COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE 2015 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.	))	CASE NO. 2015-00134

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

East Kentucky Power Cooperative, Inc. ("EKPC" or "Company"), pursuant to 807 KAR 5:001, is to file with the Commission the original and ten copies of the following information, with a copy to all parties of record. The information requested herein is due on or before August 12, 2015. Responses to requests for information shall be appropriately bound, tabbed and indexed. 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, 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 document containing personal information, EKPC shall, in accordance with 807 KAR 5:001, Section 4(10), encrypt or redact the document so that personal information cannot be read.

1. Refer to page 1 of EKPC's 2015 Integrated Resource Plan ("IRP"), which references EKPC owned and operated generation. The sum of the capacities on page 1 is 2,625.2 MW. The first sentence on page 79 of the IRP states that "EKPC currently owns and operates 2,671 MW of summer capacity." Explain the difference between the two references.

2. Refer to page 3 of the IRP regarding demand-side management ("DSM") Programs. Explain what consideration was given to industrial DSM in EKPC's comprehensive study of energy efficiency savings potential.

3. Refer to the second paragraph on page 4 of the IRP regarding the Mercury and Air Toxics Standards environmental regulation. Explain what impact(s), if any, that the recent United State Supreme Court ruling in *Michigan v. Environmental Protection Agency*, No. 14-46 will have on EKPC.

4. Refer to the last sentence of the partial paragraph which ends at the top of page 7 of EKPC's IRP. Provide the current status of the third-party negotiations referenced in the sentence.

5. Refer to page 7 of the IRP regarding EKPC's annual report related to being a member of PJM Interconnection, LLC ("PJM"). Provide the date EKPC intends to file the annual report for 2014.

6. Refer to page 15 of the IRP. Provide similar information as shown on Tables 1-1 and 1-2 for the six months ended June 30, 2015.

7. Refer to pages 17-18 of the IRP where it states:

> EKPC set a goal of achieving the equivalent of 1% of annual retail sales in new DSM annual kWh savings each year. The findings from the potential study show that this goal is achievable in the medium and long term. However, the levels of activity and spending far outstrip current performance and budgeting. In fact, EKPC is currently producing 0.2% of annual retail sales in new DSM annual kWh.
>
> In order to narrow this gap, EKPC has established a ramp-up period of six years (2015-2020) during which time the plan is to steadily increase the investment in DSM resources so that the goal of 1% of annual retail savings by the year 2020 may be achieved. Participation projections reflect this steady increase in the years 2015-2020 then leveling off at participation levels that consistently achieve the 1% goal thereafter (from 2020-2029).
>
> As a result, the 2015 IRP impacts are projected to be lower than the 2012 IRP impacts in the early years of the plan.

Refer also to the Technical Appendix, Volume 2, Demand Side Management, of the IRP, Exhibit DSM-1,[1] EE Potential Report, page 3, where it states:

[1] Exhibit DSM-1, East Kentucky Power Cooperative Energy Efficiency Potential Study ("Potential Study"), prepared by GDS Associates, Inc. ("GDS") dated March 25, 2015.

> This study examined 407 electric energy efficiency measures in the residential, commercial and industrial sectors combined.
>
> Figure 1-2 below shows that cost effective electric energy efficiency resources can play a significantly expanded role in EKPC energy resource mix over the next ten years. For the EKPC, the achievable potential for electricity savings based on the TRC in 2024 is 8.5% of forecast MWh sales for 2024.

a. Explain the difference between the goal of 1-percent annual retail savings from 2020-2029, and 8.5 percent of forecast MWh sales for 2024 from achievable potential for electricity savings based on the total resource cost ("TRC").

b. Explain whether EKPC and the Member Cooperatives have considered a DSM surcharge to expand DSM program spending in order to reach the 1-percent goal, or to reflect an appropriate level of DSM costs by customer class in base rates.

c. Explain the difference between the 407 electric energy measures mentioned on page 3 of the Potential Study and the 207 DSM measures listed on page DSM-2 of the Executive Summary of the Potential Study.

