16,687.00	32,481.00	12,315.75	514.00	-	14,570.00	3,700.00	25,401.00
110,544.34	5,495.00	500.00	500.00	4,214.00	Feb	500.00	-	-	35,922.78	245.85	-	-	16,687.00	32,481.00	14,998.71	514.00	-	5,495.00	3,700.00	25,401.00
101,412.19	9,372.00	500.00	500.00	1,751.00	Mar	500.00	-	-	35,922.78	245.85	-	-	16,687.00	32,481.00	4,452.56	514.00	-	9,372.00	1,237.00	25,401.00
100,531.00	3,491.00	500.00	500.00	1,751.00	Apr	500.00	-	-	35,922.78	245.85	-	-	16,687.00	32,481.00	9,452.37	514.00	-	3,491.00	1,237.00	25,401.00
107,141.54	8,721.00	500.00	500.00	1,751.00	May	500.00	-	-	35,922.78	245.85	-	-	16,687.00	32,481.00	10,832.91	514.00	-	8,721.00	1,237.00	25,401.00
107,485.79	(2,602.00)	20,528.00	500.00	18,445.00	Jun	500.00	43,782.40	245.85	-	-	20,028.00	38,288.00	-	-	8,826.55	514.00	-	(2,602.00)	(2,097.00)	33,780.00
-	-	-	-	-	Jul	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Aug	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Sep	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Oct	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Nov	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	Dec	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

estimated increase to typical bill:

67,481.25						
2025	2026	2027	2028	2029		
1.7676%	4.8448%	3.6317%	3.0025%	3.1049%	Est. % Incr. on ESM Billing Factor	
$ 1,192.80	$ 3,269.33	$ 2,450.72	$ 2,026.12	$ 2,095.23	Est. $ Incr.	
1.1097%	3.0416%	2.2800%	1.8850%	1.9493%	Est. % Incr. on Total Bill	
108,678.59	110,755.12	109,936.51	109,511.91	109,581.02		

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-051

REQUEST:

Please refer to the Company's response to Staff DR-01-001.

a. Please explain if the Company has engaged in conversations with any potential suppliers of the lime product needed for the conversion.

b. Please explain if the Company has developed estimated costs for the lime product, and produce any such estimated lime costs.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET

a. Yes, the Company has engaged in conversations with potential suppliers of the limestone product needed after the conversion.

b. Yes, please see the Company's estimated costs for the limestone product below.

PERSON RESPONSIBLE: John A. Verderame – a.
Chad Donner – b.

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-052

REQUEST:

Please refer to the Company's response to STAFF-DR-01-002(a).

a. Please explain the intended meaning of the phrase "a basket of market coals" as used in the referenced response.

b. Please describe Duke's already-contracted coal supply in sufficient detail to allow comparison to the modeled coal supplies in the referenced response, included but not limited to providing volume, term, SO_2 content, and heat content.

c. For each of the next ten years (2025-2034), please state the amount of coal supply already under contract as a percentage of forecasted annual tonnage requirements.

RESPONSE:

a. Please see the Company's response to STAFF-DR-02-001(a).

b. Please see SIERRA-DR-01-052(b) Attachment.

c. Please see SIERRA-DR-01-052(c) Attachment.

PERSON RESPONSIBLE: Ryan Trogstad – a.
John A. Verderame – b., c.

Duke Energy Kentucky Contracted Coal Supply Qualities

	Term	Tons	Typical BTU	Max SO2
Contract 1	1/1/25-12/31/25	430,643	11,200/lb	5.25 lbs./MMBTU
Contract 2	1/1/25-12/31/25	300,000	12,600/lb	6.3 lbs./MMBTU
Contract 2	1/1/26-3/31/27	300,000	12,600/lb	6.3 lbs./MMBTU

Duke Energy Kentucky, Inc.
DEK Sierra Club Data Request_ Coal Supply Contracts
Contracts Annual Tonnage Requirement(2025-2034)
SC RR-152c

Year	Total Obligation (tons) 2025-2034	Forecasted Annual Tonnage	Percentage of forecasted annual tonnage
2025	730,643	768,367	95%
2026	300,000	738,699	41%
2027	0	809,613	0%
2028	0	734,626	0%
2029	0	732,335	0%
2030	0	740,129	0%
2031	0	715,999	0%
2032	0	928,602	0%
2033	0	814,500	0%
2034	0	661,734	0%

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-053

REQUEST:

Please refer to the Company's response to Staff DR-01-002(b), which states "Duke Energy's configuration of the PowerSIMM model simulates future power prices starting from monthly forward pricing curves, specifically PJM AD Hub for Duke Energy Kentucky. These monthly power prices are then scaled to hourly, unit-level price shapes based on historical relationships between weather, gas, and power."

a. Please provide, in machine readable format, the monthly and hourly energy prices produced by PowerSIMM and used to inform the 2027-2029 model projections.
b. Please explain how the monthly prices are scaled to hourly shapes based on the historical relationships between weather, gas, and power.

