

**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

<b>ELECTRONIC APPLICATION OF EAST</b>	)	
<b>KENTUCKY POWER COOPERATIVE,</b>	)	
<b>INC. FOR 1) CERTIFICATES OF PUBLIC</b>	)	<b>CASE NO.</b>
<b>CONVENIENCE AND NECESSITY</b>	)	<b>2024-00370</b>
<b>TO CONSTRUCT GENERATION</b>	)	
<b>RESOURCES; 2) FOR A SITE COMPATIBILITY</b>	)	
<b>CERTIFICATE RELATING TO THE SAME;</b>	)	
<b>3) APPROVAL OF DEMAND SIDE MANAGEMENT</b>	)	
<b>TARIFFS; AND 4) OTHER GENERAL RELIEF</b>	)	

**RESPONSES TO COMMISSION STAFF'S SECOND INFORMATION REQUEST**  
**TO EAST KENTUCKY POWER COOPERATIVE, INC.**

**DATED JANUARY 16, 2025**









**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

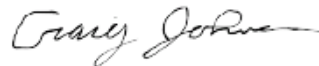
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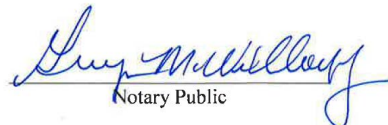
**CERTIFICATE**

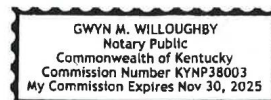
**STATE OF KENTUCKY** )  
  )  
**COUNTY OF CLARK**     )

Craig Johnson, being duly sworn, states that he has supervised the preparation of the supplemental responses of East Kentucky Power Cooperative, Inc. to Commission Staff's Second Request for Information in the above-referenced case dated January 16, 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.



Subscribed and sworn before me on this 30th day of January, 2025.

  
Notary Public













**EAST KENTUCKY POWER COOPERATIVE, INC.**  
**CASE NO. 2024-00370**  
**SECOND REQUEST FOR INFORMATION RESPONSE**

**COMMISSION STAFF'S REQUEST DATED JANUARY 16, 2025**

**REQUEST 1**

**RESPONSIBLE PARTY: Julia J. Tucker**

**Request 1.** Refer to EKPC's response to Commission Staff's First Request for Information (Staff's First Request), Item 1. The last sentence states "plan in total."

- a. Explain what "plan in total" includes.
- b. Clarify whether or not it includes plans discussed outside the scope of this case.
- c. Identify any resource plans that have yet to be formally presented to the Commission and the estimated date for submission.

**Response 1a through c.** "Plan in total" is meant to include all of the recent generation requests that EKPC has made to the Commission in 2024 and coming in 2025. PSC Case No 2024-00129 addressed new renewable solar generation facilities and the certificates requested in that case have been granted by the Commission. PSC Case No. 2024-00310 is for gas fueled generation to meet quick start up and shut down operations, which will supply dispatchable capacity to the EKPC system while allowing for fast load following capabilities. The case in question, PSC Case No. 2024-00370, is addressing baseload generation needs for the system,

along with Demand Side programs. EKPC expects to file additional requests in 2025 which will address renewable, clean energy resources to meet consumer demand and qualify for the Rural Utilities Service's Empowering Rural America Act's substantial favorable financing / grant program. These project requests are expected to be filed with the Commission during the first quarter of 2025. All of these projects together comprise EKPC's desire to meet growing load needs in an economic, sustainable and reliable manner. All projects have been modeled going forward and are needed to provide a complete solution to EKPC's future power supply needs. Removing any one of these projects from the portfolio will have an impact on the total cost to serve and/or will impact EKPC's ability to reliably supply its load requirements in a sustainable manner.

**EAST KENTUCKY POWER COOPERATIVE, INC.**  
**CASE NO. 2024-00370**  
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**COMMISSION STAFF'S REQUEST DATED JANUARY 16, 2025**

**REQUEST 2**

**RESPONSIBLE PARTY: Julia J. Tucker**

**Request 2.** Refer to EKPC's response to Staff's First Request, Item 1 that references a New ERA Certificate of Public Convenience and Necessity (CPCN) to be filed in early 2025.

- a. Provide the status of the CPCN filing, including the expected filing date.
- b. State whether EKPC has determined which renewable resources will be included in filing. If so, describe the resources and how they conform to the current needs of EKPC.

**Response 2.**

- a. EKPC is continuing to work on the New ERA CPCN filings. EKPC expects to file two applications in the first quarter of 2025.
- b. The filing(s) will include a long-term power purchase agreement (PPA) for hydro energy to supplement the energy needs of EKPC prior to getting new generation on the system. The PPA will also support the Rural Utilities Service New ERA funding. In addition to the hydro PPA, EKPC will seek authority to construct four new solar facilities for a total of 320.6 MW. Also, in support of clean, sustainable energy in compliance with the RUS New ERA funding.