8. Refer to the second paragraph on page 17 of the IRP where it states, "For the 2015 IRP, EKPC has fine-tuned its DSM modeling projections to narrow the gap between its theoretical and actual peak demand and energy savings." Identify and explain in detail what changes EKPC has made to fine-tune its DSM modeling projections. Include a discussion on what changes have occurred in the evaluation, measurement, and verification of DSM peak demand and energy savings.

9. Refer to the second paragraph on page 23 of the IRP where it states, "But the results of the analysis showed that the statistically adjusted end-use model ("SAE")

did not perform as well as the model EKPC ultimately selected." Explain what analysis was performed in comparing the models and why EKPC chose the statistical model rather than the SAE model.

10. Refer to page 25 of the IRP where EKPC discusses weather normalization and states that it analyzed 15, 20, and 30 years of weather history ending with March 2014.

a. Identify the differences in the results obtained from EKPC's analysis for the 15 and 20 year periods versus the 30 year period it used for its study.

b. If available, provide a copy of ITRON's 2013 Weather Normalization Survey of Industry Practices.

c. Identify the frequency of weather history periods other than 30 years that were followed in the study and explain any reasons for such use, if known.

11. Refer to page 26 of the IRP where it states, "EKPC has set the goal of achieving the equivalent of 1% of its annual retail sales in new DSM annual kWh savings each year."

a. Provide the amount of DSM program costs currently in EKPC's base rates.

b. By program, provide the amount of EKPC's DSM expenditures for 2014.

c. By program, provide the number of participants and the amount of EKPC's DSM expenditures for the six months ended June 30, 2015.

d. By program, provide the projected number of participants and the amount of EKPC's projected DSM expenditures for the six months ended December 31, 2015.

12. Refer to page 26 of the IRP where it states, "EKPC has established a ramp-up period of six years (2015-2020) during which time it plans to steadily increase investment in DSM resources so that the goal of 1% annual retail savings by year 2020 can be attained." By year, explain how EKPC plans to meet its 1 percent goal.

13. Refer to page 28 of the IRP regarding EKPC's response to Staff's recommendation in the Staff Report on the 2012 IRP for bidding its peak savings from DSM into the PJM capacity markets. Explain how EKPC offered its peak demand savings into the PJM capacity markets and the results of that process.

14. Refer to page 32 of the IRP regarding PJM transition reports where it states, "In 2015, EKPC can offer a full 12 month view from April 1, 2014 through March 15, 2015. However, this 12 month view will not be coincident with the PJM 12 month operating year." Explain what impact(s), if any, the non-coincident operating year has on the PJM transition reports.

15. Refer to page 36 of the IRP where it states:

> The official Board approved load forecast includes the impacts of a 5-year DSM plan. This plan consists of existing DSM programs. This plan assumes no new programs and no new participants after the fifth year. A separate DSM plan was developed for inclusion in the capacity plan as a resource that includes new programs. Details are in Section 5.0 – Demand Side Management of this report.

Explain whether the Board supports the expansion of DSM programs and spending discussed in Section 5 of the IRP.

16. Refer to pages 36 and 38-40 of the IRP. The second and third sentences in the last paragraph on page 36 indicate the load forecast approved by EKPC's Board includes only the impacts of existing DSM programs. The tables on pages 38-40 all include a column with the heading "Additional Demand-Side Management." Confirm that these columns reflect the additional impacts of EKPC's existing DSM programs.

17. Refer to Table 3-5 on pages 41-42 of the IRP. With actual data showing annual transmission losses averaging 3.05 percent for the years 2003-2013 and 2.2 percent for the years 2008-2013, explain why they are projected to be between 3.3 and 3.5 percent in each year of the forecast period ending in 2029.

