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August 16, 2018

RECEIVED

AUG 17 2018

PUBLIC SERVICE
COMMISSION

Gwen R. Pinson
Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort, Kentucky 40602

Re: In the Matter of The 2017 Integrated Resource Plan Of Big Rivers Electric Corporation, Case No. 2017-00384

Dear Ms. Pinson:

Please find enclosed for filing the original and ten copies of Ben Taylor and Sierra Club's Supplemental Requests for Information to Big Rivers Electric Corporation in Case No. 2017-00384 before the Kentucky Public Service Commission.

This filing contains no confidential information. If you need anything else, please let me know.

Thank you for your attention to this matter.

Sincerely,



Joe F. Childers

Enc.

RECEIVED

AUG 17 2018

PUBLIC SERVICE
COMMISSION

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF: THE 2017 INTEGRATED : Case No. 2017-00384
RESOURCE PLAN OF BIG RIVERS ELECTRIC :
CORPORATION :

BEN TAYLOR AND SIERRA CLUB'S SUPPLEMENTAL REQUESTS FOR
INFORMATION TO BIG RIVERS ELECTRIC CORPORATION

Intervenors Ben Taylor and Sierra Club (collectively "Environmental Intervenors"), pursuant to the Kentucky Public Service Commission's ("Commission") November 9, 2017, Order, propound the following requests for information on the Big Rivers Electric Corporation's ("Big Rivers" or "BREC") filing in the above captioned proceeding.

Big Rivers shall answer these requests for information in the manner set forth in the November 9 Order and by no later than the September 14, 2018, deadline set forth in the Appendix of the November 9 Order. Please produce the requested documents in electronic format to:

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Wherever the response to an interrogatory or request consists of a statement that the requested information is already available to the Environmental Intervenors, provide a detailed citation to the document that contains the information. This citation shall include the title of the document, relevant page number(s), and to the extent possible paragraph number(s) and/or chart/table/figure number(s), as well as a hyperlink, if applicable.

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.

The Environmental Intervenors reserve the right to serve supplemental, revised, or additional discovery requests as permitted in this proceeding.

DEFINITIONS

Unless otherwise specified in each individual interrogatory or request, “you,” “your,” “Big Rivers,” “BREC,” or “Company” refers to Big Rivers Electric Corporation, and its affiliates, employees, 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 or each and every example of the requested information.

“CO₂” means carbon dioxide.

“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.

“CSAPR” means the Cross-State Air Pollution Rule.

“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 Companies regardless of where located, or (2) produced or generated by, known to or seen by the Companies, 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.

Without limitation, the term “control” as used in the preceding paragraphs means 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.

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”) to Big Rivers;
- (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.

“NO_x” means nitrogen oxides.

“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.

“SCR” means selective catalytic reduction technology.

“SO₂” means sulfur dioxide.

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 interrogatory or request for production, describe the basis for your claim of privilege in sufficient detail so as to permit the Environmental Intervenors and the Commission to evaluate 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 enable the Environmental Intervenors and the Commission to evaluate the validity of such claims.

REQUESTS FOR INFORMATION

1. Refer to Big Rivers’ response to PSC 1-6, which is referenced in your response to SC 1-3(a).
 - a. Produce the April 4, 2017, Progress Report referenced therein.
 - b. Produce each and every other Progress Report that Big Rivers has created in response to the 2014 Focused Management and Operations Audit.
 - c. Produce any workpapers, modeling input and output files, and documents regarding the evaluation of various considerations for the Coleman Station referenced therein.
 - d. Identify the date or time frame in which the evaluation referenced therein was carried out.
 - e. State whether Big Rivers is implementing any recommendations regarding the Coleman Station made in the evaluation referenced therein.
 - i. If so, identify each such recommendation and what steps Big Rivers is taking to implement it.
 - ii. If not, explain why not.

2. Refer to Big Rivers’ response to PSC 1-7, which is referenced in your response to SC 1-3(c).
 - a. Identify the amount of capacity and the price for the contract with Owensboro Municipal Utilities for the period June 1, 2020, through December 31, 2026.
 - b. Produce a copy of the contract with Owensboro Municipal Utilities for the period June 1, 2020, through December 31, 2026.
 - c. For each of the years 2020 through 2026, identify:
 - a. The projected gross revenues before application of expenses for the sales to Owensboro Municipal Utilities.
 - b. The projected net revenues or margins after the application of expenses for the sales to Owensboro Municipal Utilities.