**EAST KENTUCKY POWER COOPERATIVE, INC.**  
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**COMMISSION STAFF’S REQUEST DATED JANUARY 16, 2025**

**REQUEST 3**

**RESPONSIBLE PARTY: Thomas J. Stachnik**

**Request 3.** Refer to EKPC’s response to Staff’s First Request, Item 2b. State whether EKPC currently has in place any of the “insurance products” discussed, and if so, identify the “insurance product”, explain the terms of the product, and how it mitigates the risk of performance assessment interval (PAI) penalties.

**Response 3.** EKPC buys an insurance product called Capacity Performance (CP) Penalty insurance. The insurance is currently in place for the 2024-25 planning year. CP insurance protects EKPC from non-performance charges in the event PJM declares a performance assessment interval (PAI) during the planning year. The CP penalty insurance from Lloyds of London Syndicate has an aggregate limit of \$40 MM and \$3 MM aggregate retention for the planning year.

The CP penalty policy indemnifies companies like EKPC, who have generation assets, against capacity penalties levied by PJM due to an unplanned outage or derate during the Emergency Events declared by PJM. The payout is calculated by multiplying the fixed capacity penalty \$ per PAI by MW lost and number of hours of the unplanned event. The insurance

company will indemnify EKPC from penalties assessed by PJM from such PAI events subject to policy limit and deductible.

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**REQUEST 4**

**RESPONSIBLE PARTY: Denise Foster Cronin**

**Request 4.** Refer to EKPC's response to Staff's First Request, Item 2c.

a. Discuss whether the Federal Energy Regulatory Commission (FERC) has approved any recent changes to the PJM Tariff within the last five years.

b. Discuss the likely impact since the numerous 2023 Winter Storm Elliott complaints and settlement designed to reduce the overall number of PAI penalties hours in future winter storms.

c. State whether EKPC believes any such PJM Tariff changes will meaningfully reduce PAI risks.

**Response 4.**

a. PJM posts all FERC orders on the filings they make on pjm.com at the following web link: <https://www.pjm.com/library/filing-order.aspx>.

The rule changes most relevant to EKPC's CPCN application involve those that seek to ensure the PJM region remains resource adequate. PJM administers a capacity market and accommodates utilities using the Fixed Resource Requirement to lock in commitments of resources to be Capacity



Resources dedicated to the PJM region. The most recent, significant FERC orders impacting those constructs are the following.

**(1) ER23-1996 (Performance Assessment Interval trigger)**

FERC approved PJM's request to change the Definition of "Emergency Action" which is key to determining when a Performance Assessment Interval is in effect in the PJM region, and to require that a Reserve Zone or Reserve-Sub-zone be short of primary reserves while an Emergency Action is in effect in order for a Performance Assessment Interval to be in effect. When a Performance Assessment Interval is in effect, committed Capacity Resources would be subject to Non-Performance Charge if they failed to perform. The changed definition eliminated certain operating procedures, including the calling of pre-emergency load management which is itself a Capacity Resource, from the definition of Emergency Action. Thus, those operating procedures no longer trigger a Performance Assessment Interval. This filing also made clear that PJM's issuance of any of these four Emergency Actions would be considered the initiation of a Performance Assessment Interval: (i) Deploy All Resources Action, (ii) Voltage Reduction Action, (iii) Manual Load Dump Action, and (iv) Load Shed Directive for an entire Reserve Zone or Reserve Sub-zone.

**(2) ER24-99 (one PJM filing resulting from the Critical Issues Fast Path Process)**

FERC approved PJM's filing making changes that enhanced its resource adequacy risk modeling, capacity accreditation processes, and testing requirements of Capacity Resources. FERC also approved PJM's proposal to change the index price for the Non-Performance Charge

Limit (“stop-loss limit”) to the Base Residual Auction (“BRA”) clearing price rather than the Net Cost of New Entry (“Net CONE”) effective beginning with the 2025/26 Delivery Year.

**(4) ER24-98 (another PJM filing resulting from the Critical Issues Fast Path Process)**

The FERC rejected PJM’s proposals to (1) revise the Market Seller Offer Cap, (2) limit eligibility of Performance Payments during Performance Assessment Intervals to committed Capacity Resources, (3) clarify when committed Capacity Resources are excused from Non-Performance Charges, (4) establish the ability for Market Participants to transfer performance obligations of Capacity Resources before a Performance Assessment Interval, and (5) remove the physical option for Fixed Resource Requirement (FRR) Entities that underperform during a Performance Assessment Interval.