18. Refer to page 44 of the IRP where it states, "EKPC plans to conduct a comprehensive review of all aspects of its load forecasting process and evaluate possible enhancements. These will be submitted to Rural Utilities Service ("RUS") in the next work plan; due December 2015."

a. State when the comprehensive review of all aspects of EKPC's load forecasting process will be completed.

b. Identify and describe any enhancements EKPC has made to date to its load forecasting process. Consider this an ongoing request to be updated as information becomes available.

19. Refer to page 45 of the IRP where it states:

> As of 2013, approximately 79 percent of all new households have electric heat and about 89 percent of all new households have electric water heating. Nearly all new homes will have electric air conditioning, either central or room.
>
> In EKPC's service area, electricity is the primary method for water heating and home heating. Around 86 percent of all

> homes have electric water heating, and about 63 percent have electric heat as a primary fuel. In 2013, nearly 58 percent of EKPC's member system retail sales were to the residential class and residential customer use averaged 1,175 kWh per month.

a. Provide the type of housing stock in the areas served by EKPC and its Member Cooperatives.

b. For the most recent period for which the information is available, provide the average monthly residential usage for all electric homes and for non-all electric homes on the EKPC system.

20. Refer to the first and last paragraphs on page 45 of the IRP, which reflect that the percentages of new households and existing homes with electric water heating are very similar, 89 and 86 percent, respectively. The percentages of electric heat in new households and existing homes do not track as closely, at 79 and 63 percent, respectively. Explain why the percentage of electric heat in new households exceeds the percentage for existing homes to this degree.

21. Refer to pages 45 and 64 of the IRP. With 79 percent of new households having electric heat, explain why, as stated in the paragraph headed "Residential Sales Forecast," projected average use per residential customer remains relatively flat over the period covered by the IRP.

22. Refer to page 48, Table 3-7, of the IRP. Explain, by year, the fluctuation in residential usage from 2009 to 2013.

23. Refer to Table 3-9 on page 49 of the IRP. Provide the 2014 information for the weather normalized annual energy sales and energy requirements.

24. Refer to page 53 of the IRP where it states, "EKPC set a goal of achieving the equivalent of 1% of annual retail sales in new DSM annual kWh savings each year." Explain how EKPC determined the goal of achieving the equivalent of 1-percent annual retail sales in new DSM annual kWh savings each year. Provide any studies, reports, or other information that supports EKPC's goal.

25. Refer to the forecast model summaries for residential sales and small commercial sales on page 62 of the IRP. Provide a description of how the two base heating degree day ("HDD") variables, Base 55 HDD and Base 30 HDD, are used.

26. Refer to the tables on pages 64-66 of the IRP, which show historical and projected customers and sales for residential, small commercial, and large commercial and industrial customer classes. Explain why the annual percent change in sales for the large commercial and industrial class shows greater variations in some years after 2015 compared to the variations for the residential or small commercial classes.

27. Refer to the "Peak Demand and Scenario Results" section on pages 70-72 of the IRP and to the Executive Summary on pages 4 and 6 of the IRP. Pages 4 and 6 each contain a reference to the issue of energy prices during the winter peak season. As to the Low Case, Base Case, and High Case scenarios discussed on pages 70-72, explain whether the High Case is considered the only scenario under which EKPC may experience negative consequences.

28. Refer to pages 77-78 of the IRP where it states:

> EKPC implemented an existing manufactured home improvement research project. The goal of the project is to quantify the annual kWh and KW savings for improvements to typical post 1976 manufactured homes and compare those savings to the implementation costs. Improvements were performed on 22 manufactured homes served by a

> member system having typical energy usage patterns. Improvements included the removal of existing insulation beneath the home floor, installation of open-cell spray foam insulation to the floor, and the installation of a vapor barrier on exposed ground. In addition to providing a permanent R-19 value insulation to the home floor, the spray foam also improves home air leakage by sealing the floor leaks and sealing the duct system air leaks. On an average, home air leakage was improved by more than 20%. EKPC is working with the member system to quantify the average reduction in kWh usage for the homes. Usage data will be analyzed after sufficient kWh usage data is captured during the heating and cooling seasons.

a. Describe the existing manufactured home improvement research project that was implemented and explain whether this project related to any existing DSM programs.

b. Provide the average cost per home, and explain whether each project was cost-effective.

c. If cost-effective, explain whether this existing manufactured home improvement research project could become part of EKPC's DSM portfolio.

