COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2022 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.	) CASE NO. 2022-00098

SUPPLEMENTAL DATA REQUESTS OF JOINT INTERVENORS KENTUCKIANS FOR THE COMMONWEALTH, KENTUCKY SOLAR ENERGY SOCIETY, AND MOUNTAIN ASSOCIATION

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DEFINITIONS

1. "Document" means the original and all copies (regardless of origin and whether or not including additional writing thereon or attached thereto) of any memoranda, reports, books, manuals, instructions, directives, records, forms, notes, letters, or notices, in whatever form, stored or contained in or on whatever medium, including digital media.

2. "Study" means any written, recorded, transcribed, taped, filmed, or graphic matter, however produced or reproduced, either formally or informally, a particular issue or situation, in whatever detail, whether or not the consideration of the issue or situation is in a preliminary stage, and whether or not the consideration was discontinued prior to completion.

3. "Person" means any natural person, corporation, professional corporation, partnership, association, joint venture, proprietorship, firm, or the other business enterprise or legal entity.

4. A request to identify a natural person means to state his or her full name and business address, and last known position and business affiliation at the time in question.

5. A request to identify a document means to state the date or dates, author or originator, subject matter, all addressees and recipients, type of document (e.g., letter, memorandum, telegram, chart, etc.), identifying number, and its present location and custodian. If any such document was but is no longer in the Company's possession or subject to its control, state what disposition was made of it and why it was so disposed.

6. A request to identify a person other than a natural person means to state its full name, the address of its principal office, and the type of entity.

7. "And" and "or" should be considered to be both conjunctive and disjunctive, unless specifically stated otherwise.

8. "Each" and "any" should be considered to be both singular and plural, unless specifically stated otherwise.

9. Words in the past tense should be considered to include the present, and words in the present tense include the past, unless specifically stated otherwise.

10. "You" or "your" means the person whose filed testimony is the subject of these data requests and, to the extent relevant and necessary to provide full and complete answers to any request, "you" or "your" may be deemed to include any other person with information relevant to any interrogatory who is or was employed by or otherwise associated with the witness or who assisted, in any way, in the preparation of the witness' testimony.

11. "EKPC" or "the Company" means East Kentucky Power Cooperative, Inc. and/or any of their officers, directors, employees or agents who may have knowledge of the particular matter addressed, and affiliated companies.

12. "Joint Intervenors" means the Mountain Association, Kentuckians For The Commonwealth, and Kentucky Solar Energy Society, who were granted the status of full joint intervention in this matter.

13. "Cryptocurrency operation" means any facility, operation or location that uses computers, machines or other equipment to generate, validate, maintain, and/or authenticate cryptocurrency transactions, ledgers, blockchain and/or hashes, including operations that may be described as data centers or data processing facilities.

INSTRUCTIONS

1. If any matter is evidenced by, referenced to, reflected by, represented by, or recorded in any document, please identify and produce for discovery and inspection each such document.

2. These requests for information are continuing in nature, and information which the responding party later becomes aware of, or has access to, and which is responsive to any request is to be made available to Joint Intervenors. Any studies, documents, or other subject matter not yet completed that will be relied upon during the course of this case should be so identified and provided as soon as they are completed. The Respondent is obliged to change, supplement and correct all answers to interrogatories to conform to available information, including such information as it first becomes available to the Respondent after the answers hereto are served.

3. Unless otherwise expressly provided, each data request should be construed independently and not with reference to any other interrogatory herein for purpose of limitation.

4. The answers provided should first restate the question asked and also identify the person(s) supplying the information.

5. Please answer each designated part of each information request separately. If you do not have complete information with respect to any interrogatory, so state and give as much information as you do have with respect to the matter inquired about, and identify each person whom you believe may have additional information with respect thereto.

6. In the case of multiple witnesses, each interrogatory should be considered to apply to each witness who will testify to the information requested. Where copies of testimony, transcripts or depositions are requested, each witness should respond individually to the information request.