**(4) EL23-74 (EKPC’s Winter Storm Elliott Complaint)**

EKPC sought for the Commission as early as the 2023/24 Delivery Year to revise the non-performance penalty structure in its Winter Storm Elliott Complaint, including the trigger for a Performance Assessment Interval, the Non-Performance Charge rate, and the stop-loss provisions. FERC approved a settlement that resolved all the Complaints related to PJM’s actions during Winter Storm Elliott, resulting in a reduction in non-performance charges and associated bonus payments. The settlement allowed the element of EKPC’s complaint seeking reform of the non-performance penalty structure to continue. FERC issued the order adjusting the trigger, referenced above and the order addressing the stop loss while this Complaint was pending. Ultimately, FERC issued an order rejecting EKPC’s Complaint along with a similar complaint filed by the PJM Independent Market Monitor, leaving the Non-Performance Charge rate unreformed. Thus, the

Non-Performance Charge rate is calculated based on Net Cost of New Entry (net CONE) for the Locational Deliverability Area in which the Capacity Resource is located, which may be higher than the BRA clearing price, while the stop-loss limit is calculated based on the BRA clearing price. (Note: In PJM's most recent filing (Docket No. ER25-682) to adjust capacity market rules, PJM proposes continued use of a combustion turbine to be the reference resource for which CONE is calculated. Without this change the reference resource for the 2026/27 Delivery Year would become a combined cycle, which for EKPC's Capacity Resources and other Capacity Resources located in the RTO Locational Deliverability Area would have resulted in a \$0 Non-Performance Charge rate. Since Net CONE could still be \$0 for some Locational Deliverability Areas even with retaining a combustion turbine to be the reference resource, PJM has proposed that the non-Performance Charge rate be calculated based on the RTO Net CONE value. This is still pending FERC decision.)

b. EKPC does not agree with the premise of the question. FERC approved rule changes following Winter Storm Elliott do not necessarily reduce the number of PAIs that may occur in future winter storms. The revision to the definition of Emergency Action, described above, narrowed the circumstances in which PJM would declare a Performance Assessment Interval (PAI), during which any non-performing Capacity Resources would be subject to Non-Performance Charges. The narrowing of the circumstances wherein a PAI event may be triggered may reduce the likelihood of PAI events being triggered, but system conditions at the time will determine whether in fact the number of Performance Assessment Intervals in future winter storms.

c. EKPC believes the risk of PAI events is driven both by the level of reserves PJM has on the system and the weather conditions that present. The PJM region is experiencing generation deactivations that are outpacing new generation additions and rapid load growth. As Mr. Mosier stated in response to Staff's First Request, item 2a, "Adding generation to the PJM, system . . . improves the overall supply of capacity available to PJM for dispatch during high-load periods such as a Winter Storm Elliot which can help reduce capacity shortage scenarios." PJM's efforts to further reform the capacity market to retain existing resources as Capacity Resources and incent new resources to commit to being Capacity Resources for the PJM region, and to expedite the study of resource seeking to connect to the grid in order to be eligible to participate in capacity auctions, are focused on reducing the risk that the PJM region may not be resource adequate into the future. When reserves on the system are tight, it is more likely that PJM operators would need to implement emergency operations procedures, including those that trigger PAIs. Should PJM's efforts secure sufficient resources to serve the PJM region, the risk of a PAI event reduces. Also, the changes to the stop-loss limit, explained in response to part (a) above, will reduce the overall financial exposure EKPC may have to any Non-Performance Charges that may be assessed during any PAIs.

**EAST KENTUCKY POWER COOPERATIVE, INC.**  
**CASE NO. 2024-00370**  
**SECOND REQUEST FOR INFORMATION RESPONSE**

**COMMISSION STAFF'S REQUEST DATED JANUARY 16, 2025**

**REQUEST 5**

**RESPONSIBLE PARTY: Denise Foster Cronin**

**Request 5.** Refer to EKPC's response to Staff's First Request, Item 3.

a. Assuming that FERC approves the Reliability Resource Initiative (RRI) proposal as filed, and PJM selects the Cooper Combination Combustion Gas Turbine (CCGT) and/or the Liberty reciprocating internal combustion engines (RICE) units, discuss the likely impacts on the interconnection queue timelines. State whether EKPC would be able to meet its resource adequacy goals more quickly under such a scenario compared to the status quo.

b. Explain how the FERC approval of other recent PJM resource adequacy filings impact the above-mentioned Cooper and Liberty units.

**Response 5.**

a. Should FERC approve PJM's Reliability Resource Initiative as proposed, it is anticipated that the PJM's evaluation of new generation resources for connection to the grid could be expedited by up to 18 months faster than if those projects were to be studied in the New Queue Cycle. Understanding what transmission reinforcements would be required to connect the resource and PJM directing those to be constructed upon execution of the Generation Interconnection

Agreements are a critical path for constructing the generation resources, so this expedited process would be more beneficial for EKPC to achieve its resource adequacy goals than the status quo.

b. PJM made two significant filings to revise aspects of its capacity market. (Docket Nos. ER25-682 and ER25-785). Both remain pending before the FERC. The most direct impact to the Cooper CCGT and Liberty Units (and the rest of EKPC's generation fleet) is the proposal to retain a combustion turbine for 2026/27 Delivery Year to be the reference resource for calculation of Net CONE purposes along with the proposal for uniform Non-Performance Charge rate using the RTO Net CONE value in the calculation. Please also see the Response to 4a above. The status quo would have a combined cycle be the reference resource for the 2026/27 Delivery Year, resulting in the Non-Performance Charge rate being \$0 for the RTO LDA, the LDA in which EKPC resides.