29. Refer to Table 8(3)(e)(1)-2, on page 99, of the IRP. Identify which new programs are being considered for implementation and explain whether all the Member Cooperatives will adopt these programs.

30. Refer to pages 102-108 of the IRP. Explain whether the projected number of participants after the first year are new or cumulative.

31. Refer to pages 109-114 of the IRP. Explain whether the projected number of participants after the first year are new or cumulative.

32. Refer to page 160 of the IRP regarding nonutility generation. Identify and include the facility location, type, and amount of power generated for all distributed

generation facilities in the EKPC territory. Identify all such facilities that are not metering facilities.

33. Identify any and all combined heat and power participants in the EKPC territory, as discussed on page 167 of the application. Include the location of the facilities, the type of facilities, and the amount of power produced.

34. On page 167 of its IRP, EKPC references the purchase of 2,208 MWh of energy from a cogeneration source. Identify the location of the cogeneration facility, the category of the facility, and the total amount of power produced by the facility.

35. On page 167 of its IRP, EKPC states that it has evaluated, yet not contracted, with any wind project.

a. Identify and describe the parameters EKPC uses in evaluating a wind project.

b. Explain whether EKPC has evaluated constructing, owning, and operating a wind facility.

36. Refer to the last full paragraph on page 167 of the IRP, which includes discussion of EKPC's landfill gas-to-energy ("LFGTE") projects. Concerning the city of Glasgow landfill LFTGE project, explain whether there is now a more specific time line than "late 2015" for when it is expected to go on line.

37. On page 168 of the IRP, EKPC discusses installations of small solar facilities by member Cooperatives:

a. Other than South Kentucky RECC, is EKPC aware of any other cooperatives with solar facilities?

b. Are any cooperatives installing solar generation as a source which would be exclusive of the wholesale member power supply contract?

38. On page 168 of the IRP, EKPC notes six member cooperative projects that have been approved by the EKPC Board of Directors that allow generation outside of the wholesale member power supply contract. Identify the member cooperative, type of generation, and generating capacity of each of the approved projects.

39. Refer to Table 8.(4)(a)-1 on page 169 of the IRP.

a. Confirm that the total capacity reduction for the summer period in 2016 reflects the closing of the Dale units.

b. Under the terms of EKPC's membership in PJM, it is required to maintain a minimum summer season reserve margin. Explain whether EKPC's winter reserve margins, which are less than 1.0 percent in five of the years (2024-2028) in the table, have any relevance to its long-term planning.

c. Using the amounts in the Total Capacity and Reserves columns in the table, Staff is unable to replicate many of the reserve margin percentages shown in the last column. Provide the calculations of the winter and summer reserve margin percentages for the first five years included in the table.

40. Pages 169-173 of the IRP contain EKPC's resource optimizer results with the five lowest cost plans shown in Table 8.5(a)-1 on page 171 and Table 8.5(a)-2 on page 172.

a. If not in another part of the IRP, provide the present value analysis results for these five plans and for the sixth lowest cost plan.

b. Confirm that EKPC has chosen Plan 1 as its optimal resource plan.

41. Refer to page 4 of the Technical Appendix, Volume 1, Load Forecast ("Load Forecast"), Tables 1.1.1 and 1.1.2 and Table 6.2 on page 46.

a. Explain why Seasonal Residential customers are reported as a separate customer class even though only one member system uses this classification and the class sales are less than 0.1 percent of total sales.

b. Explain why this customer class is expected to have customer growth of 1.4 percent annually after historically declining at an increasing rate.

