

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2019 INTEGRATED RESOURCE)	CASE NO.
PLAN OF EAST KENTUCKY POWER)	2019-00096
COOPERATIVE, INC.)	

COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION
TO EAST KENTUCKY POWER COOPERATIVE, INC.

East Kentucky Power Cooperative, Inc. (EKPC), pursuant to 807 KAR 5:001, is to file with the Commission the original and an electronic version of the following information. The information requested herein is due on March 16, 2020. Responses to requests for information in paper medium 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 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 response is true and accurate to the best of that person's knowledge, information, and belief formed after a reasonable inquiry.

EKPC 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 EKPC fails or refuses to furnish all or part of the requested information, EKPC 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, EKPC shall, in accordance with 807 KAR 5:001, Section 4(10), encrypt or redact the paper so that personal information cannot be read.

Executive Summary

1. Refer to the 2019 IRP, page 2.
 - a. Provide EKPC's allocation from the Cumberland System for the five years ending December 31, 2019.
 - b. Identify EKPC's all-time summer and winter peaks and the dates on which they occurred.
 - c. Provide EKPC's all-time highest annual energy requirement.
 - d. Identify and explain any changes in the load forecast since the filing of the IRP.

2. Refer to the IRP, page 3. Identify and provide a summary of the significant savings benefits EKPC received each year from June 1, 2013, through May 31, 2018, from its operations in PJM Interconnection LLC.

3. Refer to the IRP, page 5. Provide a discussion of EKPC's price hedging strategy for its winter load position.

4. Refer to the IRP, pages 12 and 13. Discuss in detail the impacts of the repeal of The Federal Clean Power Plan on the value of EE as a compliance option.

Load Forecast

5. Refer to the IRP, Section 3.1, Table 3-4, pages 39-40, and Technical Appendix Volume 1, Table 7-3, page 59.

a. Describe the nature of the Seasonal Sales category.

b. Describe the cause of the decline in customers and the resulting energy sales from 2011 to 2012.

c. Describe both the Office Use category and the Own Use category and describe how they differ.

d. Provide an update to Table 3-4 with the % Loss and Losses columns filled in with megawatt hours in addition to the percentage distribution and transmission losses.

e. Refer to the Technical Appendix, Volume 1, Section 8, table 8-1, page 66. The Base Case Net Requirements value for 2018 does not match the comparable Net Requirements value in Table 3-4. Provide the correct value in the appropriate table.

6. Refer to the IRP, Section 3.2, pages 41–43.
 - a. Provide and compare each of the final owner-member forecast results (including historical data) in spreadsheet format that form the basis for EKPCs load forecast.
 - b. In light of the decline in the coal industry and population losses and other changes to economic or demographic drivers, discuss any major differences between the set of owner-members including number of customers, consumption patterns, expected economic growth drivers, etc., and how those drivers comport with the overall assumptions enumerated on pages 42–43.
7. Refer to the IRP, Section 3.3.2, page 52.
 - a. Provide a copy of the most recent residential retail member survey questionnaire.
 - b. Provide a list of the residential demographic variables derived from the survey and maintained by EKPC for DSM program evaluation and load forecasting purposes.
8. Refer to the IRP, Section 3.5.1, Table 3-13, page 56. Explain the rationale for reclassifying Commercial customers to Residential beginning in 2018.
9. Refer to the IRP, Section 3.3.3, page 53.
 - a. Explain how electricity price elasticities of demand for residential, commercial and industrial customers and owner member distribution adders are layered with wholesale power rates to develop year over year electric rate changes.
 - b. Though not listed as an explanatory variable in Sections 3.4.1.1 and 3.4.1.2, explain whether the electric rates developed in this section are the electric rates

used in the residential sales forecast as outlined in the Technical Appendix and presumably in the small commercial sales forecast.

10. Refer to the IRP, Section 3.4.1.3. Presumably, large commercial and industrial customers export their products outside of the county. Product sales drive production activity, which drives energy sales. Explain why it is reasonable to limit modeling large commercial and industrial energy sales as a function of the real gross county product for their specific service area as opposed to a broader economic measure.

11. Refer to the IRP, Section 3.5.3, Table 3-15, and Technical Appendix Volume 1 (Technical Appendix), Section 7, Table 7-2, page 58. Beginning in the year 2018, data contained in the Annual Average column of the tables does not match, which appears to cause other columns to disagree.

a. Explain the table discrepancies and provide an update to both tables.

b. If necessary, provide an update to any relevant discussion or chart or graph that relies on data portrayed in the correct(ed) tables.