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REQUEST 6

RESPONSIBLE PARTY: Scott Drake

**Request 6.** Refer to EKPC's response to Staff's First Request, Item 4. The response reiterates EKPC's goal to reduce greenhouse gas emission by 35 percent by 2035.

- a. Explain how, and when, the 35 percent reduction goal was established.
- b. Explain if EKPC estimated, when established, the potential cost to meet this goal, and, if so, provide the estimated cost. Provide any updated changes to the costs estimates since the goal was established.

**Response 6.**

- a. Around 2018, EKPC noticed increased scrutiny in its carbon-based generation portfolio from credit rating agencies and financial institutions. For these reasons, EKPC considered a strategy to incorporate cost-competitive renewable energy resources into the generation portfolio. Generally, at that time, EKPC determined that offsetting some or all new energy sales (load growth) with renewable resource (typically utility scale solar) was, and still is with government grants, a cost-competitive method to diversify the generation portfolio over time. With new

generation resources from cost-competitive solar resources in the generation portfolio, along with purchasing

lower cost power from PJM's lower carbon-intensity supply, resulted in about a 35% reduction in carbon emissions for EKPC's energy delivered to the Owner-Member cooperatives by 2035. The EKPC Board of Directors approved EKPC's Sustainability Plan in November 2020, which includes the 35% carbon reduction goal from cost-competitive lower carbon resources.

b. No cost estimates were developed at that time because any new lower-carbon resources secured by EKPC through 2035 would be evaluated individually as a cost-competitive resource versus other supply-side resources for a CPCN filing.



**EAST KENTUCKY POWER COOPERATIVE, INC.**  
**CASE NO. 2024-00370**  
**SECOND REQUEST FOR INFORMATION RESPONSE**

**COMMISSION STAFF'S REQUEST DATED JANUARY 16, 2025**

**REQUEST 7**

**RESPONSIBLE PARTY: Jerry Purvis**

**Request 7.** Refer to the Direct Testimony of Jerry Purvis, page 10.

- a. Confirm that there is no mention of the option to utilize carbon capture and sequestration (CCS) to remove 90% of the carbon dioxide (CO<sub>2</sub>) from emissions.
- b. Explain whether EKPC considered the CCS option.
- c. If a CCS option was considered, what were the estimated costs and implications.
- d. If not, explain why a CCS option was not considered.

**Response 7.**

- a. EKPC confirms there is no mention of utilizing the option to control CO<sub>2</sub> emissions from EKPC coal-fired power plants. Furthermore, no mention of purchasing and installing carbon capture and sequestration at 90% for EKPC coal-fired power plants since it is not commercially demonstrated full scale in the U.S.
- b. EKPC considered the option utilizing information available from the Tundra Project, Minnkota Power, in North Dakota, the most recent example of a DOE-funded CCS

prototype system on a coal-fired power plant. However, to date, Project Tundra has not been brought online.

c. The CCS option was considered and modeled based off the Tundra project financials, estimates, scaled to size of H.L. Spurlock Station and CO<sub>2</sub> gas transported to the closest location in accordance to EPRI, Statesville, IL at a cost estimated of \$10.7 billion dollars. Please refer to Exhibit Jerry Purvis - Declaration of Harm.

d. Risk and liability implications are too high for a cooperative that has a balance sheet of \$3.8 Billion dollars. Risks identified are technology risk, financial risk, deep well injection risk to remain captured, pipeline risk, no pipelines exist to Statesville, IL for CO<sub>2</sub>, permitting 350 miles of CO<sub>2</sub> pipeline risk and exposure and injection liability risk. There exist too many unknowns, too many uncertainties and risk for EKPC to consider CCS as a feasible option for Spurlock Station.

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CASE NO. 2024-00370  
SECOND REQUEST FOR INFORMATION RESPONSE

COMMISSION STAFF'S REQUEST DATED JANUARY 16, 2025  
REQUEST 8

RESPONSIBLE PARTY: Jerry Purvis

**Request 8.** Refer to EKPC's response to Staff's First Request, Item 7. Confirm that EKPC estimated that CCS installed on the Spurlock Facility could cost in excess of \$10 million. Provide the source of that estimate.

**Response 8.** Yes. EKPC's estimates are based upon actual costs developed by Project Tundra, a CCS demonstration project undertaken by Minnkota with the assistance of DOE funding (<https://www.projecttundrand.com/>). Based upon these figures, EKPC prepared a Declaration of Harm as a result of the EPA Greenhouse Gas Rule to outline high level financial and technology risk, see attachment *Staff2.8 Declaration of Harm.pdf*. This document explains in detail how EKPC scaled up the project to fit EKPC's needs at Spurlock Station and the nearest viable site to sequester the carbon emissions.