42. Refer to page 19 of the Load Forecast which states, "Member systems remain in regular contact with their largest consumers and are generally aware of current production and future expansion plans, so they project energy sales for existing consumers and identified expected new consumers in this class for the next 3 years," and page 9 of Exhibit LF-1 which states, "large commercial and industrial accounts are unlikely to alter operations in response to small changes in price, but there is certainly a point where, if price goes too high or margins are too low for a company, they might stop operation altogether or shut down a shift, causing a large response to price at some certain threshold." Explain if EKPC or its member systems have discussed this "certain threshold" with large industrial or commercial customers or have any means to predict when these customers will have significant changes in load other than "regular contact."

43. Refer to pages 21 and 22 of the Load Forecast, section 3.4 – Development of Alternative Economic and Weather Scenarios.

a. Explain why changes in energy consumption were considered in the forecast for the Small and Large Commercial class but not for the Residential class.

b. Explain why the Industrial customer class was not included.

44. Refer to the Load Forecast, Section 4.0 – Key Assumptions, pages 25-36. Provide the source for the assumptions not derived from EKPC's customer survey.

45. Refer to page 26 of the Load Forecast, which shows the results of the forecast of households through 2034. For each of the seven regions to which its member-owners are assigned, provide "total households" and the "member system portion," along with the corresponding growth rates, for the years of the forecast 2018, 2023, 2028, and 2033, shown on the graph on the page.

46. Refer to pages 26-27 of the Load Forecast. The first sentence on page 26 indicates that, in 2034, "total households" will have increased to 1,667,273, while the "member system portion" will have increased to 768,416. The numbers for 2034 in the table on page 27 with the heading "Regional Households" total 1,414,682, which does not match either of the numbers in the first sentence on page 26. Explain what the table on page 27 represents.

47. Refer to the Load Forecast, Exhibit LF-1, page 1, Section 2 where it states, "Additionally, results of the study provide the input necessary to conduct sensitivity analysis in EKPC's next load forecast and IRP."

a. Provide a general description of how elasticities of demand have been factored into EKPC's load forecasts.

b. Identify any load forecasting price sensitivity analysis that was performed for purposes of load forecasting in the current IRP.

48. Refer to the Load Forecast, Exhibit LF-1, page 6 which states, "A negative coefficient for per capita income is theoretically incorrect, indicating average household

energy consumption declines as income increases. In such instances, per capita income was removed from the models." Explain whether customers' increasing ability to purchase more energy efficient appliances or employ better weatherization methods as household income increases could account for this relationship.

49. Refer to Table 1-2 on page 5, of the Potential Study, which shows the annual program budgets associated with the maximum achievable TRC scenario. Provide a similar table for the 37.3 percent economic TRC from Figure 1-2 on page 4 of the Potential Study with the amounts shown by customer class.

50. Explain whether any study was performed by GDS as to program potential of EKPC's existing and proposed DSM programs.

51. Refer to page DSM-6 of the Potential Study. Provide examples of "lessons learned in the field" and how they were incorporated into the program designs.

52. Refer to page DSM-8 of the Potential Study. Explain if member systems use the *DSMore* software to individually evaluate their DSM programs, or if this software is only utilized by EKPC. Explain if all member systems use the same or comparable tracking software.

53. Refer to page DSM-11 of the Potential Study and page 40 of the IRP. Explain why additional DSM is forecasted to decline beginning in 2023 and to be below 1 percent of total requirements starting in 2027 if the "ramp-up period" is suggested to end in 2020 with "participation levels that consistently achieve the 1% goal thereafter (from 2020-2029)."

54. Refer to page 35 of the Potential Study where it states, "GDS has used average line losses to adjust kWh and kW savings at the customer meter to the generation level of the electric grid."

a. Explain whether the average line losses to adjust kWh and kW savings at the customer meter to the generation level of the electric grid includes only EKPC's line losses.

b. If the answer to part a. of this request is negative, identify all sources of the line losses used by GDS to adjust kWh and kW savings at the customer meter to the generation level of the electric grid.

