

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2023 INTEGRATED RESOURCE)	CASE NO.
PLAN OF BIG RIVERS ELECTRIC)	2023-00310
CORPORATION)	

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

Big Rivers Electric Corporation (BREC), pursuant to 807 KAR 5:001, shall file with the Commission an electronic version of the following information. The information requested is due on February 16, 2024. The Commission directs BREC to the Commission's July 22, 2021 Order in Case No. 2020-00085¹ regarding filings with the Commission. Electronic documents shall be in portable document format (PDF), shall be searchable, and shall be appropriately bookmarked.

Each response shall include the question to which the response is made and shall include the name of the witness responsible for responding to the 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

¹ Case No. 2020-00085, *Electronic Emergency Docket Related to the Novel Coronavirus COVID-19* (Ky. PSC July 22, 2021), Order (in which the Commission ordered that for case filings made on and after March 16, 2020, filers are NOT required to file the original physical copies of the filings required by 807 KAR 5:001, Section 8).

response is true and accurate to the best of that person's knowledge, information, and belief formed after a reasonable inquiry.

BREC shall make timely amendment to any prior response if BREC obtains information that indicates the response was incorrect or incomplete when made or, though correct or complete when made, is now incorrect or incomplete in any material respect.

For any request to which BREC fails or refuses to furnish all or part of the requested information, BREC shall provide a written explanation of the specific grounds for its failure to completely and precisely respond.

Careful attention shall be given to copied and scanned 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, BREC 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 BREC's 2023 Integrated Resource Plan (IRP), Section 5.1.1, page 76. Provide the large industrial load growth that BREC is going to expect. Include in the response the companies and the MW load requirement of the companies.

2. Refer to IRP, Section 5.2, pages 77-78.

- a. Explain why BREC decided to use \$1 million for the program scenario.

b. Provide BREC's budgeting and actual amount for each of its DSM/EE programs that are in its portfolio. Include in the response BREC's total DSM/EE portfolio program costs.

3. Refer to the IRP, Section 5.2, Table 5.2, pages 80-81.

a. Provide a TRC Test Ratio with a Potential Program at \$500,000.

b. Explain why the residential sector received less of the annual funding scenario than the non-residential sector.

c. Provide BREC's residential and non-residential annual MW savings from its DSM/EE programs.

4. Refer to IRP, Section 5.5, pages 85-86. Explain what efforts BREC is actively undertaking to limit customer usage and provide necessary customer education to assist in reducing usage. Include in the response how BREC attempts to maximize customer demand response for its DSM/EE programs.

5. Refer to IRP, Section 5.5, Table 5.5(a), page 87.

a. Provide all assumptions that BREC used when calculating the Demand Response Program Results.

b. Explain what BREC means by "Dynamic Pricing".

c. For the fleet charging (off-peak) program, explain the reasoning for the high TRC score. Include in the response which BREC non-residential customers would participate in this program.

6. Refer to IRP, Section 5.6, page 88. Provide the capacity costs that BREC is referring to when discussing MISO's forward capacity prices.

7. Refer to the IRP, Appendix B, Section 1, page 5.

- a. Provide the demand-related and energy-related costs that BREC used.
 - b. Provide BREC's historical load growth from the past three years.
8. Refer to IRP, Appendix B, Section 2, page 1. State how many members participated in BREC's 2022 residential member survey.
 9. Refer to IRP, Appendix B, Section 2, Table 2.2, page 4. State which non-residential customer (industry type) has the largest load impact.
 10. Refer to IRP, Appendix B, Section 3, Tables 3.2 and 3.3, page 2. Confirm that the largest load reduction savings for a residential customer is achieved by reducing HVAC usage. If not, then explain which type of end-use would have the largest load savings.
 11. Refer to IRP, Appendix B, Section 5, page 2. Explain what current DSM/EE programs BREC has that lowers its peak load.
 12. Refer to IRP, Appendix B, Section 5.3.4, page 5. Explain how BREC modeled the Peak-Time Rebate (PTR) program. Include in the response the reasons for the program's high TRC score.
 13. Refer to IRP, Appendix B, Section 5.4.1, page 6. Explain if BREC would introduce a time-of-use (TOU) or critical peak pricing (CPP) rate as a DSM program or as an optional rate design tariff option. Include in the response if the TOU or CPP would be more cost-effective and lower BREC's peak load as a DSM program or an optional rate design tariff option.
 14. Refer to BREC's responses to Sierra Club's First Request for Information (Sierra Club's First Request), Items 5, 6, 10, and 11.

a. If BREC has not performed an analysis of the potential costs of compliance considering potential EPA regulations not yet implemented, state how BREC has determined cost inputs for future EPA compliance. If BREC has performed an analysis, provide it.

b. State which environmental compliance variables are included in BREC's IRP modeling.