**EAST KENTUCKY POWER COOPERATIVE, INC.**  
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**COMMISSION STAFF'S REQUEST DATED JANUARY 16, 2025**

**REQUEST 9**

**RESPONSIBLE PARTY:                Julia J. Tucker**

**Request 9.**                Refer to EKPC's response to Staff's First Request, Item 7 and Item 12b. Despite PJM determined effective load carrying capability (ELCC) values being considered summer capacity values in the base residual auction (BRA) only, from a planning/capacity modeling perspective, explain why it is not reasonable to model EKPC's unit ELCC winter values to determine its greater winter peak capacity needs.

**Response 9.**                EKPC has chosen to plan with a reserve margin requirement in the winter as opposed to the ELCC methodology. The ELCC methodology has been chosen by PJM as its preferred, most equitable strategy. PJM is planning across many companies and many generating units, so they are using more of an industry average. EKPC knows its units and knows the maintenance that has been invested into these units. EKPC's units have demonstrated reliable operations that typically exceed industry averages. EKPC believes that planning on a reserve margin criterion for its own specific system needs provides adequate reliability coverage for its owner members without requiring excessive obligations for new generation or purchases. The ELCC methodology would result in EKPC investing in substantially more generation to serve its

member's needs. EKPC is not insinuating that the ELCC methodology is not appropriate for PJM, but it results in higher reserve margins when applied just to the EKPC system for its winter load and seems to be more than necessary for reliable operations. If PJM were to change its current methods and begin to consider winter peak loads in its reliability calculations, then EKPC might be forced into using ELCC for its winter need considerations, but that is not currently the case.

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REQUEST 10

RESPONSIBLE PARTY: **Julia J. Tucker**

**Request 10.** Refer to EKPC's response to Staff's First Request, Item 7.

a. Explain whether EKPC's statement that its recent experience shows that it is purchasing 30-40 percent of its energy from the market means that EKPC purchased 30-40 percent of its energy over and above the energy it generated and sold into the market.

b. Provide a monthly breakdown of the energy purchases, total and net of generation sold into the market, for time period indicated by EKPC's "recent experienced."

**Response 10.**

a. This is correct, EKPC nets its generation against load to determine if it is a net buyer or net seller.

b. The monthly data referenced is based on EKPC's monthly Fuel Adjustment Clause filings which show how much energy is purchased each month. Refer to the attached spreadsheet, *Staff2.10 - FAC Total Fuel Cost History.xlsx*, for a summary of that data in recent years.

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**REQUEST 11**

**RESPONSIBLE PARTY:                Julia J. Tucker and Craig Johnson**

**Request 11.**                Refer to EKPC's response to Staff's First Request, Item 7 and Application, Direct Testimony of Julia J. Tucker, Exhibit JJT-4. Refer also to Case No. 2024-00310 generally.

- a.                During EKPC's modeling and selection of the EKPC Expansion Plan – Q4 2024, explain whether the RICE units were assumed to have already been approved by the Commission.
- b.                Explain how RICE units compare to comparably sized aeroderivative natural gas units in terms of cost and operating characteristic

**Response 11.**

- a.                Exhibit JJT-4 includes the RICE units, shown in the green highlighted area under the columns headed "RICE". The data in that sheet assumes that those units are added onto the system.
- b.                Aeroderivatives come in various unit ratings ranging from 5 megawatts up to 100 megawatts. The smallest aeroderivative engine is the 5 MW, which has a heat rate in the range of 12,700 btus/kwHour based upon the higher heating value (HHV) of natural gas. A GE LM2500

and GE LM6000 have heat rates ranging from 9,100 to 9,500 btus/kwHour based on HHV. EKPC has two GE LMS100's operating at Smith Station which have a published heat rate on a HHV basis of around 9,100 btus/kwHour. The internal combustion engines EKPC is proposing has a heat rate of 8,423 btus/kwHour on a HHV basis. EKPC can speak about its experience with the two LMS100's located at Smith Station. Those two aeroderivative units were placed into operation in 2010. Since then, each engine has experienced catastrophic failures and other failures that resulted in extended forced outages. The units, when operating properly, are extremely efficient at full load operation and provide for a fast start up and shut down with the ability to ramp up or down in load of over 30 MWs per minute. The one good thing about this technology is that an engine can be removed and replaced in under 7 days. To keep the units available, EKPC purchased a spare engine that could be installed if needed. When something does go wrong with the engine that requires GE expertise to repair, it has been EKPC's experience that the repair can take up to 18 months due to the limited parts availability. The RICE units proposed by EKPC have a net rating each of 17.78 MWs. EKPC will carry adequate critical spares to mitigate lost production in times of an unplanned outage. An unplanned outage of one 17.78 MW engine lowers the shaft risk compared to having a large aeroderivative unit. The dispatch characteristics are fast start and shutdown, high load ramping capability with very little efficiency fall off at part loads. Aeroderivative technology, like any simple cycle combustion turbine, has a poor part load heat rate. The RICE units being proposed are dual fuel. EKPC has no experience with dual fuel on aeroderivative technology. The installed cost for a similar station size based upon the LM6000 technology is \$2450 to \$2550 per kw. This does not include any transmission upgrade cost.



