

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2025 INTEGRATED RESOURCE)	CASE NO.
PLAN OF EAST KENTUCKY POWER)	2025-00087
COOPERATIVE, INC.)	

RESPONSES TO PSC’S AMENDED FIRST INFORMATION REQUEST
TO EAST KENTUCKY POWER COOPERATIVE, INC.

DATED July 31, 2025

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2025 INTEGRATED RESOURCE)	CASE NO.
PLAN OF EAST KENTUCKY POWER)	2025-00087
COOPERATIVE, INC.)	

CERTIFICATE

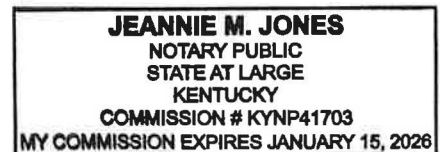
STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Christopher E. Adams, being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Commission Staff's First Amended Request for Information in the above-referenced case dated July 1, 2025, and that the matters and things set forth therein are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.

Christopher E. Adams
Christopher E. Adams

Subscribed and sworn before me on this 31st day of July, 2025.

Jeannie M. Jones
Notary Public



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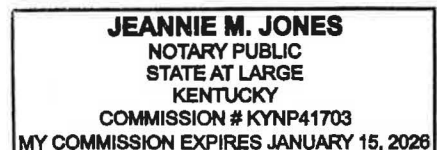
STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Darrin Adams, being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Commission Staff's First Amended Request for Information in the above-referenced case dated July 1, 2025, and that the matters and things set forth therein are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.

Darrin Adams
Darrin Adams

Subscribed and sworn before me on this 31st day of July, 2025.

Jeannie M. Jones
Notary Public



EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
AMENDED FIRST REQUEST FOR INFORMATION RESPONSE

PSC’S REQUEST DATED JULY 31, 2025

REQUEST 1

RESPONSIBLE PARTY: **Christopher E. Adams (a and c) and Darrin Adams (b)**

Request 1. Refer to EKPC’s 2025 Integrated Resource Plan (IRP), page 72. All requests posed within the context of the discussions at the informal conference held on May 28, 2025.

a. As an additional High Case Economic Optimistic scenario, perform a production cost and resource optimization modeling analysis to estimate how best to reasonably serve a hypothetical 1.0 GW load with a very high load factor. The assumptions for the analysis should be consistent with those used in in the IRP to arrive at EKPC’s preferred generation portfolio, the only change being the 1.0 GW load addition. The timing of the load addition should be as soon as EKPC could reasonably expect to be able to serve the anticipated load. The analyses results should be presented in a table similar to Exhibit JJT-4 EKPC Capacity Expansion Plan – Revised March 4, 2025 in Case No. 2024-00370.²

b. Assume that the 1.0 GW load has been brought online on EKPC’s system. In the event that the 1.0 GW load suddenly dropped off the system, provide a detailed qualitative discussion of how EKPC and to the extent applicable PJM, would insulate and protect the transmission system (and possibly neighboring interconnected systems) from damage. Include in

the response what necessary equipment and steps it in coordination with PJM transmission operators would take to insulate the generation and transmission system.

c. Based on the production cost and resource optimization modeling analysis performed in response to Item 1(a) above, explain how this modeling would change EKPC's preferred portfolio and explain reasons for the changes in detail.

Response 1.

a. EKPC performed an additional resource optimization model, referred to as the Large Load Test Case, including an additional 1.0 GW at 95 percent load factor beginning in 2031. The resource optimizer utilized the resource list as provided in Table 8-2 (Revised) and assumed that any of those resources could be built by 2031, coincident with the added load. The resource optimizer identified two (2) 745 MW 2-on-1 F-class Natural Gas Combined Cycle (NGCC) units as the least-cost solution to serve the additional load. The Large Load Test Case Expansion Plan is attached as *Staff DRI - R1 – Large Load Test Case Expansion Plan.pdf*.

b. The consequences of sudden loss of a large load are tempered by being part of a large RTO footprint, such as PJM. The system is able to ride through disturbances and sudden significant changes much easier due to the large amount of generation and load that is balancing within the region. The loss of a 1 GW load in an RTO with an overall system load of 100 GW with accompanying generation resources operating to serve the load, for example, represents only a 1% instantaneous decrease in load. This is a relatively small change in load that is much more manageable than would be the case for a small balancing area that experiences a sudden

loss of load. However, potential reliability impacts are possible and should be evaluated to determine if any mitigation actions are warranted.

EKPC would need to coordinate with a large-load customer to gather specific information regarding the disturbance thresholds that would result in a switch from utility supply to backup customer generation. A system-protection coordination study would be conducted to determine relaying schemes/settings that would minimize the possibility of the load dropping from the utility supply.

The addition of dynamic reactive resources to the system is another potential mitigation measure to aid with the load-drop issue. The addition of static var compensators would be an option to provide fast-acting, flexible resources that can either supply or absorb reactive power as necessary, depending on system conditions. These could make the system much more resilient during system disturbances.

During real-time operations, system operators might need to take manual actions to de-energize capacitor banks, reduce generation output, and/or open extra-high voltage transmission lines to aid in reducing voltage.

c. The Large Load Test Case does not change the preferred portfolio as filed in EKPC's 2025 IRP. A large data center load of 1.0 GW would require a dedicated resource portfolio consistent with EKPC's pending Data Center Power tariff. The additional resources identified in the Large Load Test Case would be dedicated to the hypothetical data center, covering both its capacity and energy obligations. The preferred portfolio as filed would continue to support EKPC's non-data center load obligations.