7. The interrogatories are to be answered under oath by the witness(es) responsible for the answer.

SUPPLEMENTAL DATA REQUESTS PROPOUNDED TO EAST KENTUCKY POWER COOPERATIVE, INC., BY JOINT INTERVENORS

2.1. Refer to Joint Intervenor Response 4b, please provide the most recent IHS updated outlook, released in July 2022.

2.2. Refer to Joint Intervenor Response 7(a-c) and answer the following requests.
   a. Has EKPC determined a margin of error for their load forecast methodology, given that the load forecast methodology has remained unchanged since at least the 2010 Load Forecast?
      i. If so, please provide the results and conclusions reached, along with supporting analyses, workpapers, and documentation.
      ii. If not, please explain why not.
   b. Has EKPC determined the accuracy of their past load forecast projections compared to actual load data now available to ensure accuracy in their load forecast methodology?
      i. If so, please provide associated workpapers in native format with formulae intact and explain the conclusions drawn from that analysis.
      ii. If not, please explain why not.

2.3. Refer to Joint Intervenor Response 10, please explain how Seasonal Residential growth rates were reclassified, and how their reclassification affected the growth rate of any other customer class.

2.4. Refer to Joint Intervenor Response 13b, please provide the 2022 Long Range Load Forecast. If not yet complete, please provide the anticipated date of completion.

2.5. Refer to Joint Intervenor Response 14, 15, and 16a, and answer the following requests.
   a. What assumptions for cryptocurrency operations are made in the 2020 load forecast, given the increasing load attributable to cryptocurrency operations.
   b. Is the load attributable to cryptocurrency expected to increase? Please explain.
   c. If no assumptions are made for cryptocurrency operations in the 2020 load forecast, please explain why in light of the increase of load from 6.5MWs in 2021 to 27.5MWs in 2022.

2.6. Refer to Joint Intervenor Response 16e, which provides the per kilowatt rate for EKPC's interruptible incentive. Please provide "the dollar value of incentives or rebates paid to participating cryptocurrency operations (in the aggregate and on average)." If the requested information is not available, please explain why not.

2.7. Refer to Joint Intervenor Response 26a, does the EKPC load research program monitor customers who own electric vehicles? If not, in what way does EKPC monitor changes to end consumer adoption of electric vehicles?

2.8. Refer to Joint Intervenor Response 28, has EKPC considered incentive programs to increase the adoption of electric vehicles? Has EKPC taken steps to facilitate the adoption of electric vehicles within the EKPC service area, such as through the creation of a public charging network? If not, please explain why.

2.9. Refer to Joint Intervenor Response 61 and answer the following requests.

a. Please explain what measures in long standing energy efficiency programs (i.e., button up weatherization) were eliminated due to cost effectiveness?
b. Please explain why the ENERGY STAR Appliances program was determined to no longer be cost effective despite high participation and energy savings at an all-time high.
c. Please explain how EKPC determined the "high rate of free riders" and why that determination resulted in the discontinuance of the Commercial and Industrial Lighting program.

2.10. In reference to Residential Efficient Lighting Program, please detail how the Company plans to incorporate the new federal lighting standards that will take effect in 2023.

2.11. In reference to the CARES Low-Income Weatherization Program, please provide the following information:
    a. The average savings per household completed in 2019, 2020, and 2021.
    b. The average number of measures installed per home.
    c. Explain how the $2,000 incentive cap was established and detail whether the cap includes the cost of labor.
    d. Is the $2,000 cap sufficient to upgrade to an air source heat pump? Please explain.
    e. Can participants pay a co-pay to increase the number of measures received? Please explain.

2.12. In reference to the Heat Pump Retrofit Program, please provide the following information.
    a. Did EKPC run its cost-effectiveness tests based on the federal standards that will take effect in 2023, which requires 15 SEER in the southern part of the United States? If not, why not?
    b. Has EKPC considered offering tiered incentives to encourage customers to weatherize their homes prior to the installation of a new heat pump? Please explain.

2.13. Please explain why did EKPC not include direct load control thermostat program for small business customers?

2.14. In reference to the Residential Energy Audit Program, please provide the following information.
    a. Will EKPC be sending an LED bulb to members that complete the online BillingInsights analysis after the new federal lighting standards take effect in 2023? Please explain.
    b. What is the cost to mail the bulb and what evaluation has been completed to ensure that the bulb is installed? Please explain.

2.15. Given the DSM cost-effectiveness tests conducted, please detail which programs and/or measures that could have cost-effectively been included in the DSM portfolio if a 10% non-energy benefits adder had been assumed.

2.16. In regard to the two EE programs modeled under the DMS portfolio for middle and high carbon cases, please detail how the Appliance Rebate Program and Small Business Lighting Programs would differ from past program offerings by EKPC, such as the ENERGY STAR Appliances and C&I Lighting Programs.

2.17. Has EKPC considered funding a third-party aggregator to for demand response savings from C&I customers? Please explain why or why not.

