

**COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

**ELECTRONIC APPLICATION OF DUKE ENERGY )  
KENTUCKY, INC. FOR A CERTIFICATE OF PUBLIC )  
CONVENIENCE AND NECESSITY TO CONVERT ITS )  
WET FLUE GAS DESULFURIZATION SYSTEM FROM ) Case No. 2024-00152  
A QUICKLIME REAGENT PROCESS TO A )  
LIMESTONE REAGENT HANDLING SYSTEM AT ITS )  
EAST BEND GENERATING STATION AND FOR )  
APPROVAL TO AMEND ITS ENVIRONMENTAL )  
COMPLIANCE PLAN FOR RECOVERY BY )  
ENVIRONMENTAL SURCHARGE MECHANISM )**

**SIERRA CLUB’S FIRST REQUEST FOR INFORMATION TO  
DUKE ENERGY KENTUCKY, INC.**

Sierra Club submits this First Set of Requests for Information (“RFI”) to Duke Energy Kentucky, Inc. (“Duke”). Sierra Club requests that Duke provide the following information and answer the following questions under oath. Please answer the questions and sub-questions in the order in which they are listed and in sufficient detail to provide a complete and accurate answer to the question. These question(s) are continuing in nature, and if there is a relevant change in circumstances, submit an amended answer, under oath, as a supplement to your original answer. Please state the name of the witness in this proceeding who will sponsor the answer to the question.

Responses to the RFIs should be served on the following individuals no later than September 6, 2024, or as modified by order in this case:

Kristin Henry  
Sierra Club Environmental Law Program  
2101 Webster Street, Suite 1300  
Oakland, CA 94612  
kristin.henry@sierraclub.org

## **DEFINITIONS**

Unless otherwise specified in each individual interrogatory or request, “you,” “your,” the “Company,” or “Duke,” refers to Duke Energy Kentucky, Inc., and its affiliates, directors, officers, employees, consultants, attorneys, and authorized agents.

“And” and “or” shall be construed either conjunctively or disjunctively as required by the context to bring within the scope of these interrogatories and requests for production of documents any information which might be deemed outside their scope by another construction.

“Any” means all, each and every example of the requested information.

“Communication” means any transmission or exchange of information between two or more persons, whether orally or in writing, and includes, without limitation, any conversation or discussion by means of letter, telephone, note, memorandum, telegraph, telex, telecopy, cable, email, or any other electronic or other medium.

“Control” means, without limitation, that a document is deemed to be in your control if you have the right to secure the document or a copy thereof from another person or public or private entity having actual possession thereof. If a document is responsive to a request, but is not in your possession or custody, identify the person with possession or custody. If any document was in your possession or subject to your control, and is no longer, state what disposition was made of it, by whom, the date on which such disposition was made, and why such disposition was made.

“Document” refers to written matter of any kind, regardless of its form, and to information recorded on any storage medium, whether in electrical, optical or electromagnetic form, and capable of reduction to writing by the use of computer hardware and software, and includes all copies, drafts, proofs, both originals and copies either (1) in the possession, custody

or control of the Company regardless of where located, or (2) produced or generated by, known to or seen by the Company, but now in their possession, custody or control, regardless of where located whether or still in existence. Such “documents” shall include, but are not limited to, applications, permits, monitoring reports, computer printouts, contracts, leases, agreements, papers, photographs, tape recordings, transcripts, letters or other forms of correspondence, folders or similar containers, programs, telex, TWX and other teletype communications, memoranda, reports, studies, summaries, minutes, minute books, circulars, notes (whether typewritten, handwritten or otherwise), agenda, bulletins, notices, announcements, instructions, charts, tables, manuals, brochures, magazines, pamphlets, lists, logs, telegrams, drawings, sketches, plans, specifications, diagrams, drafts, books and records, formal records, notebooks, diaries, registers, analyses, projections, email correspondence or communications and other data compilations from which information can be obtained (including matter used in data processing) or translated, and any other printed, written, recorded, stenographic, computer-generated, computer-stored, or electronically stored matter, however and by whomever produced, prepared, reproduced, disseminated or made. For purposes of the production of “documents,” the term shall include copies of all documents being produced, to the extent the copies are not identical to the original, thus requiring the production of copies that contain any markings, additions or deletions that make them different in any way from the original.

“Identify” means:

- a. With respect to a person, to state the person’s name, address and business relationship (e.g., “employee”) vis-à-vis the Company;
- b. With respect to a document, to state the nature of the document in sufficient detail for identification in a request for production, its date, its author, and to

identify its custodian. If the information or document identified is recorded in electrical, optical or electromagnetic form, identification includes a description of the computer hardware or software required to reduce it to readable form.