RESPONSE:

a. Please see Company's response to SIERRA-DR-01-048(b) Confidential Attachment.
b. Please see Company's response to SIERRA-DR-01-048(f) Confidential Attachment.

PERSON RESPONSIBLE: Ryan Trogstad

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-054

REQUEST:

Please refer to the Company's response to Staff-DR-01-007(a) where the Company said "Even before announced merchant generation retirements located within the DEOK zone occur, there is a limited supply of bilateral capacity within the DEOK zone."

a. Please explain if the Company is aware of bilateral capacity opportunities within the DEOK zone.

b. Please explain if the Company has conducted any analysis to estimate the potential level of bilateral capacity within the DEOK zone. If the Company has conducted an analysis, please provide that analysis.

RESPONSE:

a. The Company is aware of bilateral capacity opportunities within PJM, but none currently within the DEOK zone.

b. The Company is aware that PJM publishes a listing of resources by zone. Please refer to SIERRA-DR-01-054 Attachment for the PJM existing capacity resources for the 2024/2025 Delivery Year. A summary of the Installed Capacity within the DEOK zones shows total resources of 2,942.8 MW, with 1,880.8 MW of those resources being ones other than Duke Energy Kentucky assets. It is unknown what amount of those assets would be available to be purchased as bilateral capacity. Also note that the owners of Miami Fort Station have announced a closure to be completed by 2025, reducing the amount of available bilateral capacity in the

DEOK zone by 1,072 MW, or leaving only 808.8 MW available (1,880.8 MW minus 1,072 MW).

PERSON RESPONSIBLE: John Swez

Data Description:
PJM existing Capacity Resources for 2024/2025 as of 8/25/2022
ICAP MW is the Summer Installed Capacity (ICAP) rating of the unit
Modeled LDA locations of Generation Resources are consistent with 2024/2025 CETO studies

This posting **includes**:
• Existing Generation Resources located within the PJM footprint that qualify as Capacity Resources

This posting does **not include**:
• Planned Generation Resources (uprates or new units)
• Demand Resources (Planned or Existing)
• Energy Efficiency Resources (Planned or Existing)
• Qualifying Transmission Upgrades (Planned or Existing)
• Capacity rating changes not yet represented in Capacity Exchange system
• External Generation Resources
• Capacity rating changes from Publicly Announced Generation Retirements that have not yet submitted a Cap Mod

RESOURCENAME	ICAP	ZONENAME	LDANAME
BROWN COUNTY LF	3	DEOK	DEOK
DICKS CREEK 1	69	DEOK	DEOK
DICKS CREEK 3	12.9	DEOK	DEOK
DICKS CREEK 4	15	DEOK	DEOK
DICKS CREEK 5	15	DEOK	DEOK
EAST BEND 2	600	DEOK	DEOK
HILLCREST SOLAR	112.3	DEOK	DEOK
MELDAHL 1	22.2	DEOK	DEOK
MELDAHL 2	22.2	DEOK	DEOK
MELDAHL 3	22.2	DEOK	DEOK
MIAMI FORT 7	510	DEOK	DEOK
MIAMI FORT 8	510	DEOK	DEOK
MIAMI FORT GT3	12.7	DEOK	DEOK
MIAMI FORT GT4	12.3	DEOK	DEOK
MIAMI FORT GT5	13	DEOK	DEOK
MIAMI FORT GT6	14	DEOK	DEOK
MIDDLETOWN CC	468	DEOK	DEOK
MIDDLETOWN COKE	47	DEOK	DEOK
WOODSDALE GT1	77	DEOK	DEOK
WOODSDALE GT2	77	DEOK	DEOK
WOODSDALE GT3	77	DEOK	DEOK
WOODSDALE GT4	77	DEOK	DEOK
WOODSDALE GT5	77	DEOK	DEOK
WOODSDALE GT6	77	DEOK	DEOK
TOTAL	2,942.8		
TOTAL (NON DUKE ENERGY KENTUCKY ASSETS)	1,880.8		

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-055

REQUEST:

Please refer to the Company's response to Staff DR-01-008.

a. Please confirm if the column labeled as "Margin ($/MWh)" includes the Variable Operations and Maintenance ("VOM") costs for the East Bend Station.
   i. If it does include VOM costs, please explain which categories of costs make up the total VOM.
   ii. If it does not include VOM costs, please explain why.