2.18. Refer to Joint Intervenor Response 62, please explain what changes in programs offered resulted from consultation with the owner member energy advisor staff.

2.19. Refer to section 3.7.1 Load Research on page 94-5, reporting that the load research program consists of 407 meters total, with 35 residential meters, 16 small commercial and industrial meters, 21 medium commercial and industrial meters, and 335 large power meters installed and collecting data, and answer the following questions.

a. Please explain the decrease in load forecast meters as compared to EKPC 2019 IRP section 3.7.1 Load Research on page 64 where EKPC reported 558 load profile meters total.
b. Please explain the changes in load forecast meters as compared to EKPC 2019 IRP, section 3.7.1 Load Research at page 65 where EKPC reported 135 residential meters, 41 small commercial and industrial meters, 57 medium commercial and industrial meters, and 325 large power meters.

2.20. Refer to section 3.7 Load Research on page 94-95, is EKPC conducting any other load research and development? What has been the result of past load research projects and proposed projects?

2.21. Refer to EKPC's Response to the Attorney General's Initial Information Request No. 1c, including the statements that "Cooper station provides key voltage support in the transmission area throughout Southern Kentucky. The current transmission system is not configured to support the peak load periods in that region without the generation injections at Cooper Station."

a. Approximately when did EKPC first become aware of that "the current transmission system is not configured to support the peak load periods in that region without the generation injections at Cooper Station"? Please provide the approximate month and year.

b. Please identify the particular study or analysis that first led EKPC to conclude that "the current transmission system is not configured to support the peak load periods in that region without the generation injections at Cooper Station" If the particular study or analysis first alerting EKPC to this issue is in EKPC's possession, please produce it.

c. Has EKPC analyzed what changes to the current transmission system would be necessary to support the peak load periods in that region without the Cooper Station units?

    i. If so, please produce each such analysis, including supporting workpapers with formulae intact.

    ii. If not, please explain why not.

d. Please quantify the frequency and duration of the peak load periods during which generation injections at Cooper Station are necessary.

e. Please describe the extent of load shedding requirements that EKPC expects would result without generation injections at Cooper Station, including but not limited to the approximate MW effected, impacted counties, outage duration, and frequency of occurrence (i.e., once annual at summer peak; once over three summer months).

f. In light of the potential for unplanned outages, please explain in full what steps EKPC has taken or plans to take to ensure that the transmission area throughout Southern Kentucky has adequate voltage support if and when Cooper Station experiences an unplanned outage.

2.22. Refer to EKPC's Response to the Attorney General's Initial Information Request No. 1c, including the statements that "Cooper station provides key voltage support in the transmission area throughout Southern Kentucky. The current transmission system is not configured to support the peak load periods in that region without the generation injections at Cooper Station."

a. Has EKPC studied the potential for upgrades to an existing transmission line to provide adequate voltage support if Cooper Station retires?
    i. If so, please produce that analysis, including supporting workpapers with formulae intact and identification of any specific project(s) (including cost estimate(s), if available) that could contribute to voltage support if Cooper Station retires.
    ii. If not, please explain why not.

b. Has EKPC studied the potential for upgrades to existing transformers to provide adequate voltage support when Cooper Station retires?
    i. If so, please produce that analysis, including supporting workpapers with formulae intact and identification of any specific project(s) (including cost estimate(s)), if available) that could contribute to voltage support if Cooper Station retires.
    ii. If not, please explain why not.

c. Has EKPC studied the potential for installation of a new transmission line to provide adequate voltage support when Cooper Station retires?
    i. If so, please produce that analysis, including supporting workpapers with formulae intact and identification of any specific project(s) (including cost estimate(s), if available) that could contribute to voltage support if Cooper Station retires.
    ii. If not, please explain why not.

d. Has EKPC studied the potential for installation of a new substation to provide adequate voltage support if Cooper Station retires?
    i. If so, please produce that analysis, including supporting workpapers with formulae intact and identification of any specific project(s) (including cost estimate(s), if available) that could contribute to voltage support if Cooper Station retires.
    ii. If not, please explain why not.

e. Has EKPC studied the potential for static volt-ampere reactive

compensators, known as SVCs, to provide adequate voltage support if Cooper Station retires?

i. If so, please produce that analysis, including supporting workpapers with formulae intact and identification of any specific project(s) (including cost estimate(s), if available) that could contribute to voltage support if Cooper Station retires.
ii. If not, please explain why not.

