

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

2017 INTEGRATED RESOURCE PLAN OF BIG RIVERS ELECTRIC CORPORATION	)	CASE NO. 2017-00384
------------------------------------------------------------------	---	------------------------

COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION  
TO BIG RIVERS ELECTRIC CORPORATION

Big Rivers Electric Corporation ("Big Rivers"), pursuant to 807 KAR 5:001, is to file with the Commission an original and ten copies in paper medium of the following information, with a copy to all parties of record. The information requested herein is due on or before July 20, 2018. Responses to requests for information shall be appropriately bound, tabbed, and indexed. Electronic documents shall be in portable document format (PDF), shall be searchable and shall be appropriately bookmarked. Each response shall include the name of the individual responsible for responding to questions related to the information provided.

Each response shall be answered under oath or, for representatives of a public or private corporation or a partnership or association or a governmental agency, be accompanied by a signed certification of the preparer or the person supervising the preparation of the response on behalf of the entity that the response is true and accurate to the best of that person's knowledge, information, and belief formed after a reasonable inquiry.

Big Rivers shall make timely amendment to any prior response if it obtains information which indicates that the response was incorrect when made or, though correct

when made, is now incorrect in any material respect. For any request to which Big Rivers fails or refuses to furnish all or part of the requested information, it shall provide a written explanation of the specific grounds for its failure to completely and precisely respond.

Careful attention shall be given to copied material to ensure that it is legible. When the requested information has been previously provided in this proceeding in the requested format, reference may be made to the specific location of that information in responding to this request. When applicable, the requested information shall be separately provided for total company operations and jurisdictional operations. When filing a paper containing personal information, Big Rivers shall, in accordance with 807 KAR 5:001, Section 4(10), encrypt or redact the paper so that personal information cannot be read.

1. Refer to Big Rivers' 2017 Integrated Resource Plan ("IRP"), Chapter 1, Section 1.1, page 5, regarding the Clean Power Plan ("CPP"). Provide an update reflecting any changes in the CPP requirements or other environmental requirements since the filing of the IRP.

2. Refer to the IRP, Chapter 2, Section 2.1, page 23, fifth bullet point. Explain how Big Rivers plans to increase its portfolio diversity outside of the Midcontinent Independent System Operator, Inc. ("MISO") market.

3. Refer to the IRP, Chapter 2, Section 2.8, page 28, the first full paragraph, regarding member-owned net-metered photovoltaic generators. Confirm the sentence is correct. If confirmed, provide an explanation of its meaning. If the sentence is not confirmed, provide corrections as necessary.

4. Refer to the IRP, Chapter 3, Section 3.4, Impact of Existing and Future Energy Efficiency (“EE”) and Demand-Side Management (“DSM”) Programs.

a. Refer to page 31. It states that the impacts of the new programs and increased participation in existing programs are captured in the 2017 Load Forecast. Explain if Big Rivers accounts for program saturation in its forecast.

(1) Provide the new programs that Big Rivers modeled.

b. Refer to pages 31 and 32, regarding the changes to the load forecast from 2014 to 2017. Identify and explain any improvements and changes in the outcomes resulting from the change in the load forecasting methodology.

5. Refer to the IRP, Chapter 3, Section 3.5, Focused Management Audit, page 40, Recommendation 4 and Chapter 4, Section 4.2.6 Non-Member, page 61.

a. Expand and quantify the efforts Big Rivers has implemented to increase sales of the existing and new load.

b. Explain how the efforts towards DSM and EE support this recommendation.

6. Refer to the IRP, Chapter 3, Section 3.5, page 40, regarding the third recommendation. Provide all considerations made for the idled Coleman Station and why they were disregarded at this time.

7. Refer to the IRP, Chapter 3, Section 3.6, page 41, regarding Big Rivers’ Business Plan Development for replacement load. Provide an update to Big Rivers’ efforts to replace the load lost as a result of the smelters leaving the Big Rivers’ system.