b. Please explain the differences between the 2019-2023 fuel costs provided in STAFF-DR-01-008 and the 2019-2023 "East Bend Coal" costs provided in STAFF-DR-01-015 Attachment 1

RESPONSE:

a. The column labeled "Margin ($/MWh)" does not include Variable Operations and Maintenance ("VOM") costs for East Bend Station. On an after the fact basis, the Company is unable to split out total Operations and Maintenance costs between fixed and variable costs. However, by using the 2024 VOM cost for East Bend of $1.65/MWh and $500/hour, and by assuming full load operation, the variable O&M can be represented as:

$$Approximate\ Variable\ O\&M = \frac{\$1.65}{\text{MWh}} + \frac{\$500/\text{hour}}{600\ \text{MW}} = \$2.48/\text{MWh}$$

Thus, the margin calculated in the response to STAFF-DR-01-008 changes from $10.30/MWh to $7.82/MWh after the inclusion of the units variable O&M rate.

i. N/A

ii. See above.

b. The 2019-2023 fuel costs provided in STAFF-DR-01-008 are the total cost of fuel consumed at East Bend Station inclusive of both coal and fuel oil. The 2019-2023 "East Bend Coal" costs provided in STAFF-DR-01-015 Attachment 1 are the non-fuel fixed O&M expenses for East Bend Coal Station. "East Bend Coal" is the Station/Unit designator used in the Company's internal financial reporting system to designate the station the costs are associated with for reporting purposes.

PERSON RESPONSIBLE: John Swez – a., b.
Dan Sympson – b.

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-056

REQUEST:

Please refer to the Company's response to Staff DR-01-022(a) in Case No. 2024-00197 where the Company stated "It is expected to take 4-5 years to convert East Bend to DFO. The offsite work scope includes construction of a new natural gas lateral connecting the plant to an interstate mainline and the completion of any required mainline expansion projects."

a. Out of the 4–5-year timeframe estimated for conversion, please provide the specific timeline for the construction of the new gas lateral and any mainline expansion projects.
b. Please provide the capital costs for converting East Bend to natural gas.
c. Please provide the estimated capital costs of a new natural gas lateral.
d. Please provide the name of the interstate mainline that the lateral will be connected to.
e. Please provide all analyses the Company has done to determine the availability of natural gas supply to East Bend.
f. Please provide any communications the Company has had with natural gas suppliers.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET

Objection. This request seeks information that is beyond the scope of this proceeding and thus irrelevant and not likely to lead to the discovery of any relevant or admissible information. The Company is not seeking approval to convert its East Bend generating station to dual fuel operation in this proceeding. Without waiving said objection, and to the extent discoverable:

a. Construction of the lateral and any required mainline expansion projects is estimated to start in Q4 2028 and complete within 1 year.

b. The Company has not performed this analysis. The current capital cost estimate for adding natural gas co-firing to East Bend is approximately $85MM. This is a high-level estimate based on Company experience with adding natural gas co-firing to other units. A more accurate estimate will be developed as part of a detailed East Bend co-firing boiler study that will be completed in in the future and in advance of any CPCN to construct the co-firing project.

c. N/A. Duke Energy Kentucky will not construct or own the lateral and therefore is unaware of its capital cost.

d. [redacted]

e. Duke Energy Kentucky has not performed any specific analysis to determine the availability of natural gas supply to East Bend. Availability of natural gas is informed by discussions with potential suppliers.

f. Objection. This request is overbroad, unduly burdensome, seeks information that is irrelevant to these proceedings, and is not likely to lead to the discovery of any admissible or relevant information. Moreover, this request confuses issues and is harassing in nature. The Company is not seeking authorization to construct the dual-fuel project in this proceeding. Nor is the Company seeking authorization to construct a natural gas lateral or connect to any interstate pipelines in this proceeding. This case is about the construction of a lime-stone-based reagent handling process, which has nothing to do with whether or not or how the Company pursues a potential conversion of East Bend to a dual-fuel, natural gas co-firing generator.

PERSON RESPONSIBLE: As to objections, Legal
As to response, Dan Sympson – a., c., d., e.
Chad Donner – b.

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

CONFIDENTIAL SIERRA-DR-01-057
(As to Attachment (e) only)

REQUEST:

Please refer to the response to AG-DR-01-007 and the file named "AG-DR-01-007 CONF Attachment".

a. Please explain which costs are included in the Incremental Cost Offers for East Bend.

b. Please confirm that the Incremental Cost Offer for East Bend includes the cost of Magnesium Enhanced Lime. i. If confirmed, please provide the Magnesium Enhanced Lime cost, in $/MWH, for each of the months and years provided in the Attachment.

c. For each month and year provided in the Attachment, please provide the fuel cost included in the Incremental Cost Offer for East Bend.

d. Please explain which factors drove the increase in the Incremental Cost Offers over the period of June 2022 through February 2023.

e. Please provide East Bend's Incremental Cost Offers for 2024.

f. For each offer type in columns D-K, please state the Energy Offer Schedule Type as defined by PJM (e.g., Cost (1) Schedule, Price Parameter Limited Schedule (79) Schedule, Price (99) Schedule).