15. Refer to BREC's responses to Sierra Club's First Request, Item 21. If BREC is in the early stages of evaluating carbon capture and sequestration, state how BREC has determined cost inputs for future potential EPA compliance other than carbon adders.

a. State whether BREC's IRP model took into consideration potential changes to MISO intermittent resource capacity accreditation.

b. If BREC's IRP model did not include potential changes to MISO intermittent resource capacity accreditation as a variable, state why not.

16. Refer to BREC's response to the Attorney General's First Request for Information (Attorney General's First Request), Item 3a. Explain when BREC will know whether it will need to purchase additional energy and capacity to backfill shortfalls in the coming planning year. Include in the response the amount of capacity that may need to be purchased on a seasonal basis to satisfy MISO capacity and reserve requirements each year up through and including 2029.

17. Refer to the Application, Table 7.1.6(a), page 132. Refer also to the Application, Table 4.3(a). Other than the units, explain what the Non-Member Sales and Annual Peak amounts in the tables represent and why they are different. Include in the response why the lesser amounts in Table 7.6.1(a) are included in BREC's modeling.

18. Refer to BREC's response to Commission Staff's First Request for Information (Staff's First Request), Item 2.

a. Confirm that BREC's contracted Non-Member customers in the Southwest Power Pool (SPP) are not reflected in its MISO planning reserve margin requirement (PRMR) and that its other Non-Member customers (KYMEA and OMU) residing in Kentucky are reflected in its MISO PRMR.

b. If BREC neither generates nor transmits energy to its Non-Member contract customers in the SPP, explain operationally how these customers are served.

c. Explain why Non-Member load should not be reflected in the total system peak.

d. Refer also to the Application, Table 7.1.6(a), page 132. Confirm that the Non-Member Annual Energy (GWh) and Annual Peak (MW) amounts represent the Non-Members residing in Kentucky and not the Non-Members residing in the SPP. If not, explain how and what portion, if any, of Non-Member energy and capacity is included in BREC's modeling.

19. Refer to BREC's response to Staff's First Request, Item 3. Explain whether BREC's own energy and capacity usage is captured in the AUX category. If not, explain the AUX power represents and how BREC's own energy and capacity use are included in the modeling.

20. Refer to BREC's response to Staff's First Request, Item 8.

a. Explain why OMU is modeled as inclusive of SEPA hydropower supply when that amount reduces BREC's obligation for both energy and capacity.

b. Explain why OMU net of SEPA hydropower supply would not be included in the model in the same manner as KYMEA.

21. Refer to BREC's response to Staff's First Request, Item 9.

a. Explain what the coincidence factor for BREC CP to MISO CP represents and why it is necessary for modeling purposes.

b. For the Base Case, explain why transmission losses are excluded from Base Case Member peak in the Encompass model. If included, explain how.

c. Explain whether distribution losses are included in the modeling. If included, explain how.

d. Refer also to IRP, Table 7.1.6(a). In the table, explain what the forecast of Non-member (OMU and KYMEA) energy and peak actually represent. Include in the response whether actual historical energy (GWh) and capacity (MW) coincident with Member energy and Member system peak were included in the Encompass model.

22. Refer to BREC's response to Staff's First Request, Item 11. Provide annual DSM program total costs and generation savings since BREC's DSM program was first implemented.

23. Refer to BREC's response to Staff's First Request, Item 13.

a. Explain how the Encompass model was configured to simulate a typical two day week, one on peak day and one off peak day.

b. If not answered above, explain whether for modeling purposes, one weekly on peak day and one weekly off peak day means that there were 52 observations for peak and off peak days per year.

c. Explain whether for each typical on peak and off peak day, there are 24 hourly observations used in the model.

d. Explain whether the results of this method were or have been compared to running the Encompass model with all of the hourly observations in the review period in order to test the accuracy and assertion that the results are mainly unaffected by the reduction in observations leading to reduced simulation time. If so, provide the results of that comparison.