55. Refer to page 35 of the Potential Study where it states, "In order to approximate EKPC's structure for providing transfer payments to its member utilities to cover both incentives and lost revenue, GDS used an 'incentive' level of 48% of measure costs in the benefit-cost model and used an administrative cost of 25% of incentives."

a. Explain how EKPC determined the incentive level of 48 percent and administrative costs of 25 percent.

b. Provide EKPC's current incentive level as a percentage of measure costs and its current percentage of administrative costs to incentives.

56. Refer to Table 6-1, Measures and Programs Included in the Residential Sector Analysis, on pages 38-41 of the Potential Study. Identify (1) current measures EKPC is considering keeping, (2) those being considered for termination, and (3) new measures it is considering implementing.

57. Refer to pages 44-49 of the Potential Study. Explain which of the tables prepared by GDS best describes EKPC's plan of residential potential to achieve the equivalent of 1 percent of its annual retail sales.

58. Refer to Table 6-22, pages 53-62, of the Potential Study. Explain whether for the residential sector EKPC will most likely consider the Achievable Electricity (kWh) Savings By 2024 or the Achievable Electricity (kWh) Savings By 2024 ($1,000,000 Constrained) and what the required spending level will be to do so.

59. Refer to Table 7-1, Types of Electric Energy Efficiency Measures Included in the Commercial Sector Analysis on pages 66-68, of the Potential Study. Identify (1) current measures EKPC is considering keeping, (2) those being considered for termination, and (3) new measures it is considering implementing.

60. Refer to Table 7-10, pages 75-77, of the Potential Study. Explain whether for the commercial sector EKPC will most likely consider the Economic Potential (kWh) or the Achievable Electricity (kWh) Savings By 2024 and what the required spending level will be to do so.

61. Explain whether EKPC has discussed any of the proposed new DSM programs with any commercial class customers.

62. Refer to Table 8-1, Types of Electric Measures Included in the Industrial Sector Analysis, on pages 79-83 of the Potential Study. Identify (1) current measures EKPC is considering keeping, (2) those being considered for termination, and (3) new measures it is considering implementing.

63. Refer to Table 8-10, pages 91-94, of the Potential Study. Explain whether for the industrial sector EKPC will most likely consider the Economic Potential (kWh) or

the Achievable Electricity (kWh) Savings By 2024 and what the required spending level will be to do so.

64. Explain whether EKPC has discussed any of the proposed new DSM programs with any industrial class customers.

65. Improvements in technology allow electric service to be provided more economically, efficiently, and reliably, with better environmental performance than in the past. Explain how EKPC has factored future technology improvements into its long term plan for meeting customer needs.

66. Global warming is an issue raising concerns about the effects of energy production in the creation of greenhouse gases. Explain how EKPC is addressing the issues concerning greenhouse gas.

67. Refer to Table 3-1 on page 37 of the IRP. Provide a schedule showing how the actual summer and winter peak demands compare to the most recent forecasts made prior to the period of the peak demands.

Jeff Derouen
Executive Director
Public Service Commission
P.O. Box 615
Frankfort, KY 40602

DATED JUL 23 2015

cc: Parties of Record

*Gregory T Dutton
Assistant Attorney General
Office of the Attorney General Utility & Rate
1024 Capital Center Drive
Suite 200
Frankfort, KENTUCKY 40601-8204

*East Kentucky Power Cooperative, Inc.
4775 Lexington Road
P. O. Box 707
Winchester, KY 40392-0707

*Stefanie J Kingsley
Assistant Attorney General
Office of the Attorney General Utility & Rate
1024 Capital Center Drive
Suite 200
Frankfort, KENTUCKY 40601-8204

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

*David S Samford
Goss Samford, PLLC
2365 Harrodsburg Road, Suite B325
Lexington, KENTUCKY 40504