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachment (e) only)

a. The costs included in the East Bend Incremental Cost Offers are: Incremental Fuel, Variable O&M, Incremental NOx, Incremental SO2, Ammonia Reagents, and Lime Reagents.

b. The East Bend Incremental Cost Offers included the cost of the MEL Quicklime. Please see SIERRA-DR-01-057(b) Attachment for the MEL costs in $/MW from 1/1/2022 through 9/1/2024.

c. Please see SIERRA-DR-01-057(c) Attachment.

d. The coal supply chain experienced increasing challenges throughout 2021 and calendar year 2022 as historically low utility stockpiles—combined with rapidly increasing demand for coal, both domestically and internationally due to rapidly increasing natural gas prices and the war in Ukraine—made procuring additional coal supply increasingly challenging. Producers were unable to respond to this rapid rise in demand due to capacity constraints resulting from labor and resource shortages. These factors combined to drive both domestic and export coal prices in 2021 and 2022 to record levels. Coal producers also experienced inflationary impacts of rising costs associated with mining operations including, but not limited to, labor and equipment costs putting additional pressure on their ability to respond to market demand. Specifically, during the period of June 2022 through February 2023, the coal market remained elevated due to the market conditions discussed above, which impacted the cost of coal in the Incremental Cost Offers.

e. Please see SIERRA-DR-01-057(e) Confidential Attachment.

f. The Cost (1) Schedule columns are: D, F, H, J. The Price (99) Schedule columns are: E, G, I, K.

PERSON RESPONSIBLE: John Swez

Incremental Cost Offer - MEL Cost $/MW

Note: The MEL cost in $/MW is calcuated using East Bend's Average Heat Rate at full load

Date	MEL ($/MW):
1/1/2022	$4.82761
2/1/2022	$4.85331
3/1/2022	$5.04229
4/1/2022	$5.11869
5/1/2022	$5.11290
6/1/2022	$5.20251
7/1/2022	$4.23908
8/1/2022	$3.69331
9/1/2022	$3.69331
10/1/2022	$3.54581
11/1/2022	$3.59767
12/1/2022	$3.59767
1/1/2023	$3.59762
2/1/2023	$3.60916
3/1/2023	$2.12200
4/1/2023	$2.13193
5/1/2023	$2.13193
6/1/2023	$2.02389
7/1/2023	$3.50669
8/1/2023	$6.86519
9/1/2023	$6.86519
10/1/2023	$9.13822
11/1/2023	$8.66244
12/1/2023	$8.78151
1/1/2024	$7.74587
2/1/2024	$8.04104
3/1/2024	$9.96193
4/1/2024	$9.90841
5/1/2024	$9.90841
6/1/2024	$9.90841
7/1/2024	$11.05523
8/1/2024	$11.05523
9/1/2024	$11.05523

Incremental Cost Offer - Initial Fuel Cost Update by Month & Year

UnitName	FuelType	Month	Year	Price ($/mmbtu)
EABD_UN02	COAL	12	2021	4.1286
EABD_UN02	COAL	1	2022	4.1316
EABD_UN02	COAL	2	2022	3.6851
EABD_UN02	COAL	3	2022	6.3912
EABD_UN02	COAL	4	2022	5.8093
EABD_UN02	COAL	5	2022	2.6537
EABD_UN02	COAL	6	2022	6.2134
EABD_UN02	COAL	7	2022	6.9748
EABD_UN02	COAL	8	2022	7.8245
EABD_UN02	COAL	9	2022	8.3446
EABD_UN02	COAL	10	2022	8.3062
EABD_UN02	COAL	11	2022	7.4581
EABD_UN02	COAL	12	2022	6.3690
EABD_UN02	COAL	1	2023	5.7630
EABD_UN02	COAL	2	2023	4.8939
EABD_UN02	COAL	3	2023	3.9662
EABD_UN02	COAL	4	2023	3.3083
EABD_UN02	COAL	5	2023	2.9887
EABD_UN02	COAL	6	2023	2.3486
EABD_UN02	COAL	7	2023	2.4857
EABD_UN02	COAL	8	2023	2.6365
EABD_UN02	COAL	9	2023	2.2345
EABD_UN02	COAL	10	2023	2.4220
EABD_UN02	COAL	11	2023	2.5141
EABD_UN02	COAL	12	2023	2.2595
EABD_UN02	COAL	1	2024	2.8634
EABD_UN02	COAL	2	2024	3.0197
EABD_UN02	COAL	3	2024	2.1501
EABD_UN02	COAL	4	2024	2.4015
EABD_UN02	COAL	5	2024	2.4237
EABD_UN02	COAL	6	2024	2.8605
EABD_UN02	COAL	7	2024	2.9556
EABD_UN02	COAL	8	2024	3.1773
EABD_UN02	COAL	9	2024	2.9068