f. Has EKPC studied the potential for synchronous condensers to provide adequate voltage support when Cooper Station retires?

i. If so, please produce that analysis, including supporting workpapers with formulae intact and identification of any specific project(s) (including cost estimate(s), if available) that could contribute to voltage support if Cooper Station retires.
ii. If not, please explain why not.

g. Has EKPC studied the potential to deploy a utility-scale battery behind Cooper Stations' point of interconnection in order to provide adequate voltage support when Cooper Station retires?

i. If so, please produce that analysis, including supporting workpapers with formulae intact and identification of any specific project(s) (including cost estimate(s), if available) that could contribute to voltage support if Cooper Station retires.
ii. If not, please explain why not.

2.23. Please identify any transmission grid upgrades or changes that would be needed to permit the retirement of Cooper Station, and produce supporting analyses (including workpapers in native format), if any.

2.24. In response to Sierra Club's Initial Request No. 6h (asking EKPC to "Produce all analyses or assessments of the impact that retirement of each unit would have on capacity adequacy, transmission grid stability, transmission grid support, voltage support, or transmission system reliability"), EKPC responded: "There have been no studies for unit retirements of the EKPC fleet."
EKPC's Response to the Attorney General's Initial Information Request No. 1c included the following statements: "Cooper station provides key voltage support in the transmission area throughout Southern Kentucky. The current transmission system is not configured to support the peak load periods in that region without the generation injections at Cooper Station."

a. If there have been no analyses or assessments of the impact that retirement of each unit would have on capacity adequacy, transmission grid stability, transmission grid support, voltage support, or transmission system reliability, please explain in full how EKPC determined that the current transmission system is not configured to support the peak load periods in that region without the generation injections at Cooper Station.
b. Please produce all analyses or assessments of the impact that retirement of the Cooper Station units would have on capacity adequacy, transmission grid stability, transmission grid support, voltage support, or transmission system reliability.
    i. For each analysis or assessment produced in response to subpart c, please also identify the estimated cost and timeline to remediate any identified impacts.
    ii. If no such analyses or assessments exist, please explain why not and identify and describe the analysis or analyses that EKPC believes would be needed to identify such impacts.

2.25. In PSC Case No. 2007-00168, EKPC Witness Lamb provided a "Summary of Power Flow Analysis for Simultaneous Outages of Cooper Units 1 and 2."[1] Please refer to the following statements on page 1 of that Summary: "As part of its normal planning process, EKPC evaluates an outage of any one of these sources to determine if transmission system reinforcements are required. EKPC also designs its system for an outage of any single generating unit in conjunction with an outage of a transmission line and transformer. Therefore, in this area EKPC evaluates an outage of Cooper Unit #2 plus an outage of any single line or transformer. However, due to the possibility of decreased water levels for Lake Cumberland that could eliminate the needed water source for the Cooper generating units, the possibility exists that both units could be off simultaneously during the summer. **The transmission system must be designed to withstand an additional contingency for this scenario**." (emphasis added).

a. Please provide EKPC's most recent power flow analysis for simultaneous outages of Cooper Units 1 and 2.
b. Please list the transmission projects EKPC has pursued since the above-referenced power flow analysis.
c. To EKPC's knowledge, has the design of the transmission system changed since 2007 to ensure it could withstand outages at both Cooper generating units?
    i. If so, please explain the timing and substance of those changes.
    ii. If not, please explain why, in EKPC's view, the need to design the transmission system so that it can withstand receiving no power injections from Cooper Station has not been addressed over the past fifteen years.
d. Since 2007, has EKPC made any changes to its "normal planning process" to account for the possibility of both Cooper generating units being simultaneously offline.
    i. If so, please describe each such change in full, including the period of time in which it was applied.
    ii. If not, please explain why not.

2.26. Do the Cooper Station generating units provide reactive supply and voltage control service under Schedule 2 of PJM's Tariff? Please explain.

