COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF BIG RIVERS ELECTRIC CORPORATION TO ASSESS A SURCHARGE UNDER KRS 278.183 TO RECOVER COST OF COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS OF THE CLEAN AIR ACT	)))))	CASE NO. 94-032

O R D E R

IT IS ORDERED that Big Rivers Electric Corporation ("Big Rivers") shall file the original and 12 copies of the following information with the Commission no later than April 4, 1994, with a copy to all parties of record. Each copy of the data requested should be placed in a bound volume with each item tabbed. When a number of sheets are required for an item, each sheet should be appropriately indexed, for example, Item 1(a), Sheet 2 of 6. Include with each response the name of the witness who will be responsible for responding to questions relating to the information provided. Careful attention should be given to copies material to ensure that it is legible. Where information requested herein has been provided previously, in the format requested herein, reference may be made to the specific location of said information in responding to this information request.

1. Refer to Big Rivers' response to Item 15 of the Commission's Order dated January 14, 1994 in Case No. 93-065.[1] Provide an electronic or hard copy of the spreadsheet shown on pages 18 through 28 for each of the seven acid rain compliance plans. Provide a column-by-column explanation of the information contained in the spreadsheet.

2. Refer to the response to Item 15. Provide a sample calculation to illustrate the formulas required to derive the values in the columns labeled "calc" on pages 18 and 20.

3. In its response to Item 37, Big Rivers states that no precipitator investments were planned. However, the Burns & McDonnell study (Attachment B of Exhibit DS-1) states that the main reason that fuel switching will require complete replacement of precipitator equipment is that the existing precipitator equipment is likely to be nearing the end of its useful life. It also suggests that particulate emission controls may become tighter due to the Clean Air Act Amendments of 1990 ("CAAA"). Explain the discrepancy between Big Rivers' statements and Burns & McDonnell study.

4. Refer to the response to Item 37:

a. What is the surface collection area of the precipitator equipment expressed as the ratio of plate area (in

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[1] Case No. 93-065, City of Henderson, Kentucky, City of Henderson Utility Commission, and Big Rivers Electric Corporation Application for Certificate of Public Convenience and Necessity and to File Plan for Compliance with Clean Air Act and Impose Environmental Surcharge.

square feet) to gas volume (in cubic feet per second) at the Coleman and Station Two generating units?

b. What are the current particulate emission limits and opacity limits for these units? When were these limits established? How many times have these limits been exceeded over the last three years?

c. Is the geographical region that contains Big Rivers' generating units in compliance with ambient air quality standards? Explain.

d. Provide a status report on ongoing activities by the U.S. Environmental Protection Agency ("EPA") and the Kentucky Natural Resources and Environmental Protection Cabinet to ensure that Big Rivers is in compliance with ambient air quality standards. To the best of Big Rivers knowledge, what changes to existing regulations are these agencies currently evaluating?

e. What are the "future particulate emission control requirements" referenced in Attachment B of Exhibit DS-1 on page 7? How is Big Rivers incorporating the probability of these requirements in its planning? What controls will be required if these requirements are implemented?

f. If particulate emission control requirements are tightened in the future and Station Two is scrubbed as planned, what controls will be required at Station Two?

5. Are any precipitator investments required to install the flue gas desulfurization system ("FGD" or "scrubber") at Station Two?

6. Refer to the response to Item 37(d):

a. Does the location or other characteristics of the precipitator equipment make it difficult to expand the surface collection area by adding additional collecting plates? What are the technical constraints? Explain.

b. Did Big Rivers conclude that precipitators needed to be replaced for reasons unrelated to Title IV (acid rain) of the CAAA? If yes, what are these reasons?

c. Provide Big Rivers' analysis of the relationship of required plate area to sulfur content. If this analysis does not exist, explain why Big Rivers did not analyze this relationship.

d. Did Big Rivers confirm the conclusions of Burns & McDonnell in any way? If no, explain why not. If yes, explain how these conclusions were confirmed.

7. Refer to the response to Item 14. Expand on this response to include the input files for the UPLAN analysis of Plans 1-7.

8. Refer to the response to Item 23:

a. What is the approximate cost per ton of lime and how many tons of lime will be needed to operate the scrubber from 1995 to 1998?

b. What is the approximate cost per ton of scrubber waste disposal and how many tons of waste will be generated from 1995 to 1998?

c. What is the cost of labor that is an input to the estimate of operating and maintenance ("O&M") costs? Provide the

labor cost referenced on page 19 of Exhibit DS-1, which was supplied to Burns & McDonnell.

d. Describe the process used to estimate fixed operating costs from 1995 to 1998. Explain why this process is reasonable and appropriate for estimating these costs.