8. Refer to the IRP, Chapter 3, Section 3.9, page 44, regarding the interconnection agreement with MISO and the contract with Southeastern Power

Administration (“SEPA”). Provide an update to the status of these two contracts, including any changes in the treatment of the of the SEPA contract that Big Rivers shares with Henderson Municipal Power and Light (“HMP&L”).

9. Refer to the IRP, Chapter 3, Section 3.9, page 44, regarding Center Hill dams in the Cumberland System. Provide an update on the status of the repairs made to the dams and provide an expected timeline for their repair completion.

10. Refer to the IRP, Chapter 3, Section 3.10, page 46, regarding Big Rivers’ seven solar power facilities. Provide an update on the status of the construction of these projects and, for those solar facilities that have been completed and operational, provide a comparison showing their performance relative to the original expectations.

11. Refer to the IRP, Chapter 3, Section 3.10, page 61, regarding non-member load. Provide the monthly non-member load since its inception and consider this an ongoing request throughout this proceeding.

12. Refer to Big Rivers’ 2014 IRP, page 36, Table 4.7 and the 2017 IRP, Chapter 4, Section 4.2.3, page 58, Table 4.7. Explain the difference in the number of large commercial and industrial customers between the 2014 and 2017 IRPs.

13. Refer to Chapter 4, Section 4.2.7, Interruptible or Curtailable Load, page 62.

a. Explain why Big Rivers does not currently operate any direct load control programs.

b. Explain if Big Rivers is considering offering any direct load control programs in the future.

c. Explain why Big Rivers does not provide an interruptible or curtailable contract or tariff.

d. Explain if Big Rivers is considering offering an interruptible or curtailable contract or tariff in the future.

14. Refer to the IRP, Chapter 4, Section 4.4, page 64, regarding the cost-effectiveness of Big Rivers' EE and DSM programs.

a. Explain in detail how Big Rivers determines avoided energy and capacity cost projections.

b. Identify and explain the changes in the Big Rivers' computation of avoided energy and capacity cost projections as compared to the 2014 IRP.

c. Provide the Excel model and the associated inputs into the customized residential and Commercial & Industrial sector-level potential assessment models. This Excel spreadsheet should have all formulas unprotected and all rows and columns accessible.

15. Refer to the IRP, Chapter 4, Section 4.9, Research and Development, page 72. Provide the most recent residential survey report.

16. Refer to the IRP, Chapter 5, Section 5.3, page 79, regarding the allocation of the DSM incentive budget. Explain how Big Rivers determined the 50/50 percent allocation of the incentive budget between the residential and nonresidential sectors.

17. Refer to the IRP, Chapter 5, Section 5.7, Current Demand Response Programs, page 85. State whether the customers who had the two voluntary curtailments are still customers on Big Rivers' system.

18. Refer to the IRP, Chapter 6, Section 6.6.1, page 99, regarding any final directive on the possible reduction in the value of banked seasonal Phase I allowances. Provide an update as necessary on any final directives issued by the Environmental Protection Agency on this matter.

19. Refer to the IRP, Chapter 6, Section 6.6.2, page 100, regarding the Coleman Station units' compliance with the Mercury and Air Toxics Standard. If there have been any studies, estimates, etc. regarding the cost of controls if the units are restarted, provide such information.

20. Refer to the IRP, Chapter 6, Section 6.6.2, page 100, regarding the Reid Unit 1 Title V permit application. Provide an update to the status of the requested permit and, if approved, any costs that will be incurred by Big Rivers in making Reid Unit 1 operational.

21. Refer to the IRP, Chapter 6, Section 6.6.4, page 101, regarding the Burns and McDonnell final Green Station Coal Combustion Residuals/Effluent Limitations Guidelines Compliance report. Provide a copy of the report.

22. Refer to the IRP, Chapter 6, Section 6.6.6, page 104, where it states that "Big Rivers has suspended further development of any specific strategy to comply with the CPP."

a. Identify the strategies that have been suspended as a result of the actions on the CPP to date.

b. Identify the environmental compliance programs that are still in effect at this time.