[1] https://psc.ky.gov/PSCSCF/2007%20cases/2007-00168/EKP_Application_042707.pdf

2.27. Refer to PJM's Open Access Transmission Tariff, Section V, which governs deactivation of generating units in the PJM Region, and answer the following requests:

a. Has EKPC previously submitted a written deactivation notice, pursuant to section 113.1, for either or both Cooper Station coal units? If so, please produce each such notice and any subsequent notice of reliability impact, pursuant to Section 113.2, provided to EKPC in response.

b. Please confirm that, within 30 days of receiving a written deactivation notice, the Office of Interconnection must provide notice of its determination as to whether deactivating the generating unit(s) would adversely affect the reliability of the transmission system. If anything but confirmed, please explain in full.

c. Please confirm that a notice of reliability impact under section 113.2 would "(1) identify the specific reliability impact resulting from the proposed Deactivation of the generating unit; and (2) provide an initial estimate of the period of time it will take to complete the Transmission System reliability upgrades necessary to alleviate the reliability impact." If anything but confirmed, please explain in full.

d. Please confirm that, if a Generation Owner seeking to deactivate a generating unit receives notice under section 113.2 of a resulting reliability concern, "the Generation Owner shall immediately be entitled to file with the Commission a cost of service rate to recover the entire cost of operating the generating unit until such time as the generating unit is deactivated pursuant to this Part V ("Cost of Service Recovery Rate"). In the alternative, the Generation Owner may elect to receive the Deactivation Avoidable Cost Credit provided under this Part V." If anything but confirmed, please explain in full.

2.28. Refer to EKPC's Response to Joint Intervenors' Request No. 70c., describing EKPC's process for determining need, costs, and benefits of transmission expansion projects.

a. At any time over the past ten years, have EKPC personnel submitted any problem statements related to the inability of the transmission system to support peak load period in southeast Kentucky without generation injections at Cooper Station (as claimed in EKPC's Response to the Attorney General's Initial Information Request No. 1c)?
    i. If so, please produce each such problem statement, and explain what process flowed for each such submission.
    ii. If not, please explain why not.

b. At any time over the past ten years, has EKPC management considered, approved, or denied a recommended solution to address the inability of the current transmission system to support peak load period in southeast Kentucky without generation injections at Cooper Station (as claimed in EKPC's Response to the Attorney General's Initial Information Request No. 1c)? If so, please describe each such instance in full, including the potential solution(s) under consideration, associated cost estimates and expected benefits, the recommended solution, and the decision made by EKPC management.

2.29. The Inflation Reduction Act includes provisions allocating $9.7 billion for the United States Department of Agriculture to provide grants and loans to rural electric cooperatives for clean energy and energy efficiency projects. The law enables electric cooperatives to receive an award for up to 25% of project cost, with a cap of $970 million per entity. In light of this development, please answer the following requests.

a. Please explain whether and to what extent EKPC expects the above-described grant and loan program to impact EKPC's future resource decisions.

b. Please explain in full EKPC's process for assessing impacts from the above-described grant and loan program.

c. In EKPC's estimation, how does the above-described grant and loan program differ from the cost assumptions used in its 2022 IRP? Please explain in full.

2.30. The Inflation Reduction Act includes provisions providing electric cooperatives with direct access to federal energy innovation tax credits, including tax credits for energy storage and traditional renewables. In light of this development, please answer the following requests.

a. In EKPC's estimation, how does the availability of direct pay tax incentives differ from the cost assumptions modeled in its 2022 IRP? Please explain in full.
b. In light of the availability of direct pay tax incentives, does EKPC expect to re-run any of the modeling in its 2022 IRP? If so, please explain EKPC's anticipated process and timeline.

2.31. The Inflation Reduction Act allocates nearly $9 billion for Department of Energy home energy retrofits and weatherization. In EKPC's estimation, how will this increased federal funding for weatherization impact EKPC's load forecast over the planning period. Please explain.

2.32. Refer to EKPC's response to Joint Intervenors' Initial Request No. 90d and answer the following requests.

a. Please explain why, in EKPC's view, carbon dioxide emission reduction targets are appropriate, but not reductions for other greenhouse gases, like methane, for example.
b. Has EKPC considered adopting an emissions reduction target based on carbon dioxide equivalent (calculated using Equation A-1 in 40 CFR Part 98 to determine the global warming potential of greenhouse gases other than carbon dioxide). If so, please explain the factors EKPC weighed in considering such an emissions target and EKPC's conclusion(s).
c. Has EKPC estimated the methane emissions from its existing generation portfolio? If so, please provide that estimate, disaggregated to the unit-level, if possible. If not, please explain why not.
d. Has EKPC estimated the upstream methane emissions resulting from the drilling, processing, flaring, and transportation of natural gas to its gas-fired generation resources? If so, please provide that estimate.

2.33. Has EKPC studied or caused to be studied the rate impact and customer benefits of its Kentucky Energy Retrofit program or other on-bill financing or Pay-As-You-Save program? If so, please provide each such study. If not, please explain why not.