9. Refer to the response to Item 28. In Exhibit DS-1 on page 22, Big Rivers states that it has analyzed a blended coal with a sulfur content of 2.3 lbs. sulfur dioxide ("SO_2") per MMBtu and a blended coal with 2.6 lbs. SO_2 per MMBtu:

a. What are the components of these blends? (Include in this response the sulfur content, coal sources, and Btu content of the inputs to the blend.) State the resulting sulfur content and Btu content of the blended coals.

b. Why did Big Rivers analyze blends rather than estimate the cost of purchasing these coals without blending?

c. Does blending add to the costs of these coals? If yes, how much?

d. How will the blending be accomplished?

10. The near-term rate impacts of the range of acid rain compliance plans available to Big Rivers are relevant to this proceeding. Provide all the information requested in Item 29.

11. Refer to the responses to Items 30 and 31:

a. Provide workpapers (or other documentation) of the process used by the Construction Department to develop coal prices.

b. Do the barge rates quoted include handling or transfers of the coal?

12. Big Rivers' response to Item 36 indicates that the fuel costs presented in Attachment A of Exhibit DS-1 represent the cost of new supplies in numerous different years. Provide the cost of new supplies if Big Rivers were to burn these coals in 1995.

13. Refer to the response to Item 39:

a. Complete the table to provide all of the fuel cost information requested, including the $/MMBtu and annual fuel cost for the baseline coal and the $/MMBtu and the annual fuel cost of the fuel burned with the SO_2 compliance alternative. Note that Item 39 does not request incremental fuel costs. It requests the fuel cost included in the baseline and the fuel cost that is included with the SO_2 removal option.

b. The levelized annual SO_2 removal cost reported in the response does not represent the sum of annual fuel cost, annual capital cost, variable O&M cost, and fixed O&M cost. Are any other costs included in the annual SO_2 removal cost that are not listed in the table? If yes, provide these costs.

c. Provide each calculation required to determine the annual SO_2 removal cost from the data reported in the tables. If the calculations are the same for each SO_2 removal option, provide one example.

d. Provide all calculations required to determine the MMBtus of fuel consumed per year. Indicate if these values can be derived from the information listed in the tables.

14. Using the same format as that used in response to Item 39, provide the dollar per ton SO_2 removed of the Station Two scrubber.

15. Big Rivers has conducted test burns of various coals in its analysis of acid rain compliance. Provide all existing studies, reports or other documentation of the results of these test burns.

16. Refer to the responses to Items 72 and 39:

a. Provide all workpapers, studies and analyses that support Big Rivers' estimate of the carrying cost of 11.5%.

b. Provide all workpapers, studies, and analyses that support Big Rivers' estimate of a 10.72% fixed charge rate. This fixed charge rate is apparent in Big Rivers' response to Item 39 as all capital investment costs are annualized by multiplying by this value.

17. Provide the economic and technical studies that justify investments in nitrogen oxide ("NO_x") control equipment by Big Rivers. If no studies exist, describe the evaluation process that was followed to support these investments. At minimum, indicate sources of cost data, alternatives considered, vendor bidding processes, decision criteria, methodologies and tools used for the analysis.

18. Provide the economic and technical studies that justify investments in Continuous Emission Monitoring equipment by Big Rivers. If no studies exist, describe the evaluation process that was followed to support these investments. At minimum, indicate

sources of cost data, alternatives considered, vendor bidding processes, decision criteria, methodologies and tools used for the analysis.

19. Provide Big Rivers' vendor bid specifications for NO_x control systems.

20. Provide a detailed explanation of how requirements for NO_x emissions under Title I of the CAAA are considered in Big Rivers' planning for compliance with Title IV NO_x requirements.

21. Refer to the response to Item 89. Describe the services provided by Liberty Consulting and provide any reports prepared by this consultant.

22. Describe Big Rivers' dispatching procedures which are reflected in the UPLAN production costing model.

a. What type of dispatch method (incremental cost dispatch or average cost dispatch) is used?

b. Is the dispatch adjusted to reflect must-take contract commitments?

c. Big Rivers' load forecast assumes that all surplus power will be marketed off-system. These values are shown in the load forecasts under the planned sales category. If this power cannot be sold, at which unit(s) will generation be reduced to reflect the lower load requirements? Provide a response for the years 1995, 2000, and 2010.

d. Is the operation of Station Two insensitive to load variations? Explain.

e. Is there any level of load at which a fuel switching strategy would be less expensive than a scrubbing strategy? Explain.

23. Refer to the response to Item 38. Big Rivers' analysis of Powder River Basin coal assumes that investments will be made to maintain the full output of the generating unit. Given Big Rivers' reserve margin, it could choose to accept a derate thus moderating the capital investment that would be required. Explain whether this assumption introduces a significant bias to the analysis of this option.