23. Refer to the IRP, Chapter 7, Section 7.1, The *Plexos* Model - An Overview, page 106.

a. When *Plexos* adds the program costs of DSM alternatives, confirm that they are added based on marginal cost pricing and when added have the least marginal cost.

b. Explain what encompasses the program costs of DSM alternatives and provide an example.

c. Explain if the DSM alternatives are forecasted DSM additions or existing DSM programs.

24. Refer to the IRP, Chapter 7, Section 7.1.2, page 110, regarding the scenario with the option to exit the HMP&L contract in 2018 and to Case No. 2018-00146.<sup>1</sup>

a. Identify and explain the impact that Case No. 2018-00146, if approved by the Commission, will have on the assumptions and conclusions in Big Rivers' 2017 IRP.

b. Explain the impacts that Case No. 2018-00146, if approved by the Commission, will have on Big Rivers' currently idled Coleman Station and Reid Station Unit 1.

c. Identify and explain the impacts that Case No. 2018-00146, if approved by the Commission, will have on Big Rivers' environmental analysis and associated capital and operating and maintenance expenses associated with its environmental compliance planning contained in its IRP.

---

<sup>1</sup> Case No. 2018-00146, *Notice of Termination of Contracts and Application of Big Rivers Electric Corporation for a Declaratory Order and for Authority to Establish a Regulatory Asset* (filed May 1, 2018).

25. Refer to the IRP, Chapter 7, Section 7.1.2, page 111, regarding the Burns and McDonnell decommissioning study for the Coleman Station. Provide a copy of the referenced study.

26. Refer to the IRP, Chapter 7, Section 7.1.2, page 113, Table 7.3. Explain the variances in the historical cost per megawatt hour for the SEPA energy.

27. Refer to the IRP, Chapter 7, Section 7.1.2, page 114, regarding onshore wind energy. Explain if there are any other options for onshore wind energy considered other than the referenced northwestern Kentucky option.

28. Refer to the IRP, Chapter 7, Section 7.2.1, page 119, Table 7.6.

a. Explain the variances in the historical MISO Capacity Auction prices per \$/Megawatt-Day.

b. Identify and explain any legal matters related to the MISO Capacity Auctions and other market operations since Big Rivers' 2014 IRP. Provide copies of all litigation information with respect to any issues.

c. Provide the results of all MISO Capacity Auctions and other interim capacity and energy auctions/market indicators since Big Rivers' 2014 IRP.

d. Provide all information that MISO has provided Big Rivers with respect to capacity auction prices and hedged capacity prices since its 2014 IRP.

29. Refer to the IRP, Chapter 7, Section 7.2.1, page 119, regarding natural gas prices. Provide the difference in cost between a firm and interruptible gas supply.

30. Refer to Chapter 7, Section 7.2.2, Base Case Results, page 123. Also refer to the February 27, 2018 supplemental information to Big Rivers Electric Corporation's Annual Financial and Statistical Report Pursuant to Administrative



Case No. 387, Item 8. Reconcile the reserve margins in Table 1 of the February filing to the Reserve Capacity Margin in Table 7.8 of the IRP.

31. Refer to the IRP, Chapter 7, Section 7.2.2, page 124, Table 7.9.
  - a. Explain the increase in the Kentucky Municipal Energy Association (“KyMEA”) load between 2019 and 2020.
  - b. Identify each member of KyMEA and its MW load for 2019 through 2029.
  - c. Also, refer to the IRP, Chapter 7, Section 7.2.3.4, page 132, Table 7.16. Explain why the KyMEA peak load is 100 MW given the difference between the 2019 and 2029 loads as listed in Table 7.9.
32. Refer to Chapter 7, Section 7.2.3.5, Renewable Portfolio Standards Scenario, page 133. Provide the amount and type of solar energy the long-term plan modeled.
33. Refer to the IRP, Chapter 9, Section 9.1, page 149, regarding MISO’s compliance requirements. If Big Rivers has been assessed any administrative penalties, provide the date(s), amount(s), and an explanation of any penalty levied by MISO.
34. Refer to the IRP, Chapter 9, Section 9.4.1, page 160, regarding Big Rivers’ projected reserve margins. Provide a timetable of the projected reserve margins since 2010.
35. Refer to Appendix A, Section 1.5, Load Forecast Summary, page 5.
  - a. Explain how Big Rivers plans to increase sales to direct-serve customers.

b. Explain Big Rivers' plan, should there be a lack of positive impact on native sales, if the increase in sales to direct-serve customers is less than expected.