2.34. Has EKPC studied or caused to be studied the cost-effectiveness of its Kentucky Energy Retrofit program or other on-bill financing or Pay-As-You-Save program? If so, please provide each such study. If not, please explain why not.

2.35. Refer to EKPC's response to Joint Intervenors' Request No. 92b, where EKPC states that no forecast of participation or savings rates over the IRP planning period have been performed for the Kentucky Energy Retrofit Rider.
   a. Please state whether EKPC expects to continue the Kentucky Energy Retrofit Rider during the IRP Planning Period. If EKPC does not expect to continue the program, please explain the reasons why in full.
   b. Do EKPC or its owner-members have targeted participation levels for the Kentucky Energy Retrofit Rider in 2022 or any year thereafter? If so, please provide those targeted participation levels.

2.36. Refer to EKPC's response to Joint Intervenors' Request No. 92, identifying six owner-members offering the Kentucky Energy Retrofit Rider, and answer the following requests.
   a. Please describe the administrative support that EKPC provides to owner-members to support successful implementation of the Kentucky Energy Retrofit Rider.
   b. Please describe the outreach support that EKPC provides to owner-members to support successful implementation of the Kentucky Energy Retrofit Rider.
   c. In EKPC's understanding, why have there been no Kentucky Energy Retrofit program participants from (i) Farmers RECC, (ii) Grayson RECC, and (iii) Jackson Energy Cooperative.
   d. In EKPC's estimation, what support would its owner-members each need to successfully increase participation in the Kentucky Energy Retrofit Rider. Please explain in full.

2.37. Please refer to EKPC response to Joint Intervenor Request No 1 – Figure 1-1,_Figure1-2,_Figure_1-3, Columns E and S of the tab "Data for Graphs". The 2022 PJM Load Forecast Report projects 0.4% growth in total annual energy requirements between 2022 and 2036, and 0.4% growth in the winter peak load demand for the same period. EKPC projects growth rates of 1.1% for total annual energy requirement, and 0.6% for its winter peak demand. Can EKPC explain the difference between its forecasts of winter peak load and total energy requirements and PJM's?

2.38. Please provide EKPC's PJM Load Obligation in Unforced Capacity (UCAP) for Delivery Year 20/21 through Delivery Year 24/25.
    a. Please provide the committed UCAP for each of EKPC's units offered and cleared in the PJM capacity market for the aforementioned delivery years.

2.39. Please refer to EKPC Response to Joint Intervenor Request 27 and the 2022 PJM Load Forecast Report, Table E-4.
    a. Please clarify the source for the electric vehicle plug-in adjustment for the EKPC zone.
    b. Please describe to what extent, if any, EKPC incorporated this data into its own load forecast.

2.40. Please describe why EKPC does not use the PJM load forecast to project its load requirements.

2.41. Please refer to EKPC Response to Joint Intervenor Request 83. Could EKPC incorporate the distributed solar, battery, etc. data in the PJM Load Forecast Report into its internally produced forecast? Please explain.

2.42. Please refer to EKPC Response to Joint Intervenor Request 17, subpart (m). Describe in detail the Statistical Load Methodology (SLM), in particular how the SLM differs from "a method using a forecast that does not vary in the same manner as a stochastic method."

2.43. Referring to EKPC Response to Joint Intervenor Request 18, subpart (a). Please describe the statistical weather periods used to create simulations of high and low periods from the expected:
    a. Please describe any time periods from which the statistical weather periods are defined.
    b. Does EKPC use historic weather normals to forecast expected weather?
    c. If the answer to subpart (b) is yes, please define the time period over which EKPC averages weather to produce normal weather.
    d. If the answer to subpart (b) is yes, please identify the source of weather normals used by EKPC.

2.44. Please refer to the response to Joint Intervenor Request 40 - Inputs.

a. Please explain each step that an external reviewer, without access to RTSim, would take in order to review the provided inputs. If such review would also require interpreting code such as ASCII, please explain what information would be necessary to do so.

b. If it is has not already been provided, please provide all documents and files, in electronic format, necessary to take the steps given in response to subpart a.

c. How would an external reviewer be able to, if at all, review the model constraints that were used, e.g., the reserve margin requirement(s), the new build constraints, etc.?

d. If it is has not already been provided, please provide all documents and files, in electronic format, necessary to take the steps given in response to subpart c.