24. Refer to BREC's response to Staff's First Request, Item 14.

a. Because BREC didn't make any forecasted fixed or variable O&M costs available to the consultants for the Green units resulting in the Green units retirement in 2029, did not allow the Encompass model the option to retire either the Reid or Wilson units, or allow the model to decide whether and did not rerun the base case scenarios once all data for the PACE project was known and available, explain why the Commission should have any confidence that BREC's preferred plan is the most reasonable least cost plan.

b. Provide the annual forecast O&M and capital expenditures for the two Green units, separating the costs out by unit where appropriate.

c. Provide the results from at least one additional run of the Encompass model, all else being equal, allowing the model the option to retire and replace one or both Green units, the Reid unit and the Wilson unit.

25. Refer to BREC's response to Staff's First Request, Item 18. Confirm that the IRP represents BREC's current long-range plan going forward and that it represents its intentions as of the filing date.

26. Refer to BREC's response to Staff's First Request, Item 20. Refer also to the Application, page 107. Explain whether BREC's respective generator pricing nodes are different from the load node, where all purchases are made and priced. If there are differences, explain the differences and how that is modeled in the Encompass model.

27. Refer to BREC's response to Staff's First Request, Item 21. If BREC intends to attempt to renew the Non-Member contracts, explain why the extension was not modeled in the IRP.

28. Refer to BREC's response to Staff's First Request, Item 22.

a. State whether BREC's IRP model included potential changes to MISO intermittent resource capacity accreditation as a variable.

b. If BREC's IRP model did not include potential changes to MISO intermittent resource capacity accreditation as a variable, state why not.

29. Refer to BREC's response to Staff's First Request, Item 25. Confirm that depending on the month and loading level, the Encompass model would select the appropriate value from one of the various capacity blocks in the table.

30. Refer to BREC's response to Staff's First Request, Item 26. BREC states that "Providing the model with the opportunity to retire a unit(s) in any year creates significant data and computational challenges with limited value in this case."

a. Provide support that allowing the model to retire units in any year provides limited value in this case. Include in the response a discussion of when allowing the model to do so would provide significant value.

b. Explain whether the Encompass model is able to model BREC's units cost effectively retiring in any year.

c. Explain whether BREC made the decision to restrict the model's capability with respect to allowing the model to retire units in any year. If so, explain the rationale for the decision.

31. Refer to BREC's response to Staff's First Request, Item 28.

a. Explain the purpose of the Variable O&M amount and why it is added to the Wilson variable O&M cost.

b. Explain why the adder is excluded for the Green and Reid units.

c. Explain whether MISO or BREC decided to include the adder.

d. Explain the operational causes of the \$38.10 variable O&M for Unbridled solar.

e. Explain whether the annual amounts in the table were broken out by seasonal or smaller time increments. If so, explain how variable O&M was modeled.

32. Refer to BREC's response to Staff's First Request, Item 29.

a. Explain whether there is any utility scale wind facilities in BREC's MISO Load Zone 6.

b. Explain when BREC sent out its All-Source Request For Proposal (RFP), when the responses were received, the analysis supporting the statement that the wind and solar purchase power agreements were not economical compared to the NGCC.

33. Refer to BREC's response to Staff's First Request, Items 30c and 35.

a. Explain whether the response means that BREC modeled the 100 MW solar and the 50 MW 4-hour battery storage separately as if they were not going to function as a combined/complementary unit.

b. If so, refer to BREC's response to Staff's First Request, Item 29c where wind and solar resources were not economical compared to the NGCC unit. Explain the apparent differences in outcomes.

c. Explain how the RFP responses compare to the generic economic / operational assumptions used in the Encompass model.

34. Refer to BREC's response to Staff's First Request, Item 31. Regardless of whether the values for the MISO cost of new entry are in nominal or real dollars, explain why it is reasonable to make the simplifying assumption that the price to remain constant over the 25-year review period.

35. Refer to BREC's response to Staff's First Request, Item 32.

a. Explain whether the Encompass model is capable of dispatching units as must run, putting the units in reserve shutdown or modeling actual experienced unit behavior. If so, explain why the model was programmed to have the units bid into the MISO market as "economic" and not allowed these additional options.

b. Explain whether the Wilson, Reid, and Green units are ever bid into the MISO market as something other than "economic" or go into reserve shutdown status.

c. If the units are bid into the MISO market as "must run," explain whether BREC is paid the hourly cost of the unit or the LMP, whichever is higher. If not, explain what amount is paid to BREC.

d. Explain how maintenance outages (planned or otherwise) was treated in the Encompass model.