“Person” means, without limitation, every natural person, corporate entity, partnership, association (formal or otherwise), joint venture, unit operation, cooperative, municipality, commission, governmental body or agency.

“Relating to” or “concerning” means and includes pertaining to, referring to, or having as a subject matter, directly or indirectly, expressly or implied, the subject matter of the specific request.

“Workpapers” are defined as original, electronic, machine-readable, unlocked, in native format, and with formulae and links intact.

## **INSTRUCTIONS**

1. The Definitions, Instructions, and Claim of Privilege set out in this Request for Information apply to these questions.
2. In answering these questions, furnish all information that is available to you, including information in the possession of your agents, employees, and representatives, all others from whom you may freely obtain it, and your attorneys and their investigators.
3. Please answer each question based upon your knowledge, information, or belief, and any answer that is based upon information or belief should state that it is given on that basis.
4. If you have possession, custody, or control of the originals of these documents requested, please produce the originals or a complete copy of the originals and all copies that are

different in any way from the original, whether by interlineation, receipt stamp, or notation.

5. If you do not have possession, custody, or control of the originals of the documents requested, please produce copies of the documents, however made, in your possession, custody, or control. If any document requested is not in your possession or subject to your control, please explain why not, and give the present location and custodian of any copy or summary of the document.
6. If any question appears confusing, please request clarification from the undersigned counsel.
7. In providing your responses, please start each response on a separate page and type, at the top of the page, the question that is being answered.
8. As part of the response to each question, please state, at the bottom of the answer, the name and job position of each person who participated in any way, other than providing clerical assistance, in the preparing of the answer. If the question has sub-parts, please identify the person or persons by sub-part. Please also state the name of the witness in this docket who will sponsor the answer to the question and who can vouch for the truth of the answer. If the question has sub-parts, please identify the witness or witnesses by sub-part.
9. Rather than waiting to provide all of the responses at the same time, please provide individual responses as each becomes available.
10. Wherever the response to a request for information consists of a statement that the requested information is already available to Sierra Club, please provide a detailed citation to the document that contains the information. The citation shall include the title

of the document, relevant page number(s), and to the extent possible paragraph number(s) and/or chart(s)/table(s)/figure number(s).

11. In the event that any document referred to in response to any request for information has been destroyed, specify the date and the manner of such destruction, the reason for such destruction, the person authorizing the destruction and the custodian of the document at the time of its destruction.
12. These questions are continuing in nature. If there is a change in circumstances or facts or if you receive or generate additional information that changes your answer between the time of your original response and the time of the hearings, then you should submit, under oath, a supplemental response to your earlier answer.
13. If you consider any question to be unduly burdensome, or if the response would require the production of a voluminous amount of material, please call the undersigned counsel as soon as possible in order to discuss the situation and to try to resolve the problem. Likewise, if you object to any of the questions on the grounds that the question seeks confidential information, or on any other grounds, please call the undersigned counsel as soon as possible.
14. If the response to any question is voluminous, please provide separately an index to the materials contained in the response.
15. If the information requested is included in previously furnished exhibits, workpapers, or responses to other discovery inquiries or otherwise, in hard copy or electronic format, please furnish specific references thereto, including Bates Stamp page citations and detailed cross-references.

16. Data should be provided in native electronic format including active EXCEL workbooks and all linked workbooks, with all formulas, cell references, links, etc., intact, functioning, and complete for all tables, figures, and attachments in the testimony.
17. To the extent that a question asks for the production of copyrighted material, it is sufficient to provide a listing of such material, indicating the title, publisher, author, edition, and page references relied on or otherwise relevant to the question.
18. Sierra Club reserves the right to serve supplemental, revised, or additional information requests as permitted in this proceeding.

### **PRIVILEGE**

If you claim a privilege including, but not limited to, the attorney-client privilege or the work product doctrine, as grounds for not fully and completely responding to any request for information or request for production, describe the basis for your claim of privilege in sufficient detail so as to permit meaningful evaluation of the validity of the claim. With respect to documents for which a privilege is claimed, produce a “privilege log” that identifies the author, recipient, date and subject matter of the documents or interrogatory answers for which you are asserting a claim of privilege and any other information pertinent to the claim that would likewise enable evaluation of the validity of such claims.

### **INFORMATION REQUESTS**

- 1.1 Please provide all public and confidential responses to Requests for Information issued by Duke or any other party to this proceeding.
- 1.2 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).