36. Refer to Appendix A, Section 2.3, Updates to Demand-Side Management Programs, page 15.

a. Identify the Working Group members and provide their respective responsibilities.

b. Explain how Big Rivers coordinates DSM/EE program advertising, promotion, implementation, and monitoring with its member cooperatives.

37. Refer to Appendix A, Section 3.1, Total System Forecast, Tables 3.1, 3.2, 3.3, and 3.4. The most recent year indicated is 2016. Provide revised versions of the tables which include the actual and, as appropriate, weather-adjusted results for 2017.

38. Refer to Appendix A, Section 3.2.4, Large Commercial & Industrial, page 23. Provide a detailed summary of future economic development efforts and their intended impact.

39. Refer to Appendix A, Section 4.3, Key Load Forecast Assumptions, page 41. Provide the individual Member forecasts.

40. Refer to Appendix A, Section 4.4, Forecast Model Specification, page 49, Table 4.6. Provide the supporting models which estimate each price elasticity.

41. Refer to Appendix A, Section 4.4, Forecast Model Specification, page 50. Explain why only Jackson Purchase Energy Corporation includes the average use from the prior year as an independent variable and the other Members do not.

42. Refer to Appendix A, Section 1.3.5, Big Rivers Consumer Classes, page 4. By year, provide the estimated portion of sales, previously associated with the smelters, that is projected to be absorbed by growth by Member load and non-Member sales.

43. Refer to Appendix A, Section 1.5, Load Forecast Summary. Refer to page 6, Table 1.2. Explain why the load factor decreased from 61.8 percent to 36.1 percent between 2016 and 2017.

44. Refer to Appendix A, Section 3, Load Forecast Results.

a. Refer to Table 3.2 on page 18.

(1) Explain why transmission losses increase throughout the forecast period.

(2) Explain how transmission losses are forecasted.

b. Refer to Table 3.13 on page 30. Explain why the load factor declines between 2017 and 2018.

c. Refer to the residential section on page 35.

(1) Explain why a 3.5 percent increase in average growth in household income was chosen for the optimistic case, and a 0.5 percent increase in average growth was chosen for the pessimistic scenario.

(2) Explain why the optimistic and pessimistic scenarios of price elasticity of -0.11 and -0.31, respectively, were chosen.

(3) Provide support as to why an average growth rate of 50 percent above the base case customer forecast was chosen for the optimistic forecast and why an average growth rate 75 percent below the base case customer forecast was selected for the pessimistic forecast.

d. Refer to the Small Commercial section on page 35. Explain why an optimistic customer forecast reflecting an average growth rate of 50 percent above the base case forecast and a pessimistic customer forecast 75 percent below the base case is appropriate.

45. Refer to Appendix A, Annual Forecast Tables, and Graphs, page A-6. The historical annual sales growth rates for native system sales to members have been negative to flat; however, the first five years of the forecast period are projected to increase by 1.5 percent over the 2016–2021 time period. Explain why the sales forecast is more optimistic during this time period.

46. Refer to Appendix A, Appendix C, Forecast Model Specifications.

a. Explain how Big Rivers transitioned from the short-term model to the long-term model.

b. Describe any instances when the long-term model incorporates a structural shift in the underlying economy within the first 24 months of the forecast horizon and how Big Rivers handled this structural shift in the forecast.

c. Refer to the model outputs for each member system.

(1) Explain what the reclass variable represents.

(2) For each forecasting model, if the input variables vary between each member system, explain why each member system has differing input variables. For example, explain why the Long Term Residential customer model for Meade County has a lagged customer variable and a monthly reclass variable, while Jackson Purchase and Kenergy does not.