24. The response to Item 57 indicates that the deduction of the proceeds from the sale of extension and transfer allowances is in conformance with generally accepted accounting principles. Does this response reflect the position of Big Rivers' external auditors? Provide any written opinions from the auditors which address this issue.

25. Big Rivers proposes on page 7 of West's testimony that acquired allowances will be treated as a capitalized investment until used or sold:

a. What rate of return will be applied to allowance inventories? Why is this rate appropriate?

b. How will Big Rivers determine when allowances are used? Provide a response for base allowances, purchased allowances, and allowances that are banked due to over-control of SO_2 emissions.

c. What inventory method(s) (e.g., LIFO, FIFO, etc.) will be used to determine when allowance are used?

26. Big Rivers plans to record the cost of allowances by vintage year. What is the cost of an allowance? Provide a response for:

a. Allocated (base) emission allowances from EPA.

b. Purchased allowances.

c. Banked allowances that result from over-control of SO_2 emissions.

27. Refer to the response to Item 69. Big Rivers notes that base allowances will be fully amortized in the year that they are used. Indicate how the amortization of gains and losses will be completed for allowance transactions other than base allowances.

28. Refer to the response to Item 86:

a. According to West's testimony, page 17 of 42, the baseline is intended to represent costs associated with existing pollution control equipment. How does Big Rivers determine the baseline demand-related costs that are due to environmental compliance? Provide all workpapers and documentation. Provide a response for each category of cost.

b. How does Big Rivers determine the baseline energy-related costs that are due to environmental compliance. Provide all workpapers and documentation. Provide a response for each category of cost.

c. How does Big Rivers determine the baseline inventory costs that are due to environmental compliance? Provide all

workpapers and documentation. Provide a response for each category of cost.

29. Provide a copy of Big Rivers' Request for Proposals and all vendor bid specifications used for the Station Two scrubber project.

30. The new precipitator which Big Rivers concluded is required if it switches to compliance coal will meet a particulate emission limit of 0.03 lbs SO_2 per MMBtu which is significantly lower than the existing limits for Coleman and Station Two. What is the cost of a new precipitator that meets the existing particulate and opacity limits at these units?

31. For the Station Two scrubber, what are the procedures for identifying contractor failure to perform?

32. Refer to the response to Item 21 regarding reliability and warranties for scrubber equipment:

a. Has Big Rivers developed contingency plans in the event of a scrubber outage? If no, describe the timetable for developing a contingency plan.

b. If yes, describe these contingency plans. Do the plans include an allowance reserve or the use of low-sulfur coal?

33. What are the estimated parasitic power losses caused by the scrubber in megawatts during full load operation?

34. Refer to the response to Item 22. Explain how the Station Two scrubber cost estimate of $45.5 million including contingency and allowance for funds used during construction

("AFUDC") or interest during construction ("IDC") is affected by the following events:

a. General inflation.

b. Sub-contractor cost overruns. Are these contracts being executed on a firm turnkey basis with respect to cost overruns?

35. Describe Big Rivers' vendor selection process. What criteria were utilized to select the main contractor and sub-contractors? How did Big Rivers ensure a competitive bidding process?

36. Refer to the response to Item 39. If a generating unit produces fewer megawatts of output as a result of installing an SO_2 removal technology, there is an economic value to the lost capacity that should be considered in the analysis of compliance options. Describe Big Rivers' approach to considering capacity derates in the screening analysis of alternative acid rain compliance plans.

a. Was the derate resulting from the Station Two scrubber considered?

b. The capacity that is lost could have been available for off-system sales. Did Big Rivers use the market value of this capacity as the economic value in its screening analysis? If not, explain the method used by Big Rivers.

37. Refer to the response to Item 39. Did Big Rivers consider the economic value of reductions in unit heat rates in the screening analysis to develop cost per ton SO_2 removed information? If not, explain how this factor was considered.

38. Refer to the response to Item 39 at page 63.

a. Does this response apply to the UPLAN analysis rather that the screening analysis? If no, explain.

b. What was Big Rivers' approach to considering capacity derates in the UPLAN modeling of alternative acid rain compliance plans? Expand the response to include more detail and an example to illustrate the adjustments. Explain why any adjustments were made.