12. Refer to IRP, Section 3, Tables 3-17 and 3-18, pages 60–61, and Technical Appendix, Section 7, Tables 7-4 and 7-5. Comparing the tables, it appears that Table 3-17 is identical to Table 3-18 and that Table 7-4 may contain the correct information. Confirm which tables contain the correct intended information and provide an update to tables that do not contain the correct intended information.

13. Refer to the IRP, Sections 3.3.3 and 3.6.1, pages 53 and 62. Explain the source of the various electric price data and precisely what electric prices are used and for the base, peak demand and scenario forecast results.

14. Refer to the IRP, Technical Appendix, Section 3.14, pages 23–24, and Section 4, pages 29–30, and Section 5, page 41.

a. Provide a copy of the IHS Global Insights Inc. (IHS) count level forecasts.

b. Provide a step by step discussion of the process of converting IHS county level forecasts into regional forecasts and the into owner-member service territory forecasts. A numerical example should be included in the discussion.

c. Confirm that the process outlined in Section 5 page 41 is generally used to transform HIS county level data and forecasts into owner-member service territory level data and forecasts.

d. Confirm that the variables listed in Section 4, page 29, are forecast at the owner-member service territory level that will be used in the residential and other forecasting models.

e. The second and third sentences in subpart 3. of Section 5, page 41, seem to indicate that, for each of the owner members, the final equations may not uniformly include the same explanatory variables. Provide a copy of each owner member's final equation for service territory customer forecast.

15. Refer to the IRP, Technical Appendix, Volume 1, Table 7-3, page 41.

a. For each owner-member cooperative, explain and illustrate how the Share variables are derived. Include in the explanation a copy of RUS Form 7.

b. Explain how the specific share variable is combined with the regional population and household variables to obtain the owner-member specific population and household variable.

c. Provide each owner member's final regression equation used to forecast its residential customers.

16. Refer to the IRP, Section 3.4.1.1, Residential Sales, pages 53–54, and Technical Appendix, Volume 1, Technical Appendix, pages 19, 41-51, and Exhibit LF-1, pages 32-35. Between the referenced discussions of how residential sales are forecast, there appears to be slight variation.

a. Section 3.4.1.1 provides a list of various economic variables that, where appropriate, are used to forecast residential sales. However, the list does not appear to match and may contain explanatory variables different from those listed in the referenced parts of the Technical Appendix. Explain whether the list was intended to be representative only of explanatory variables used to forecast both the number of customers and customer usage.

b. Of the variables listed in Section 3.4.1.1, explain how each is used to obtain the residential sales forecast.

c. Reconcile the lists of variables in Section 3.4.1.1 and those listed in the equations in the Technical Appendix and confirm that the variable listed in the equations in the Technical Appendix are the only variables used to obtain the residential sales forecast.

d. In the Technical Appendix, the CoolIndex and CoolUse equations listed page 47 do not agree with the equations in Exhibit LF-1 page 34. Provide the equations EKPC used to obtain the "Heat, Cool and Water Heat and Other" variables for the equation listed page 47.

e. Provide the equations EKPC used to forecast owner-member customer numbers.

17. Refer to the IRP, Section 3.4.1.2, Small Commercial Sales, page 54 and to Technical Appendix, pages 19 and 55. Section 3.4.1.2 provides a list of various economic variables which, where appropriate, may be used to forecast small commercial sales. The Technical Appendix discussions are quite vague as to the exact process including which explanatory variables may or may not be used to forecast small commercial energy sales.

a. Provide a more robust and detailed discussion including the equations of exactly how small commercial sales are forecast.

b. SAE models could also be used to forecast small commercial usage. If not already discussed, explain whether or not SAE models were used to forecast small commercial usage.

c. If not already discussed, for the variables listed in Section 3.4.1.2, explain how each is used in forecasting small commercial sales and whether this list includes all the variables used in the small commercial forecast.

18. Refer to the IRP, Technical Appendix, Section 7, pages 55–56. The probability of actually acquiring large commercial or industrial development can vary greatly between potential industrial parks. Potential occupants will view potential sites very differently depending on the degree to which the site is move-in ready, i.e., finished roads, access and proximity to major transportation corridors, all necessary utilities installed, all local, state, and federal studies and permits completed, shell building completed, etc. The degree of industrial park readiness is not evenly distributed between

owner members. Provide a copy of the probabilistic model equation(s) and explain the rationale for distributing forecast new commercial industrial load among the 16 members.

19. Refer to the IRP, Technical Appendix, page 20.

a. Changing economic conditions, great appliance efficiencies, etc. could affect class load factors. For example, the slowly declining number and operational activity of coal mining operations over time may affect realized class load factors. Explain whether the various class load factors change or have changed over time.

b. Explain whether EKPC assumes that a class' load factor is constant going forward for forecasting purposes.

c. Explain the basis for each class load factor used in the forecast.