2.45. The response to PSC 27a states "The RTSim Resource Optimizer utilizes an expected load requirement range over the study period. This guides in the creation of the unique resource additions to meet the requirement in each of the runs. The system creates a selection of resources and performs several iterations of the RTSim production cost model to arrive at the least cost configurations."

Please explain in full how production cost runs, which only dispatch generators, but do not optimize their selection, can be used to develop different "selection[s] of resources".

2.46. Please refer to the responses to Joint Intervenor Requests 17, 19, and 41 and to page 29 of the Commission's September 24, 2021, order in Case Nos. 2020-00349 and 2020-00350.

a. In EKPC's opinion, does RTSim avoid the problem of "The full range of… assumptions, inputs, and outputs being inaccessible to other parties and to the Commission without several rounds of discovery"? If so, please describe in full how RTSim avoids this issue.

b. In EKPC's opinion, are parties able to re-run RTSim runs? If so, please describe in full how this would be possible.

2.47. Please refer to EKPC Response to Joint Intervenor Request 31. Please provide the detailed narrative describing why thermal units are modeled on an ICAP basis rather than a UCAP basis.

2.48. Referring to the Excel spreadsheet attached to EKPC Response to Joint Intervenor Request 35.
   a. Please provide a narrative for the capacity factor assumptions regarding the planned SCGT, which range from 30% to 47%.
   b. Please provide any operational data or other analyses supporting this capacity factor assumption.

2.49. Please refer to EKPC Response to Joint Intervenor Request 43. Has EKPC evaluated any market purchases in its capacity expansion modeling across the IRP planning period? Please explain.

2.50. Please refer to the response to the spreadsheet Joint Intervenor "Request 40 – output".
   a. Please confirm that the provided spreadsheet contains information applicable only to the "Base Case" as noted in cell A4. If your response is anything other than an unqualified affirmative, please explain in full.
   b. To which case in Table 8-4 does this output correspond? Please explain in full.
   c. This spreadsheet contains system cost data for 500 iterations, how do those iterations relate to the deterministic/single iteration data provided elsewhere in the spreadsheet, e.g., the thermal generation? Please explain in full.
   d. Please explain why the solar generation data contained in this spreadsheet (line 30) do not match solar generation data in corrected Table 8-10 of the IRP?
   e. What is the source of the corrected Table 8-10 generation data?
   f. Please explain why only variable thermal generation costs were included in the modeling, i.e., Thermal Total Cost (line 42) is equal to Thermal Variable Cost (line 41).
   g. Please explain how the data in rows (28) Thermal Generation, (29) Hydro/Battery Discharge, (30) Wind/Solar Generation, (32) Energy Purchased, and (36) Energy Sold sum to the data contained in row (34) System Native Energy.
   h. Please provide a detailed narrative explaining why the "(16) Thermal Unit Fixed O&M Costs ($)" is populated with the presented values.
   i. Please provide a detailed narrative explaining why the "(17) Thermal Unit % Profitability" is populated with the presented values.

2.51. The response to Staff's Request 27b states, "The top plan as determined by the Resource Optimizer was the foundation for the creation of the optimal plan. Review of the top plans, and the inclusion of the EKPC Sustainability goals, was performed to provide the final plan."
    a. Please provide documentation of this review, if any.
    b. Provide the data that were reviewed.
    c. Please explain in full how EKPC's Sustainability goals were included after the fact of developing the plans and provide documentation showing how they were included, if any.
    d. Please explain what process, if any, EKPC used to calculate the costs of different portfolios (or cases)? Provide all applicable spreadsheet(s) in electronic format with all formulas and links intact.

2.52. Please provide the energy market price forecast (either hourly or subhourly) that was used in the RTSim modeling.

2.53. Please provide the most recent PJM capacity price forecast in EKCP's possession.

2.54. Please refer to EKPC Response to PSC Response 27c.
    a. Please provide a detailed narrative explaining how the results listed "Best 1: System Profit to Best 10: System Profit" relate to the five plans and final plan in Table 8-5 of the 2022 IRP.
    b. Are the values contained in PSC Response 27c the net present value to the system or some other measure? Please provide the generic formula showing which costs and revenues are included in the calculation.
    c. Provide the spreadsheet(s) with all formulas and links intact showing how the values in PSC Response 27c were calculated.
    d. The Response to PSC Request 49 states, "EKPC hedges its exposure to high market prices by ensuring it has adequate resources to cover its load. When the market prices are lower than EKPC's resources, then EKPC purchases from the market and its resources are not dispatched. When the PJM market price is higher than the EKPC resources, then the EKPC generating resources are dispatched into the market. This allows the EKPC owner-members to be hedged against the high market prices." Please explain how EKPC reconciles this strategy against the results in Table 8-10 which show that by 2030 owned generation and firm purchases will equal about 73% of energy requirements falling to 66% of energy requirements by 2036.