CONFIDENTIAL PROPRIETARY TRADE SECRET

SIERRA-DR-01-057(e)
CONFIDENTIAL ATTACHMENT

FILED UNDER SEAL

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-058

REQUEST:

Please refer to the Direct Testimony of Chad M. Donner, at page 3, and answer the following requests:

a. What is the lowest sulfur content coal that East Bend is designed to burn?

b. What is the highest sulfur content coal that East Bend is designed to burn?

c. Confirm that the MEL scrubber efficiency for SO_2 removal is 97%. If anything but confirmed, please explain.

d. Elsewhere (*e.g.*, Donner's Direct at page 5, lines 16-17) it is noted that the limestone scrubber will be designed to achieve 98% removal efficiency. What would be the cost of the limestone scrubber in order to achieve 97% and not 98% removal efficiency with design fuel having 5.66 lb SO_2/MMBtu coal?

e. What would the limestone scrubber efficiency be if East Bend used the lowest sulfur coal it is designed to burn?

f. What would the limestone scrubber cost be if East Bend used the lowest sulfur coal it is designed to burn?

RESPONSE:

a. The lowest sulfur content that can be burned depends on the chlorine concentration of the specific fuel and the ability to generate enough sulfite sludge byproduct. The sulfite sludge absorber purge is the only means to purge water from the system and

keep WFGD absorber chlorides within the metallurgical tolerances of the construction materials.

b. The current design basis is 7.4 lb/MMbtu SO2.
c. The design basis for the 2005 upgrade was 98%, however, the final guaranteed value was 97%.
d. There would be no capital cost difference in the design between 97% and 98% as the limestone demand difference would be approximately 1%.
e. The WFGD scrubber efficiency would still be capable of the design 98%.
f. The WFGD scrubber capital cost would not change as it would still need to meet the designed performance with the design fuel sulfur content of 5.66 lb/MMbtu SO_2 independent of what coal is burned.

PERSON RESPONSIBLE: Chad Donner

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-059

REQUEST:

Please refer to the Direct Testimony of Chad M. Donner, at page 8, line 20, and the Direct Testimony of John A. Verderame, at page 14, lines 6-7, each quantifying variable operating and maintenance costs.

a. What costs are included in the "total variable operating and maintenance (VOM)" figures?

b. Please also refer to the Company's response to STAFF-DR-01-0015(g), stating that Duke does not maintain data on "Variable Operating and Maintenance costs, $/MWh". Yet, the Company's testimony repeatedly references and quantifies variable operating and maintenance (VOM) costs. Please reconcile these conflicting representations.

RESPONSE:

a. Please see Company response to SIERRA-DR-01-055(a).

b. Please see Company response to SIERRA-DR-01-055(a).

PERSON RESPONSIBLE: John Swez

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-060

REQUEST:

Please refer to the Direct Testimony of John A. Verderame, at page 6, line 19, and answer the following requests.

a. Please provide detail on the "correct chemical content" of the MEL product – *i.e.*, compositions.

b. Please specify all tolerances (i.e., +/-) for the chemical composition of the "correct chemical content."

RESPONSE:

a. The East Bend MEL WFGD design basis calls for magnesium content of 7.7%

b. The main source supply of MEL to East Bend has a magnesium content of approximately 7.3-7.4% and the station can reliably operate with magnesium contents in the range of 7-8%. Anything below 7% will begin to impact the absorber's ability to control SO_2 due to the lack of liquid phase alkalinity.

PERSON RESPONSIBLE: Chad Donner

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-061

REQUEST:

Please refer to the Direct Testimony of John A. Verderame, at page 17, lines 2-3, and answer the following requests.

a. Please quantify the additional emissions of NO_x, SO_2, CO, $PM_{2.5}$, PM_{10}, H_2SO_4, N_2O, and CO_2 associated with the "additional generation in the limestone case of ~1,800 GWh over the three year period."

b. What are the emissions of the above air pollutants for each year in the three-year period?

c. Have these emissions increases been accounted for in the permit application that was submitted in July 2024? If yes, please explain how.

RESPONSE:

Please refer to the original Application's Exhibit 3. It contains the permit application for this project, and it includes a table which shows the baseline and projected actual emissions with and without the limestone conversion project. No regulated pollutants had an emissions increase from the project greater than the Prevention of Significant Deterioration (PSD) applicability threshold. Emissions projections were based on overall project projections.