36. Refer to BREC's response to Staff's First Request, Item 32. Refer also to Case No. 2023-00312,² Rebuttal Testimony of Terry Wright, Jr., page 3, lines 12-22 and page 4, lines 1-4. Compare, contrast and explain the extent to which the Encompass model mimicked or incorporated the method by which BREC's capacity resources are accredited by MISO.

37. Refer to BREC's response to Staff's First Request, Item 35.

a. Explain whether the annual capacity factors for the generic wind and solar resources are different if measured seasonally in MISO's new seasonal capacity requirement.

b. Potential resource performance can change according to the season. Explain whether BREC modeled potential resource attributes, including capacity factors, according to the new MISO seasonal capacity requirement or simply included annual figures.

38. Refer to BREC's response to Staff's First Request, Item 38(b).

a. Explain why a \$1 million annual DSM budget was used. State why actual estimated costs were not used for programs with TRC scores indicating cost-effectiveness.

b. Explain what BREC means by "it was assumed that all the measures from the achievable potential would be available."

c. State whether the Encompass model is capable of integrating individual DSM programs as variables. If so, explain why this function was not utilized.

² See Case No. 2023-00312, *Electronic Tariff Filing of Big Rivers Electric Corporation and Kenergy Corp. to Revise the Large Industrial Customer Standby Service Tariff* (filed Jan. 9, 2024), Rebuttal Testimony.

39. Refer to BREC's response to Staff's First Request, Items 39 and 40.
- a. Explain when BREC intends to submit the PACE project into the MISO interconnection queue or whether BREC has conducted any transmission studies that indicate that the PACE project will alleviate any transmission contingencies or constraints. If so, provide either the study results or an update on the status of these studies.
40. Refer to BREC's response to Staff's First Request, Item 40.
- a. Provide a status update to BREC's loan application.
 - b. Explain whether BREC has taken any of the preliminary actions toward the siting and permitting for the PACE project and, if so, provide a status update of those actions.
 - c. Explain when BREC intends to file an application for a certificate of public convenience and necessity (CPCN) and for new financing obligations.
41. Refer to BREC's response to Staff's First Request, Item 41b. Refer also to Item 14 and Item 53. If the fixed and variable O&M costs for the Green units were not available to the Encompass model, then explain how the phrase "but because the expense of keeping the facility operational was greater than the economic benefits of replacement" is valid. Wouldn't the expense of keeping the facility operational depend on the ongoing costs that were not available? If not, please explain why not.
42. Refer to BREC's response to Staff's First Request, Item 42.
- a. Under the New ERA Program, explain the circumstances under which combustion turbines would be required to install carbon capture and sequestration (CCS) technology.

b. Confirm that BREC's current intention is to place CCS technology on the Wilson unit. Include in the response whether the Wilson and NGCC units were modeled as equipped with CCS technology beginning in 2032 in the BREC's preferred plan. If not, explain why not and rerun the modeling of the preferred plan to include CCS technology as the only change to the assumptions.

c. Explain the energy penalties for the Wilson and NGCC units from installing CCS technology and whether that impacts the available MISO accredited capacity of the units.

d. Explain how the forecasted MISO energy LMPs were adjusted to account for the installation of CCS technology across the MISO load zones.

43. Refer to BREC's response to Staff's First Request, Item 43.

a. Explain the New ERA Program criteria for whether a NGCC unit would be required to install CCS technology.

b. If the NGCC unit will be required to install CCS technology by 2032, explain why the reduction in greenhouse gasses is a relevant factor in whether or not to apply for financing and grant incentives.

44. Refer to BREC's response to Staff's First Request, Item 44. Explain whether BREC has investigated any of the practical aspects of installing CCS at its generation sites, including how and where the CO₂ will be stored prior to transportation to long term storage, how the gas will be transported, and what costs, including liability, will be borne by BREC.

45. Refer to BREC's response to Staff's First Request, Item 50. Explain whether BREC has actually purchased capacity either bilaterally or in the Planning

Reserve Auction and, if so, the amount purchased and the period covered by the purchase.



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DATED JAN 26 2024

cc: Parties of Record

Case No. 2023-00310

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