20. Refer to the IRP, Technical Appendix, Section 3, page 24 and Section 8, page 65.

a. Explain how historical and forecast data is modified to account for normal weather.

b. In Section 3, explain why normal weather based on historic 20-year values is only used for most and not all owner members.

c. In Section 8, explain why weather variations are based on 15-year historic values rather than the 20-year values used in the base case forecasts.

d. Provide a comparison of the differences in heating and cooling degree days using 15- and 20-year historic values.

e. Provide a comparison of the heating and cooling degree days in the base, mild, and severe weather scenarios. Include in the response whether the comparison is based on the 15- or 20-year historic basis.

21. Refer to the IRP, page 28.
 - a. Provide a copy of the Federal Energy Regulatory Commission docket for the transmission case with LG&E/KU.
 - b. Explain what EKPC plans to do to or has done to alleviate the transmission issue with LG&E/KU.

22. Refer to the IRP, pages 62–63, and Technical Appendix, Section 8, pages 65–66.
 - a. Explain whether the electric price growth rate variations used for the residential class is also used for either the small commercial class or the industrial class.
 - b. Explain how far into the future the ACES Power Marketing forward market energy prices go.
 - c. Paragraph 4 indicates that the industrial class was not changed. Explain whether the statement pertaining to the industrial class refers to the number of industrial customers only. If so, explain the rationale behind a static customer count under optimistic and pessimistic economic scenarios.
 - d. Explain whether the industrial class energy use and peak demand changes under any of the economic or weather variation scenarios.
 - e. Since the basis for EKPC's base case scenario is the IHS county level data and other economic data, explain whether EKPC had to rerun all of its models from the ground up to obtain the high and low case scenario results reported in Table 8- 1.
 - f. Explain whether EKPC produced, but did not report, scenarios isolating the economic from the weather scenario effects. If so, provide the results of the

base case with optimistic and pessimistic economic assumptions and of the base case with mild and severe weather.

23. Refer to the IRP, Section 3.7.1, page 64.

a. Provide a copy of the appliance saturation survey and a list of the variables populated by the survey data.

b. Explain whether the survey has evolved over time by adding or subtracting questions.

Demand-Side Management

24. Refer to the IRP, Technical Appendix, Volume 2, Exhibit DSM-1, page 18 of 93, and Case No. 2019-00059, application, page 3.

a. Page 18 of 93 in the Technical Appendix indicates that the avoided cost of energy “is based on an annual system marginal cost.” Page 3 of the application in Case No. 2019-00059, indicates that “EKPC’s avoided cost of energy is the forward price for energy in the energy market operated by PJM Interconnection, LLC (“PJM”).” Page 3 also states “EKPC’s avoided cost of capacity is the forward price curve of PJM’s Base Residual Auction (“BRA”) for capacity.” Provide a reconciliation of the two filing statements regarding what energy and capacity costs were used in the DSM program evaluations for the current IRP.

b. Page 18 of 93 goes on to state “Natural gas and water avoided costs (considered in the Total Resource Cost Test) were based on the Henry Hub forward price curve and the 2016 water and sewer rates for Kentucky-American Water Company, respectively.” Explain whether the natural gas and water and sewer rates are used in the calculation of capacity costs and in the TRC or any other test.

c. For years outside the avoided cost timeframe, confirm that future year avoided costs were escalated at an inflation rate of 2.2 percent.

d. Explain the basis of and rationale for using a 2.2 percent inflation rate.

25. Refer to the IRP, Section 5, pages 86–92 and the Technical Appendix, Volume 2, Exhibit DSM-1, Tables 4-5 through 4-8, pages 33–36 of 93.

a. Explain which of the various programs listed in Tables 4-5 and in 4- 7 are represented in the various programs listed in the tables beginning on page 86 and in Table 5-4.

b. The various program savings potentials listed in DSM-1 Tables 4-5 and 4-7 do not appear to agree with the cumulative Impact on Total Requirements column in the tables listed on pages 86–90. If not already addressed, explain and reconcile the apparent differences.

c. Provide the location in DSM-1 where the savings to capacity are calculated and that correspond to the seasonal capacity savings listed in the tables on pages 86–90.

26. Refer to the IRP, Section 1.3, page 3. Explain whether the DSM forecast includes the recent changes from the DMS Filing, Case No. 2019-00059, in which the Commission approved several modifications to EKPC's DMS tariffs.

27. Refer to the IRP, Section 1.5, page 4. Explain how the results from Case 2019-00059 support the action of continuing to develop and promote cost-effective DSM programs.