- c. Each category of costs that are factored into calculating such expenses.
3. Refer to Big Rivers' response to SC 1-7. Produce historic forecast variances for system energy, peak summer and peak winter since 2010.
4. Refer to Big Rivers' response to PSC 1-7 and SC 1-8.
 - a. Explain how the Unexecuted sales shown in the table provided in SC 1-8 are reflected in the Capacity Position shown in the graph provided in PSC 1-7.
 - b. Produce this graph with the unexecuted sales broken out from the executed sales.
 - c. State whether the non-member unexecuted sales shown in the table provided in response to SC 1-8b reflect the change in capacity of 197 MW that will result from the termination of the operating agreement with HMP&L for Station Two.
 - i. If not, produce an updated version of this table that reflects the change in projected executed and unexecuted demand.
 - d. State whether there are any costs associated with the termination of the agreement with HMP&L for Station Two.
 - i. If so, identify these costs.
5. Refer to Big Rivers' response to SC 1-8(d). With regards to the termination of the operating agreements for HMP&L Station Two:
 - a. Explain why that termination leads Big Rivers to expect a reduction of about 200 MWs in Projected Non-Member Peak Demand beginning in 2019.
 - b. Explain whether the impact of the HMP&L Station Two operating agreement termination is reflected in each of Revised Tables 3.1, 3.2, 3.3, and 3.4 produced as Attachments to Big Rivers' response to PSC 1-37.
 - i. If so, explain how that impact is reflected.
 - ii. If not, explain how each of those Revised Tables should be adjusted to reflect the impacts of the termination.
6. Refer to Big Rivers' response to SC 1-9 and to Revised Table 3.4 produced in response to PSC 1-37.
 - a. Explain why your response to SC 1-9 identifies a projected non-member peak requirement of 462.4 MW for June 2018 through May 2019, while Revised Table 3.4 identifies a projected non-member peak requirement of 513 MWs for each month from June 2018 through April 2019, and 509 MW for May 2019.
 - b. Explain why, according to your response to SC 1-9, non-member peak requirements are projected to drop from 462.4 MW in May 2019 to 247.8 MW for each month of June 2019 through December 2019.
 - c. Explain why your response to SC 1-9 identifies a projected non-member peak requirement of 247.8 MW for each month of June 2019 through December 2019

while Revised Table 3.4 identifies a projected non-member peak requirement of 512 MW for each of those months.

7. Refer to Big Rivers' response to SC 1-12 and PSC 1-11. Provide any studies, analysis and projections that were used to develop the Short Term Optimization MWh sales and revenue projection.
8. Refer to the Attachment to Big Rivers' response to SC 1-12(c) and (d).
 - a. For each of the months listed therein, explain how the forecasted revenue amounts were calculated.
 - b. For each of the months listed therein, identify the energy price assumed in calculating the forecasted revenue amounts.
 - c. Identify the source, date, and basis for any energy price forecast used in calculating the forecasted revenue amounts.
 - d. State whether the forecasted revenue amounts reflect net revenues after accounting for expenses, or gross revenues before accounting for expenses.
 - e. If the answer to subpart (d) is gross revenues, then identify the forecasted net revenues for the projected short-term optimization sales for each of the months from June 2018 through December 2031.
9. Refer to Big Rivers' response to SC 1-13. The "Expected Retirement Dates" for each unit came from a 2012 Burns and McConnell Comprehensive Depreciation Study.
 - a. Identify how many hours each unit has operated annually since 2012.
 - b. Explain how each units annual (and cumulative) operational hours compare to the "Typical Operating Hours per Year" estimated in the study.
 - c. Produce updated estimated retirement dates based on the actual hours that each unit has operated.
10. Refer to Big Rivers' response to SC 1-14. Provide an itemized breakdown of all components of costs in the "Unit Retirement Costs 2017-2031", including (but not limited to) "Net Salvage Value – Brownfield" and "Net Book Value."
11. Refer to Big Rivers' response to SC 1-15(d). Explain the basis for the belief that modeling scenarios where MISO market capacity prices were lower than in the base case assumption would produce similar results "to the market prices scenarios that were completed."

12. Refer to Big Rivers' response to SC-18.
 - a. Explain the rationale for keeping the Coleman and Reid plants idling on the system but not including them in the PLEXOS modeling to understand how they could fit into the system over the long term.
 - b. Explain the modeling and analysis Big River has done to understand the conditions required to make Coleman and Reid economic to operate.

13. Refer to Big Rivers' response to SC 1-19(a). Explain why and how the "Net Salvage Value - Brownfield" costs were used and included in the total retirement cost or total exit contract cost as inputs in the LT Plan modeling.