PERSON RESPONSIBLE: J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-062

REQUEST:

Please refer to the Direct Testimony of Michael J. Geers, at page 13, lines 13-14, and answer the following requests:

a. Please provide the expected reduction in the fixation lime noted in line 13.

b. Please provide the reduction in total mass noted in line 14.

RESPONSE:

The mass of fixation lime required will depend upon the actual sulfur of the fuel used, and the capacity factor at which the unit operates. However, assuming the same capacity factor and coal content, the reduction in fixation lime would be about 40%. The reduction in total material to the landfill will be about 18%.

PERSON RESPONSIBLE: J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-063

REQUEST:

Please refer to the Company's CPCN Application, at page 4, paragraph. 9.

a. Please quantify the increase (i.e., from the 40 to 50 gallons per 1000 cubic feet noted) in recycle slurry pumping that will be required when limestone is used as the reagent in place of MEL.

b. What is the additional VOM associated with this increased slurry recycle pumping? Please provide the supporting analysis or workpapers, if any.

RESPONSE:

a. The values referenced above are a measure of the liquid to gas ratio or the recirculation rate of the absorber slurry. The values shared in the application were typical baseline values of MEL WFGD designs. The original design basis for East Bend was 35 gal/1000ACF and the limestone project will increase the L/G to 50 ga/ACF.

b. In a limestone WFGD the recirculation rate must be increased due to the lower reactivity of the limestone to keep the slurry droplets in contact with the flue gas longer. The VOM specific to the absorber pumps was not directly evaluated, however, directionally the net VOM would decrease with higher L/G due to increased limestone utilization. The project was evaluated on the overall net VOM savings from switching from lime to limestone which is inclusive of all process modifications including the increase in L/G.

PERSON RESPONSIBLE: Chad Donner

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-064

REQUEST:

Please refer to the Company's CPCN Application, at page 5, paragraph 10. Please quantify the reduction in the quantities of sly ash and (fixation) lime that will be needed when limestone is used as the reagent in place of MEL.

RESPONSE:

Objection. This request references a material that is not present at East Bend (slyash). Without waiving said objection, refer to the response for SIERRA-DR-01-062.

PERSON RESPONSIBLE: As to objection, Legal
As to response, J. Michael Geers

SIERRA-DR-01-065

REQUEST:

Please refer to the Company's CPCN Application, at page 8, paragraph 19.

a. Please quantify the "reduced variable operational cost" noted.

b. Please quantify the "higher overall reagent expenditure due to the anticipated increase in economic dispatch."

c. Please quantify the expected "significantly lower" cost per ton of reagent, for each year from now through the retirement of East Bend.

d. Please quantify the reduction in "maintenance" noted.

e. Please explain how there will be "fuel cost savings" as a result of the Limestone Conversion Project that is noted on this page.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET

a. As discussed in Witness Verderame's direct testimony page 14 line 7 the "reduced variable operational cost" is ~$12.03/MWh.

b. The Company's modeling calculated a decrease in reagent expenditures of $18,644,671 following the Limestone Conversion. Please see STAFF-DR-01-021 CONF Attachment DEK Cost Breakdown tab.

c. The expected "significantly lower" cost per ton of reagent through 2029 is shown in the table in Witness Donner's direct testimony on page 9 line 2. The Company

has not quantified the cost per ton of reagent through retirement of East Bend as part of the Company's analysis.

d. As discussed in Witness Donner's direct testimony on page 8 line 19 and 20 the Limestone Conversion Project strategy would reduce total variable operating and maintenance (VOM) on the order of [redacted].

e. As discussed in Witness Verderame's direct testimony on page 17, lines 4 through 5 the Company's modeling resulted in an average annual saving of $6.1M per year in fuel and purchase power. This savings is a result of the reduction in projected purchase power expense. Please see STAFF-DR-01-021 CONF Attachment DEK Cost Breakdown tab.

PERSON RESPONSIBLE: John A. Verderame – a., e.
Ryan Trogstad – b.
Chad Donner – c., d.

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-066

REQUEST:

Please refer to the Company's CPCN Application, at page 13, paragraph 31. What are the "other environmental regulations" noted in this paragraph? Please explain.

RESPONSE:

Objection. The question is irrelevant and not likely to lead to the discovery of any admissible or relevant information. Without waiving said objection, as stated in the Company's CPCN Application, this conversion will enable Duke Energy Kentucky to continue operation of East Bend in compliance with applicable environmental regulations, including but not limited to, the U.S. EPA CAA, MATS, and CSAPR, as well as other environmental regulations. These regulations are specifically identified because they are relevant to the operation of the WFGD system. In addition to the CAA and the specified air regulations, East Bend is also subject to a litany of other environmental regulations including for example the station's NPDES and landfill permits and the ELG regulations. While not of the same magnitude as the air regulations, they nevertheless were considered.