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**REQUEST 12**

**RESPONSIBLE PARTY:**            **Julia J. Tucker**

**Request 12.**            Refer to EKPC's response to Staff's First Request, Items 7 and 12. Discuss the current exposure that EKPC's Owner-Members have to the most recent (2025/2026 delivery year) PJM Reliability Pricing Model (RPM) BRA in both MWs and capacity market costs (i.e., how much is EKPC short or long?).

a.            Assuming timely Commission approvals of the CPCNs for the Cooper and Spurlock facilities in this case, explain which future BRAs does EKPC plan to offer these units to reduce exposure to volatile capacity prices.

b.            Discuss how EKPC has an ability to hedge capacity price exposure before EKPC is in a position to offer the units into future BRAs.

**Response 12.**

a.            Spurlock Units 1 through 4 and Cooper Unit 2 will continue to be offered into the BRAs for all delivery years as those units are currently obligated to the PJM capacity market and are required to offer into each BRA. EKPC expects to be short capacity as compared to its summer load obligation plus planning reserve margin as soon as the 2027/2028 BRA, and short capacity

as compared to just its load obligation by 2035, assuming the Commission approves the reciprocating internal combustion engine (“RICE”) facility requested in PSC Case No. 2024-00310. Without the RICE facility, EKPC expects to be short capacity as compared to its load obligation by as early as the 2030/2031 BRA. The Cooper CCGT has an estimated commercial operation date of December 31, 2030, and this will be offered into the 2031/2032 BRA, which begins June 1, 2031. EKPC anticipates the Cooper CCGT will clear the BRA and then would be obligated to offer that resource into all future BRAs thereafter.

b. EKPC has the opportunity to purchase capacity on a bi-lateral basis in order to hedge its capacity market exposure. However, much like an auction, EKPC is subject to unknown capacity prices available on the bi-lateral market for each delivery year.

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**REQUEST 13**

**RESPONSIBLE PARTY:                Julia J. Tucker**

**Request 13.**                Refer to EKPC's response to Staff's First Request, Item 8.

a.                Confirm if a unit is in emergency status, whether PJM requires the unit's capacity be not counted toward EKPC's capacity obligation, and if so, explain whether EKPC is required to find replacement capacity.

b.                Explain the ongoing actions EKPC must take to maintain Cooper Unit 1 in emergency status. Include in the response the ongoing costs involved with this action and how those costs would be recovered.

c.                Confirm that when a unit is in emergency status, no significant or major unit maintenance may take place.

d.                Explain the timeline when PJM would call upon Cooper Unit 1 to generate power, include the estimated time necessary for the unit to initially transmit power onto the grid, and how long it would take to bring the unit up to full capacity.

**Response 13a through d.**        EKPC would request to take Cooper 1 out of the PJM capacity market. It will need to make that request at least three years prior to the time that it wants the

capacity to be removed. Once the capacity is not obligated to the PJM capacity market, EKPC can choose to operate the unit when it deems it critical to do so, such as during emergency conditions. If the unit is not obligated to the PJM capacity market, then PJM has no authority over the unit or right to call on it. If EKPC makes the unit available to the market, then PJM will direct the dispatch of the unit during the time that it has been made available, but only after EKPC chooses to make the unit available to the market. EKPC would need to maintain the unit in a state that is capable of operating in order to consider having it available during emergencies, but it would be EKPC's choice as to how much maintenance would be conducted along with when and how much the unit would run.

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**REQUEST 14**

**RESPONSIBLE PARTY:**           **Julia J. Tucker**

**Request 14.**           Refer to EKPC's response to Staff's First Request, Item 13. Refer also to the Application, Direct Testimony of Julia J. Tucker, Exhibits JJT-4-5 and the Direct Testimony of Brad Young page 16, lines 7-8. Even though the four Spurlock units will be capable of burning up to 50 percent fuel gas, explain whether the RTSim production cost modeling limited the units to burn 40 percent fuel gas only for the analysis or whether the RTSim model was allowed to vary proportions of coal and fuel gas as forecast input prices varied.