2.55. Please refer to EKPC Response to Joint Intervenor Request 38. Has EKPC evaluated the costs of retiring any of its thermal units against the cost of replacement capacity either in PJM or through owned or contracted generation? If so, please provide that analysis, including workpapers in native format with formulas intact.

2.56. Please provide that status of the Request for Proposals ("RFP") referenced in EKPC Response to Joint Intervenor Request 45, and provide the following information:
   a. the anticipated schedule for development of the RFP,
   b. any stakeholder processes that will be involved in the development of the RFP, and
   c. the anticipated date of the solicitations.

2.57. Referring to EKPC Response to Joint Intervenor Request 45b, is it EKPC's position that future Solar Power Purchase Agreements (PPA) will not provide incremental capacity to EKPC? Please explain.

2.58. Please refer to EKPC Response to Joint Intervenor Request 72.
   a. Are seasonal energy-only solar PPAs available to EKPC? Please explain in full.
   b. Has EKPC received pricing information in the form of direct bids or indicative pricing?
   c. Is it EKPC's intention to pursue energy-only solar PPAs for the winter period? Please explain in full.
   d. Will the "annual PPAs" be limited to solar resources only? Please explain in full.
   e. Will the capacity of the annual PPA be monetized in PJM? If so, please explain in full. If not, please explain why not.

2.59. Please refer to EKPC Response to Joint Intervenor Request 77.
   a. Is it EKPC's understanding that the capacity value of merchant solar facilities connected to its transmission system cannot count towards meeting the EKPC zonal load obligation?
   b. Has EKPC considered contracting to off take the generation and capacity of any of the merchant solar facilities connected or planned to be connected to its transmission system? Please explain.

2.60. In EKPC Response to Joint Intervenor Request 73 it is stated that, "no capacity value was assigned to the solar PPAs for being able to meet winter peak loads." It is also stated that, "EKPC's winter peak typically occurs at 07:00 and 18:00, morning and evening peaks." Typically, the peak times are when the energy price is at its highest.
    a. Has EKPC performed any analysis of the value of energy-only seasonal solar PPAs for the off-peak hours during winter period?
    b. If so, please provide this analysis indicating the exposure (in MWh and dollars) that energy-only solar PPAs can provide.

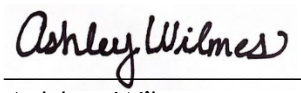
2.61. Refer to page 58 of the IRP where it is stated: "Solar PPAs were based on expected costs from a recent RFP for solar energy. The PPAs were allowed to annually enter into the model throughout the study period of the capacity expansion study. This allowed solar energy to be compared with market purchases and natural gas resources." Please provide the "expected costs" from the recent RFP for solar energy.

2.62. Refer to EKPC Response to Joint Intervenor Request 76.
    a. Please provide a detailed narrative of how EKPC intends to evaluate future solar PPAs on a "case by case basis for PJM market participation."
    b. In the narrative requested above, please describe any metric(s) EKPC will use to distinguish full requirements solar PPAs from energy-only solar PPAs.

2.63. Please refer to EKPC Response to Joint Intervenor Request 79, and provide the following information:
    a. Please indicate which units are providing excess incremental capacity to the PJM RPM above EKPC's PJM Load Obligation, and
    b. Please provide the revenue EKPC receives for excess cleared capacity in the PJM RPM.

2.64. Please refer to EKPC Response to Joint Intervenor Request 32 and AG Request 31. Are the Cooper station punchlist items identified in the Babcock & Wilcox reports included in the cost estimates contained in the response to AG Request 31? If not, please explain why not and provide the anticipated costs for those items.

Respectfully submitted,



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CERTIFICATE OF SERVICE

In accordance with the Commission's July 22, 2021 Order in Case No. 2020-00085, *Electronic Emergency Docket Related to the Novel Coronavirus COVID*-19, this is to certify that the electronic filing was submitted to the Commission on August 30, 2022; that the documents in this electronic filing are a true representations of the materials prepared for the filing; and that the Commission has not excused any party from electronic filing procedures for this case at this time.

Ashley Wilmes

Ashley Wilmes