- 1.3 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.
- 1.4 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")
- 1.5 For East Bend Unit 2, please provide the following projected annual data, for the years 2025 through 2046, or the latest year available:
  - 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”)
- 1.6 Please provide the annual revenue requirements and present value revenue requirement (PVRR) for all portfolios and scenarios modeled.
- 1.7 Please refer to the Direct Testimony of John A. Verderame at page 9, lines 10-19, and answer the following requests:
- a. Please state the approximate month and year of the decision to pursue the Limestone Conversion.
  - b. What additional options for continuing the lime-based process did the Company consider? Please explain in full. Please state the approximate timeframe.
- 1.8 Please refer to the Direct Testimony of John A. Verderame at page 17, lines 1-8, and answer the following requests:
- a. Please confirm that the total annual savings estimate of \$27.8 million per year is based on modeling of a three-year time period, 2027 through 2029. If anything but confirmed, please explain in full.
  - b. If Duke modeled any other time period(s), please identify each time period modeled by the Company in support of this CPCN application.
- 1.9 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.
- 1.10 Please refer to the Direct Testimony of Sarah E. Lawler, Exhibit SEL-2.
- a. Please confirm that, if approved, the Company intends to recover the cost of the conversion project over a period of 2026 through 2046. If anything but confirmed, please explain.
  - b. Please provide the information in Ex. SEL-2 for years 2030 through 2046.
- 1.11 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.
- 1.12 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.
- 1.13 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?
- 1.14 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.
- 1.15 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.
- 1.16 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.
- 1.17 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.

- 1.18 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.
- 1.19 Please explain how Duke’s modeling in support of this CPCN application incorporates the EPA’s Good Neighbor Rule, if at all.
- 1.20 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?
- 1.21 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.
- 1.22 Please provide the total number of NOx credit purchases under CSAPR and cost by year for East Bend from 2017 to present.
- 1.23 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?
- 1.24 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.
- 1.25 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. State whether any of those costs are included in Duke’s test year, and if so, identify the specific costs included.
  - f. 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.

- g. Please provide all evaluations of the technical or engineering compliance options for the ELG Rule for East Bend.
- h. 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)

- 1.26 Please explain how Duke’s modeling in support of this CPCN application incorporates the EPA’s Coal Combustion Residual (“CCR”) rule, if at all.
- 1.27 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.
- 1.28 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.
- 1.29 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?
- 1.30 Please explain how Duke’s modeling in support of this CPCN application incorporates possible Regional Haze compliance costs, if at all.
- 1.31 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?
- 1.32 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).
- 1.33 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 each unit 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?
- 1.34 Provide the Company's three most-recent commodity and power market price forecasts. Indicate the date of each forecast. Provide total energy and ancillary service market revenues for East Bend, for the period 2019–2024.
- 1.35 Provide total projected energy and ancillary service market revenues for East Bend, for the period 2025–2046.
- 1.36 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.
- 1.37 For each retirement study or unit condition assessment in response to Sierra Club 1.36 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 develop model input assumptions.
- 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 CO2 price);
  - viii. PJM capacity price forecasts (with and without CO2 price);
  - ix. CO2 price forecasts
  - x. Coal price (\$/MMBtu)
  - xi. Gas price (\$/MMBtu)

1.38 Please identify and provide all communications received from each of the following entities (and Duke's responses thereto) during 2023 and 2024

specifically raising the issue of whether Duke's practices of (i) committing generating units as "Must Run" or "self scheduled" status in PJM energy markets and/or (ii) use of supply offer adjustments complies with PJM's Tariff and/or Business Practice Manuals, or otherwise addressing Duke's unit commitment practices.

- a. PJM
- b. PJM's Independent Market Monitor
- c. FERC Staff
- d. FERC Office of Enforcement
- e. Kentucky Public Service Commission

1.39 Please provide all communications received from the FERC Office of Enforcement (and Duke's responses thereto) during 2023 and 2024 regarding any audit performed or to be performed by the FERC Office of Enforcement's Division of Audits and Accounting. Please provide any completed or draft audit report received from the FERC Office of Enforcement.



Dated: August 23, 2024

Respectfully submitted,

/s/ Joe F. Childers  
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### **CERTIFICATE OF SERVICE**

This is to certify that the foregoing copy of Sierra Club's First Request for Information to Duke Energy Kentucky, Inc. in this action is being electronically transmitted to the Commission on August 23, 2024, and that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding.

/s/ Joe F. Childers  
JOE F. CHILDERS