**Response 14.**           The RTSim model assumed 40 percent natural gas, 60 percent coal, as this was the known design specification at the time the model was ran to support this case filing. Early in the design phase, there was a question as to whether Spurlock 3 and 4 would be able to operate with natural gas levels greater than 40 percent as those units depend on a bed of ash circulation within the boiler. With too little ash bed, the circulation could not be maintained and the unit would trip offline. Since running the model, it was determined that the units could support up to 50 percent natural gas co-fire. The model was not allowed to vary the proportions of coal versus

natural gas. It was assumed that natural gas would be available and that emissions limitations would require the Spurlock units to run with natural gas during all hours.

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**REQUEST 15**

**RESPONSIBLE PARTY: Denise Foster Cronin**

**Request 15.** Refer to EKPC's response to Staff's First Request, Item 17. Explain if EKPC currently holds the Capacity Injection Rights (CIR) necessary to interconnect the Cooper CCGT and the Liberty RICE units. If not, state whether EKPC is dependent upon FERC approval of the RRI proposal (including PJM selection) and/or other pending PJM filings in order to obtain them.

**Response 15.** EKPC does not currently hold the Capacity Interconnection Rights (CIR) necessary to connect the Cooper CCGT and Liberty RICE units. Although EKPC intends to apply to use the RRI process should FERC approve PJM's proposal, EKPC is not guaranteed to be accepted. Moreover, EKPC is not limited to the proposed RRI process to obtain the necessary CIRs to connect the Cooper CCGT and Liberty Rice. EKPC may use the FERC approved New Cycle Process in PJM to obtain necessary CIRs to interconnect the Cooper CCGT and Liberty RICE units.

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**REQUEST 16**

**RESPONSIBLE PARTY:                Julia J. Tucker**

**Request 16.**                Refer to EKPC's response to Staff's First Request, Item 23.

a.                Confirm that ACES Power Marketing has not conducted any forecasts or sensitivity analyses regarding coal and natural gas price changes based on increased natural gas generation relative to coal generation and any related effects on natural gas supply and transportation. If ACES Power Marketing has conducted forecasts and/or sensitivity analyses, explain why these were not utilized by EKPC and provide the forecasts or analyses.

b.                Confirm whether PJM has made any forecasts related to coal and natural gas prices based on increased natural gas generation relative to coal generation and any related effects on natural gas supply and transportation prices. If PJM has conducted forecasts and/or sensitivity analyses, explain why these were not utilized by EKPC and provide the forecasts or analyses.

**Response 16.**

a.                The fuel price projections that ACES provides to EKPC are market driven, so any fundamentals implied are embedded in the market quotes. In other words, if the market participants believe that fuel prices will change based on generation expectations, natural gas



supply or natural gas transportation, then that impact is embedded in the total price projections provided.

- b. PJM does not provide coal or natural gas price forecasting services.

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REQUEST 17

RESPONSIBLE PARTY: Brad Young

**Request 17.** Refer to EKPC's response to Staff's First Request, Item 26. Provide the following cost that could be applied to the EIA 2023 combined cycle natural gas (CCNG) construction estimate:

- a. Cost data for the addition of the transmission and substation.
- b. Water treatment.
- c. Deep foundations.
- d. Water storage tanks.
- e. Fuel oil tanks.
- f. The escalation rate for power plant construction from 2022 through 2024.
- g. The EIA 2023 cost was based on an H frame turbine. Recognizing the initial cost of the H class turbine is typically more than the F class turbine, explain the rationale for the higher cost estimate for the F class turbine.

**Response 17.** The cost estimate for the project was developed based on a bottom-up approach utilizing common construction contracts and construction management staff to manage

all aspects of the project. This makes it difficult to provide precise breakout costs for each of the specific items requested. Costs for each requested items were broken out of the existing estimate to the best of EKPC's ability and the following are approximate total costs for each of the items that could be applied to the base plant cost:

- a. Transmission and substation (including network upgrades): \$140M
- b. Water treatment system: \$46M
- c. Deep foundations: \$50M
- d. Water storage tanks: \$13M
- e. Fuel oil storage tanks: \$17M

f. EKPC is unable to provide a specific escalation rate for power plant construction over the time period requested since it is dependent on many different variables. There are varying escalation values for major equipment, balance of plant equipment, materials and labor (by region and skill/trade) on power plant projects. The rates in each of these areas can also vary drastically depending on market forces. Major equipment pricing has seen escalation in the range of 25+ percent on average (some much higher) over the timeframe noted and makes up approximately 30% of the overall project value. Material pricing over the time period has seen mixed results with some pricing coming down from highs experienced post COVID (i.e. steel) while others continued to escalate at higher than typical values (i.e. wire & cable). Labor rates have continued to escalate above the historical average and are on average approximately 5% per year post COVID dramatic escalations. Based on these values, EKPC estimates that the total escalation rate for a power plant project over the 2022 to 2024 time period noted would be in the 15 to 25% range. The estimate for this project did not rely on an escalation rate to determine the overnight costs for the project.