47. Refer to Appendix B, Section 2.2.3, page 5. Explain the Illinois TRM and how it was used for the DSM modeling.

48. Refer to Appendix B, Chapter 3. Provide the location of the program potential mentioned in the first paragraph.

49. Refer to Appendix B, Section 4.2.2. Explain why the lighting impact does not decrease to zero for the nonresidential classes in the year 2021 as it does for the residential class.

50. Refer to Appendix B, Section 5.8, page 37. Provide support for the assumption that distributed generation will equal 350 kW for the commercial class and 1000 kW for the industrial class.

51. Refer to Appendix B, Section 5.9, page 41. Explain whether or not Big Rivers has elected to pursue a formal demand response program since this report was written.

52. Refer to Appendix B, Section 6.2, page 46, Table 6-8.

a. For each DSM program, provide all modeling inputs used to calculate the net present value benefits and costs and Total Resource Cost ("TRC") scores. This should be in an Excel spreadsheet format with all formulas unprotected and all rows and columns accessible.

b. A TRC test score of 1.0 or above indicates that the benefits are greater than the costs and the higher the score, the more beneficial the program is. For each program whose TRC score is less than 1.0, provide justification as to why Big Rivers should continue each program.

53. Explain any other procedures that Big Rivers can adopt in evaluating current and potential DSM programs.

54. Explain if there are any industrial DSM opportunities assumed in the forecast.

55. State whether Big Rivers has received any inquiries as to available grants, subsidies, or low-interest loans for energy conservation or energy efficiency from industrial customers that may help those customers remain economically stable or market competitive.

56. Explain whether there has been any change, internally or externally, in the methods of evaluation, measurement and verification used by Big Rivers for existing or proposed DSM programs. Identify the cost associated with such changes, if they exist.

57. Refer to Appendix B, Appendix D, General Modeling Assumptions, page D-2. Given the current excess capacity position of Big Rivers, explain why the avoided costs are not zero.



Gwen R. Pinson  
Executive Director  
Public Service Commission  
P.O. Box 615  
Frankfort, KY 40602

DATED     **JUN 22 2018**    

cc: Parties of Record

\*Joe F Childers  
Joe F. Childers & Associates  
300 Lexington Building  
201 West Short Street  
Lexington, KENTUCKY 40507

\*Mychal R. Ozaeta  
Earthjustice  
1617 JFK Boulevard, Suite 1675  
Philadelphia, PENNSYLVANIA 19103

\*Jody M Kyler Cohn  
Boehm, Kurtz & Lowry  
36 East Seventh Street  
Suite 1510  
Cincinnati, OHIO 45202

\*Rebecca W Goodman  
Assistant Attorney General  
Office of the Attorney General Office of Rate  
700 Capitol Avenue  
Suite 20  
Frankfort, KENTUCKY 40601-8204

\*Justin M. McNeil  
Office of the Attorney General Office of Rate  
700 Capitol Avenue  
Suite 20  
Frankfort, KENTUCKY 40601-8204

\*Big Rivers Electric Corporation  
201 Third Street  
P. O. Box 24  
Henderson, KY 42420

\*Honorable Kurt J Boehm  
Attorney at Law  
Boehm, Kurtz & Lowry  
36 East Seventh Street  
Suite 1510  
Cincinnati, OHIO 45202

\*Shannon Fisk  
Earthjustice  
1617 JFK Boulevard, Suite 1675  
Philadelphia, PENNSYLVANIA 19103

\*Kent Chandler  
Assistant Attorney General  
Office of the Attorney General Office of Rate  
700 Capitol Avenue  
Suite 20  
Frankfort, KENTUCKY 40601-8204

\*Tyson Kamuf  
Corporate Attorney  
Big Rivers Electric Corporation  
201 Third Street  
P. O. Box 24  
Henderson, KY 42420

\*Matthew Miller  
Sierra Club  
50 F Street, NW, Eighth Floor  
Washington, DISTRICT OF COLUMBIA 20001

\*Honorable Michael L Kurtz  
Attorney at Law  
Boehm, Kurtz & Lowry  
36 East Seventh Street  
Suite 1510  
Cincinnati, OHIO 45202