14. Refer to Big Rivers' response to SC 1-19(b). With regards to the inclusion of Net Book Value costs for the Wilson and Green units in the LT Plan modeling;
 - a. Confirm that Net Book Value is a sunk cost that Big Rivers would seek to recover from its customers for each of its Wilson and Green units regardless of whether or when those units retire.
 - i. If not confirmed, explain why not.
 - b. Explain why you included Net Book Value as a retirement cost for each of the Wilson and Green units in the LT Plan modeling of each of those units.

15. Refer to Big Rivers' response to SC 1-23. Explain why Big Rivers used the EIA Capital Cost estimates from 2016 in 2017 without adjusting for inflation or decreasing project build costs.

16. Refer to Big Rivers' response to SC 1-26 and the accompanying attachment, and to pages 114-115 of the IRP.
 - a. State whether, in modeling whether to retire the Wilson plant or Green units, Big Rivers ran any scenarios in which the model could choose only the level of replacement capacity needed to achieve approximately the 15.8% minimum reserve margin.
 - i. If so, identify the results of that modeling, and produce any reports, workpapers, or modeling input and output files for such modeling.
 - ii. If not, explain why not.
 - b. Given the reserve margins shown in the attachment to your response to SC 1-26 that would result from a 702 MW combined cycle plant, explain why the 429 MW advanced natural gas combined cycle plant identified in Table 7.4 of the IRP was not included as a new asset in the IRP modeling.
 - c. Given the reserve margins shown in the attachment to your response to SC 1-26 that would result from a 702 MW combined cycle plant, explain why the 237 MW advanced combustion turbine identified in Table 7.4 of the IRP was not included as a new asset in the IRP modeling.

- d. Explain the statement “the model could add generation capacity for economics even if the resource was not needed to serve the load,” and clarify if this generation capacity is built in order to export and sell into the market.
 - i. Provide the export price assumptions used in the PLEXOS model runs where Big Rivers built capacity beyond what was needed to serve native load for sale into MISO.

- 17. Refer to Big Rivers’ responses to SC 1-26 and SC 1-28. Explain why the model needed a 105% reserve margin in order to build a new NCGG but is then short of load and importing from MISO from 2021–2026.

- 18. Refer to Big Rivers’ response to SC 1-28. Provide the import price assumptions used in the PLEXOS model runs where Big Rivers’ internal generation is short of load and MISO imports are used to meet the outstanding load.

- 19. Refer to Big Rivers’ response to SC 1-29. For each of Big Rivers’ coal-fired generating units, identify the types of coal, and the percentage of the total for each type of coal, that you plan to burn in each of the years of the IRP.

- 20. Refer to Big Rivers’ response to SC 1-30(b). State whether Big Rivers attempted to obtain the market data needed to include power purchase agreements for renewables as a resource option in any of the modeling scenarios or sensitivities presented in the IRP.
 - a. If so, detail the efforts Big Rivers made to obtain the necessary market data.
 - b. If not, explain why not.

- 21. Refer to Big Rivers’ response to SC 1-31(c). State whether Big Rivers attempted to obtain the data needed to evaluate building, acquiring, or contracting wind generating sources beyond its western Kentucky service area.
 - a. If so, detail the efforts Big Rivers made to obtain the necessary data.
 - b. If not, explain why not.

- 22. Refer to Big Rivers’ response to SC 1-33(c). If the Project Coleman ERV-Aleris 161 kV Line additions (2 circuits) are unrelated to the idled Coleman station, identify which facility the upgrades are related to.

23. Refer to Big Rivers' responses to SC 1-37(b) and AG 1-8. With regards to the currently idled Reid Unit 1, and the potential for restarting that plant:
- a. Identify the overall cost of restarting Reid Unit 1.
 - b. Identify, by project and cost, any capital expenditures that Big Rivers would have to incur under each of the following environmental regulations in order to restart Reid Unit 1:
 - i. Clean Air Act Mercury and Air Toxics Standard ("MATS")
 - ii. Clean Water Act Effluent Limitation Guidelines ("ELGs")
 - iii. Section 316(b) of the Clean Water Act
 - iv. Cross State Air Pollution Rule ("CSAPR")
 - v. Coal Combustion Residuals ("CCR") Rule
 - vi. Any other environmental law or regulation
 - c. Identify any potential capital and/or major maintenance projects that would be necessary to restart Reid Unit 1.
 - d. Produce any studies, analyses, modeling, and data evaluating whether or when to restart Reid Unit 1.
 - e. State whether Big Rivers has evaluated the levels to which energy prices, capacity prices, peak demand, and/or energy requirements would have to increase in order for it to be economic to bring Reid Unit 1 back online.
 - i. If so, explain the methods and conclusions of such evaluation, and provide any reports, workpapers, or other documents relied on in the course of such evaluation.
 - ii. If not, explain why not.
 - f. Identify the annual cost of keeping Reid Unit 1 idled.
 - g. Explain in detail the "economic market conditions" that could develop and allow Reid Unit 1 to return to service and that have prevented you from evaluating Reid Unit 1 for retirement.
24. Refer to Big Rivers' July 6, 2018, filed revisions to your DSM programs, which are referenced in your response to SC 1-40(b).
- a. Fully explain why Big Rivers has proposed to phase out four DSM programs with a Total Resource Cost ("TRC") greater than 1.0, including three near or greater than 2.0.
 - b. Produce any studies, analyses, modeling, and data that were used to come to the decision to phase out the programs.
25. Refer to Big Rivers' response to SC 1-41. State whether the Energy Efficiency and Demand Response Potential Study factored in the cost savings from the retirement of existing generating units that could result from increased levels of demand response and energy efficiency, in assessing the cost effectiveness of such demand response and energy efficiency.
- a. If so, explain how.
 - b. If not, explain why not.