28. Refer to the IRP, Section 1.9, page 14. Reconcile the \$3 million residential EE budget scenario mentioned here, with the projected DSM program expenditures of \$5.9 million explained in Case 2019-00059, with EKPC's Response to Commission Staff's Second Request for Information (May 7, 2019).

29. Refer to the IRP, Section 5.0, page 83. Explain in detail how all the programs were shown to be cost-effective using the TRC test.

30. Refer to Table 5-2, Existing Programs-Duration, page 85. Explain in detail how the expected duration of each program is determined.

31. Refer to the IRP, page 91. Explain in detail how the 7 percent discount rate was determined.

32. Refer to the Technical Appendix Volume 2, Exhibit DSM-2. Provide the 2018 DSM Annual Report or most recent report available that is not already part of the IRP.

Supply Side

33. Refer to the IRP, Section 2.0, page 29. Provide an update on the status of the Affordable Clean Energy Rule (ACE) proposed by the U.S. Environmental Protection Agency (EPA).

34. Refer to the IRP, Section 2.0, page 30. Provide an update on the Center Hill project, which EKPC estimates will be completed in late 2019.

35. Refer to the IRP, Section 2.0, page 32. Confirm that two additional run-of-river projects came online in 2019. If this cannot be confirmed, provide the expected date the projects are expected to come online.

36. Refer to the IRP, Section 4.0, page 67. Provide the cost for the power block demolition at Dale Station.

37. Refer to the IRP, Section 4.0, beginning at page 73. Explain how the Operations and Maintenance escalation factors were determined.

38. Refer to the IRP, Section 6.0, page 94. In the third paragraph, EKPC indicates that two planned substation interconnections with TVA and LG&E/KU have minimal transfer benefits.

a. Explain how reliability will be improved in the respective areas and what “minimal transfer benefits” means.

b. Provide an update of the status of the two planned interconnections.

39. Refer to the IRP, Section 6.0, page 95, regarding EKPC and PJM transmission planning activities.

a. Describe how EKPC’s transmission planning process differs from PJM’s planning process in regard to projects developed to address violations of PJM’s performance criteria.

b. Explain EKPC’s process for incorporating and prioritizing for completion the additional PJM projects into its own list of projects.

c. Explain how the costs associated with the projects identified by EKPC then incorporated into PJM’s Regional Transmission Expansion Plan are allocated.

d. Explain what steps EKPC takes if PJM does not verify a need for a transmission plan identified by EKPC’s local planning process.

40. Refer to the IRP, Section 6.0, page 96, which states that PJM and EKPC are jointly responsible for 18 Reliability Standards.

a. Explain how EKPC and PJM, respectively, ensure compliance with these reliability standards.

b. Explain how the costs for the joint compliance are allocated between EKPC and PJM, and explain whether PJM's costs are socialized across PJM's footprint.

41. Refer to the IRP, Section 6.0, page 96. Provide any potential operating problems identified by SERC for EKPC since the filing of this IRP report.

42. Refer to the IRP, Section 6.0, page 97. Provide EKPC's transmission losses for the five calendar years ending December 31, 2019.

43. Refer to the IRP, Section 6.0, page 98. Provide the cost benefit analysis used to determine the transmission expansion projects that are added to EKPC's Transmission Expansion Plan.

44. Refer to the IRP, Section 6.0, page 99, regarding the planned improvements to the EKPC transmission system for the period from 2019 to 2022 summary.

a. Identify the projects that EKPC plans to file future CPCN for and when EKPC plans to file the CPCNs, if any.

b. If EKPC has already filed CPCNs related to the planned projects, then provide the Case Number.

c. If EKPC does not plan to file CPCNs for the projects, then explain how EKPC plans to fund those projects.

45. Refer to the IRP, Section 6.0, page 101, regarding the third paragraph under Generation Related Transmission. Explain if this paragraph has changed since the filing of this IRP report.

46. Refer to the IRP, Section 7.0, page 116. Regarding the statement, "Prior to requesting this approval, an analysis is conducted taking into account costs, timing, and benefits of the project". Provide the analysis.

47. Refer to the IRP, Section 7.0, page 116. Explain in further detail the economic analysis, risk, and other benefits used to justify the proposed projects.

Integration

48. Refer to the IRP, page 137. Provide a more detailed description of the hydro-generation facilities on the Kentucky River lock and dam system.

49. Refer to the IRP, page 139 and 140. Provide the cost for the five lowest cost plans out of the 2,500 plans simulated.

50. Refer to the IRP, page 140. Provide the cost of each option in the five cases identified with and without the DSM Affected Base Resource options.

51. Refer to the IRP, Section 9. Provide an update to EKPC's environmental compliance planning since the filing of the IRP.


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DATED **FEB 24 2020**

cc: Parties of Record

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