PERSON RESPONSIBLE: As to objection, Legal
As to response, J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-067

REQUEST:

Please refer to the Company's CPCN Application, Exhibit 4, AECOM's Preliminary Engineering Report, at page 6 of 78.

a. Will thiosulfate be used as an additive as part of the LSIO project or only sodium formate? Please explain.

b. Please quantify the noted "significant improvement in dewatering" and provide supporting calculations and analysis, if any.

c. Please quantify the noted "reduced fixation lime requirements" and provide supporting calculations and analysis, if any.

d. Has the "degradation in performance" discussed on the referenced document been observed at East Bend? If yes, please explain how the unit or scrubber has degraded due to lower capacity factor, and to the extent possible, please quantify the impact of such degradation.

e. To the extent known, please identify the other "utility that converted from MEL to LSIO operation."

f. To the extent known, please identify units that have converted from MEL to LSIO operation.

RESPONSE:

a. Both, thiosulfate is used to maintain a reducing inhibited oxidation process to aid solids dewatering. Sodium Formate is used as a PH buffer additive to aid in the SO2 removal process.

b. The crystalline structure of the limestone sulfite sludge creates a flat plate like particle vs. a more "rosette" shaped particle with the MEL sulfite sludge that hold onto water. The approximate solids content of the current MEL filter cake from the secondary dewatering process is 38% and is expected to increase to 65% due to the improved dewatering characteristics as a result of the particle shapes.

c. As a result of the filter cake being drier, less lime is required for fixation to "dry" the material. It is estimated that the percentage of lime with reduce from approximately 6% today to as little as 3.5% for the limestone sulfite filter cake.

d. The degradation referenced is a degradation of the MEL process chemistry due to higher boiler flue gas exit oxygen percentages at low loads. At low loads it becomes more difficult to maintain high levels of sulfite in the WFGD chemistry as they tend to naturally oxidize to sulfate. This can lead to problems with dewatering and SO2 control problems. At times East Bend has experienced such process chemistry degradation, however it is reversable and non-permanent with adjustments to the process control.

e. The Company is aware that the Conesville station (formerly owned by AEP) was converted from MEL to LSIO. The Company is also aware of another generating station in Ohio that is no longer owned by a utility, but an independent power producer was previously converted.

f. See response to (e) above.

PERSON RESPONSIBLE: Chad Donner

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-068

REQUEST:

To the extent known, please answer the following requests with respect to the Company, affiliated companies, and Duke Energy Corporation.

a. Number of coal units, existing and retired since 2015.

b. Among the units identified in response to subpart a, please identify the units that use or used a WFGD system.

c. Among the units identified in subpart b, please identify which use an MEL process and which use an LSIO process.

d. Among the units identified in subpart b, please identify which have undergone a conversion like the one proposed for East Bend 2's WFGD system, if any?

e. For each unit identified in subpart d, please explain how the cost and operational performance for the unit compares to the projected cost and operational implications of the proposed Limestone Conversion Project.

RESPONSE:

a. Objection. Irrelevant. This request seeks information that is beyond the scope of this proceeding and not admissible or unlikely to lead to the discovery of admissible evidence. Without waiving said objection, and to the extent discoverable, there have been 40 total coal units since 2015 with 25 units in operation today, 15 units that were retired since 2015, and 2 of the operating coal units will retire by the end of 2024 year for a balance of 23.

b. All 25 units in operation today have WFGD systems in addition to 5 of the 15 units that were previously retired for a total of 30 WFGD systems. Of the 30 WFGD systems all but two were LSFO (Limestone Forced Oxidation) based technology.

c. East Bend has been the only MEL WFGD process within the Duke Energy fleet and therefore no other MEL WFGD process' exist. There is currently only one other unit that operates in the fleet with (LSIO) Limestone Inhibited Oxidation.

d. There have been no other reagent conversions within the Duke Energy fleet like East Bend.

e. N/A

PERSON RESPONSIBLE: Chad Donner

SIERRA-DR-01-069

REQUEST:

Please refer to the Company's CPCN Application, at page 8 of 78, Table 3-1.

a. Please provide a basis for why 3.2% wet coal sulfur content was used in the evaluation.

b. Given that the East Bend boiler is capable of using low sulfur bituminous coals, why were lower coal sulfur contents not evaluated? Please explain.