26. Refer to Big Rivers' response to SC 1-41. Explain how the Energy Efficiency and Demand Response programs were included in the PLEXOS modeling runs.

27. Refer to Big Rivers' response to AG 1-4. Explain the efforts that Big Rivers has taken to evaluate the economics surrounding solar generation.

28. Refer to the attachment to Big Rivers' response to AG 1-7. With regards to the "Mandatory Environmental Upgrades" identified therein:
 - a. Identify the estimated time it would take to complete each of those upgrades.
 - b. State whether Big Rivers has commenced any of the upgrades.
 - i. If so, identify the status and estimated completion date of each such upgrade.
 - ii. If not, explain why not.
 - c. State whether the pond closures would have to be carried out even if Coleman is never returned to service.
 - i. If not, explain why not, and describe Big Rivers' long-term plan for those ponds if Coleman is never returned to service.

29. Refer to Big Rivers' response to AG 1-7(d). State whether you have evaluated whether to retire the Coleman Station even if the Clean Power Plan is repealed and not replaced with any carbon regulations.
 - i. If so, describe the results of that evaluation and produce any reports, workpapers, or other documents regarding that evaluation.
 - ii. If not, explain why not.

30. Refer to Big Rivers' response to AG 1-7(f) and Section 7.2 of the IRP.
 - a. State whether returning Coleman to service would provide a positive economic benefit to Big Rivers' Members under the forecasted market conditions (i.e. coal market energy, capacity, and gas prices) assumed in your base case IRP modeling.
 - i. If so, explain why.
 - ii. If not, explain why not.
 - b. State whether returning Coleman to service would provide a positive economic benefit to Big Rivers' Members under the forecasted market conditions assumed in any of the seven scenarios discussed in Section 7.2.3 of the IRP.
 - i. If so, identify under which market conditions and explain why.
 - ii. If not, explain why not.

35. Refer to Big Rivers' response to 1-32(d) and to slide 18 of the June 7, 2018 PSC powerpoint presentation entitled "Electricity Generation in Kentucky" that is available at <http://www.lrc.ky.gov/CommitteeMeetingDocuments/262/11393/Jun%207%202018%20KY%20Public%20Service%20Commission%20Mathews%20PowerPoint.pptx>
- a. Confirm that the table entitled "Big Rivers Average Electricity Price, 1990-2016" on slide 18 of the powerpoint accurately reflects the average electricity price for Big Rivers' residential, commercial, and industrial customers for each of the years 2010 through 2016.
 - i. If not confirmed, explain why not, and identify the average electricity price for Big Rivers' residential, commercial, and industrial customers for each of the years 2010 through 2016.
 - b. Identify the average electricity price for Big Rivers' residential, commercial, and industrial customers for 2017.
 - c. Identify the projected average electricity price for Big Rivers' residential, commercial, and industrial customers for each of the years 2018 through 2031.
 - d. Explain the differences between the wholesale rates for rural and large industrial customers identified in Big Rivers' response to 1-32(d) versus the average electricity prices for residential, commercial, and industrial customers identified in slide 18 of the powerpoint.

Respectfully submitted,



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Dated: August 16, 2018

CERTIFICATE OF SERVICE

Counsel certifies that an original and ten (10) copies of the foregoing BEN TAYLOR AND SIERRA CLUB'S SUPPLEMENTAL REQUESTS FOR INFORMATION TO BIG RIVERS ELECTRIC CORPORATION were transmitted to the Commission via overnight courier for filing; counsel further states that true and accurate copies of the foregoing were mailed via First Class U.S. Mail to:

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This 16th day of August, 2018.



JOE F. CHILDERS