39. Provide a sensitivity analysis that examines the potential for lower than expected load. The "low" load scenario should be defined as the current load forecast adjusted to exclude 75 percent of the planned off-system sales.

a. Using the same methodology as presented in the Compliance Plan Reassessment study, with the above assumption, provide an analysis of Plans 1, 4, 5, and 7 as defined in Exhibit DS-1 on page 29.

b. Provide the UPLAN model inputs and outputs for this analysis.

c. Provide the spreadsheet outputs for this analysis similar to those provided in response to Item 15

40. The response to Item 10 identifies the concerns originally expressed by Henderson Municipal Power and Light's ("HMP&L") former general manager relating to the scrubbing of HMP&L's Station Two.

a. Have other officials with HMP&L or the City of Henderson ("Henderson") expressed similar concerns to Big Rivers? If yes, identify these officials and state their specific concerns.

b. To the best of Big Rivers knowledge, why did HMP&L decided to install scrubbers at Station Two?

41. Refer to the response to Item 68. Identify and explain in detail the allocation approaches or methodologies which Big Rivers plans to use.

42. Refer to the response to Item 75. Identify and explain in detail all areas in which Big Rivers and Henderson initially disagreed with regard to the compliance plans. Provide all documents in which these initial positions were discussed.

43. Refer to the response to Item 77. Explain why Big Rivers' inclusion of all environmental compliance activities since the twelve months ended December 31, 1992 is in the best interest of ratepayers.

44. Big Rivers has proposed to activate its environmental surcharge in July 1995 and to include in the surcharge all environmental compliance capital expenditures incurred after December 31, 1992. This proceeding was filed with the Commission on February 28, 1994. Explain why Big Rivers' proposal to include project costs capitalized prior to February 28, 1994 does not constitute retroactive rate-making.

45. Prepare a set of schedules showing the capital expenditures Big Rivers proposes to include in the surcharge. The schedules should be for the twelve months ended December 31, 1992,

the twelve months ended December 31, 1993, and the twelve months ended February 28, 1994. Each schedule shall include the following information for each project:

a. Plant in service balance.

b. The portion in part (a) subject to AFUDC or IDC.

c. The accumulated depreciation on plant in service.

d. The Construction Work in Progress balance.

e. The source(s) of funds used to pay for the project.

f. The amount of capital cost incurred during the period and the accounting treatment utilized.

g. The amount of operating cost charged to expense during the period.

46. Refer to the response to Item 78:

a. Provide a copy of the agreement reached between Big Rivers and Henderson concerning the transfer of allowances allocated to the Coleman Plant.

b. Provide references to any decision issued by the EPA or other authoritative source which would allow for such a transfer of allocated allowances between two utilities.

c. Provide copies of any transfer forms prepared or filed with EPA. If the transfer forms have not been prepared, submit the copies when available.

d. In determining the overall environmental compliance requirements for the Big Rivers system, indicate whether the entire HMP&L system is considered a part of Big Rivers' system.

47. Refer to the response to Item 82. Indicate the status of the audit opinion from KPMG Peat Marwick and request for approval from the Rural Electrification Administration. If available, provide copies of any written responses received.

48. Refer to the response to Item 83. If the current weighted average debt rate is actually 7.54 percent, explain why Big Rivers proposed a rate of 8.0 percent.

49. Concerning the proposed 8.0 percent rate of return on environmental compliance capital expenditures:

a. Does Big Rivers consider an 8.0 percent return on compliance related capital expenditures to be a reasonable return? If not, explain.

b. Provide any studies or analyses performed for or by Big Rivers which establish that a rate of 8.0 percent is a reasonable return on compliance related capital expenditures.

50. Refer to the response to Item 84(c). Explain how Big Rivers reached the conclusion that it would be allowed to establish a new "baseline" during the two-year review of the surcharge.

51. Refer to the response to Item 85(a). Identify and explain in detail each of the allocation approaches and methodologies which Big Rivers plans to use.

52. Refer to the response to Item 86(b). Provide the same cost detail using amounts for the twelve months ended January 31, 1994.

53. Provide an analysis of Big Rivers' earnings for calendar years 1992 and 1993, as well as the twelve months ended February 28, 1994. The analysis should include the following items:

a. Return on rate base.

b. Return on capital.

c. Times Interest Earned Ratio.

d. Debt Service Coverage Ratio.

e. Any earnings evaluations required under the Debt Restructuring Agreement.

Include all workpapers and supporting calculations used in preparing the earnings analysis.

54. The response to Item 4 of Kentucky Industrial Utility Customers' request for information includes a letter dated February 1, 1991 from Wahlco, Inc. regarding flue gas conditioning systems. The letter indicates that Wahlco was offering to complete (at no charge) a computer model study that would allow Big Rivers to determine if flue gas conditioning would be a sufficient response to the use of lower-sulfur coal.

a. Was this study completed? Why or why not?

b. Provide the results of the study if it was completed.

Done at Frankfort, Kentucky, this 21st day of March, 1994.

ATTEST:

PUBLIC SERVICE COMMISSION

Executive Director

For the Commission