RESPONSE:

a. The East Bend boiler is capable of burning a variety of coals which allows Duke Energy Kentucky the flexibility to minimize its fuel cost. When designing a reagent preparation system (for either MEL or limestone), it is necessary to design the equipment with sufficient capacity to deliver the reagent needed to accommodate the coal with this higher sulfur content. If the sulfur content is lower, then of course the reagent preparation system will need to deliver a lessor amount of reagent.

b. See response to (a).

PERSON RESPONSIBLE: J. Michael Geers

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-070

REQUEST:

Please refer to the Company's response to STAFF-DR-01-002(a). Provide a list of all assumptions that were "based on guidance from plant engineering staff."

RESPONSE:

The implicit assumption that unit characteristics remained the same in both scenarios was provided by plant engineering. Please see Company's response to SIERRA-DR-01-048(d) Confidential Attachment. In addition, plant engineering provided the following values regarding reagent mix in each scenario, reagent consumption rates, reagent prices, and escalation rates. Please see Company's response to STAFF-DR-02-001.

PERSON RESPONSIBLE: Ryan Trogstad

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-071

REQUEST:

Please refer to the Company's response to STAFF-DR-01-005(b). Please provide the composition of the "correct chemical content" noted in this response.

RESPONSE:

The reference for "Correct chemical content" is based off the typical magnesium content of the base MEL supply for East Bend in the range of 7-8% magnesium oxide. Please also reference the response to SIERRA-DR-01-060 for the East Bend MEL WFGD design basis requirements.

PERSON RESPONSIBLE: Chad Donner

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-072

REQUEST:

Please refer to the Company's response to STAFF-DR-01-0013. Please specify what retirement date (12/31/2038 or 12/31/2035) is used in the analyses offered in support of the requested CPCN. If different retirement dates are used in different analyses, please specify the details of where each retirement date is used.

RESPONSE:

The PowerSimm cost benefit analysis done to support the requested CPCN was based on a 5-year period that ran through 2029 and did not include a modeled retirement date for East Bend. Additionally, the project payback and IRR analysis as well as the Encompass analysis done to support the requested CPCN were based on an East Bend retirement date of 12/31/2035. Finally, the depreciation expense included in witness Lawler Attachment SEL-1 was based on a retirement date of 12/31/2038.

PERSON RESPONSIBLE: Ryan Trogstad
Chad Donner
Matthew Kalemba
Sarah Lawler

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-073

REQUEST:

Please refer to Attachment 2 to STAFF-DR-01-015. Please explain the cause(s) of the relatively high EFOR of 11.62 for 2021.

RESPONSE:

East Bend Staton's 2021 EFOR is primarily caused by a two forced outage events and lower annual service hours due to a planned outage in the Fall 2021. Refer to STAFF-DR-02-006 Attachment 1 for a detailed list of forced outages and derates with associated cause codes and descriptions.

PERSON RESPONSIBLE: John D. Swez

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-074

REQUEST:

Please refer to the Company's response to STAFF-DR-01-022

a. Please provide the names of the "eleven potential lime suppliers."

b. Please provide the names of the companies that provided responses.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET

a. The 2023 Request for Proposal solicitation was sent to the following potential suppliers: Lhoist, Mississippi Lime Company, Graymont Lime, Chemicals Inc., Brenntag, Univar, Mid-Ohio Valley Lime, Linwood Mining, Carmeuse, Greer Lime, United States Lime & Minerals.

b. [redacted]

PERSON RESPONSIBLE: John A. Verderame

Duke Energy Kentucky
Case No. 2024-00152
SIERRA First Set of Data Requests
Date Received: September 20, 2024

SIERRA-DR-01-075

REQUEST:

Please refer to the Company's response to STAFF-DR-01-024, and the Company's plan to comply with greenhouse gas emission standards by co-firing coal with natural gas by January 1, 2030, and retire by December 31, 2028.

a. Under this plan, what are the estimated SO_2 emissions (before scrubbing), by month starting January 1, 2030, through either a December 31, 2035, or December 31, 2038, retirement date?

b. How have the reduced pre-scrubber SO_2 rates with gas co-firing been accounted for in the analysis presented for this CPCN action, if at all? Please explain in full.

RESPONSE:

a. Pre-scrubber SO2 emissions have not been estimated at this time for gas co-firing. Generally, the percentage of gas burn results in a proportional reduction in FGD inlet sulfur for the same coal sulfur.

b. Gas co-firing leads to lower SO2 rates proportional to the gas burn percentage for the same coal sulfur percentage which results in lower reagent requirements. The Encompass modeling described in response to STAFF-DR-02-008 did not evaluate gas co-firing, however it did account for reduced reagent costs through reduced coal CF% as part of the proposed EPA 111 modeling scenarios.

PERSON RESPONSIBLE: Chad Donner – a.
Matthew Kalemba – b.