As noted in the original response, costs were developed on a project specific basis using recent market pricing for project specific equipment and construction. Pricing from multiple bidders was utilized whenever possible.

g. An H class turbine combined cycle project would likely cost more than an F class turbine. In either case, the additional costs above and beyond the EIA values noted above would apply.

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**REQUEST 18**

**RESPONSIBLE PARTY: Craig Johnson**

**Request 18.** Refer to EKPC's response to Staff's First Request, Item 32a. Explain whether the Spurlock Unit 1 output will be constrained and derated from its current full load capability when co-firing with 50 percent natural gas and 50 percent coal. If so, provide the amount.

**Response 18.** Please refer to Attachment BY-3 to the Application, which is the project scoping report. In chapter 4.0, Table 4-1, Column 50% Gas, under Net Power (MW) the predicted output is 300. The modeling shows no change in output on Spurlock Unit 1.

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**REQUEST 19**

**RESPONSIBLE PARTY: Craig Johnson**

**Request 19.** Refer to EKPC's response to Staff's First Request, Item 36a. Explain whether the Spurlock Unit 2 output will be constrained and derated from its current full load capability when co-firing with 50 percent natural gas and 50 percent coal. If so, provide the amount.

**Response 19.** Please refer to Attachment BY-3 to the application, which is the project scoping report. In chapter 4.0, Table 4-2, Column 50% Gas, under Net Power (MW) the predicted output is 510. The modeling shows no change in output on Spurlock Unit 2.

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**REQUEST 20**

**RESPONSIBLE PARTY: Craig Johnson**

**Request 20.** Refer to EKPC's response to Staff's First Request, Item 40a. Explain whether the Spurlock Unit 3 output will be constrained and derated from its current full load capability when co-firing with 50 percent natural gas and 50 percent coal. If so, provide the amount.

**Response 20.** Please refer to Attachment BY-3 to the Application, which is the project scoping report. In chapter 4.0, Table 4-3, Column 50% Gas, under Net Power (MW) the predicted output is 268. The modeling shows no change in output on Spurlock Unit 3.

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**REQUEST 21**

**RESPONSIBLE PARTY: Craig Johnson**

**Request 21.** Refer to EKPC's response to Staff's First Request, Item 44a. Explain whether the Spurlock Unit 4 output will be constrained and derated from its current full load capability when co-firing with 50 percent natural gas and 50 percent coal. If so, provide the amount.

**Response 21.** Please refer to Attachment BY-3 to the Application, which is the project scoping report. In chapter 4.0, Table 4-3, Column 50% Gas, under Net Power (MW) the predicted output is 268. The modeling shows no change in output on Spurlock Unit 4.



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REQUEST 22

RESPONSIBLE PARTY: Gregory Cecil

**Request 22.** Provide the 2022 EKPC Integrated Resource Plan (IRP).

**Response 22.** The redacted version is publicly available within PSC Case No. 2022-00098. See attachments *Confidential Staff2.22 – 2022IRP.pdf*, *Confidential Staff2.22 – 2022 Technical Appendix Vol1.pdf*, and *Confidential Staff2.22 – 2022 Technical Appendix Vol2.pdf* for the confidential version.

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**REQUEST 23**

**RESPONSIBLE PARTY: Darrin Adams**

**Request 23.** State the costs of the transmission system required to support the CCGT output and explain how EKPC intends to recover the transmission system related costs.

**Response 23.** EKPC has estimated the costs in the range of \$79,430,000 to \$127,595,000. Actual costs will be dependent in part on which generator-interconnection projects in the PJM interconnection queue in the southern Kentucky region receive an executed Generator Interconnection Agreement (“GIA”) either prior to EKPC executing a GIA or as part of the same PJM study cluster. The high end of the range (\$127,595,000) assumes that no other queue projects in the region receive an executed GIA, thereby allocating all costs of needed network upgrades to the Cooper CCGT project. The low end of the range (\$79,430,000) assumes that all currently known projects in the PJM queue in the region receive an executed GIA, which would result in some of the needed network upgrades to add transmission capacity in the area being implemented to support these prior queue projects (and therefore funded by those project developers).

The costs of the required transmission-facility upgrades/additions will be incorporated into EKPC's transmission formula-rate calculation and will therefore be paid for by transmission customers (including EKPC as a load-serving entity) using the EKPC transmission system.

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REQUEST 24

RESPONSIBLE PARTY: Darrin Adams

**Request 24.** Refer to the Direct Testimony of Don Mosier, page 5, lines 14-19. Provide documentation that demonstrates the instability of the transmission system during Winter Storms Gerri and Elliott.

**Response 24.** See EKPC's responses to Staff's first Request for Information, Item 20a and Joint Intervenors' first Request for Information, Item 23b for information regarding the real-time operational constraints that were experienced during Winter Storm Elliott and the post-event analysis that evaluated the potential repercussions if Cooper Station generation had not been available during the event.

Additionally, see attachment *Staff2.24-1.pdf*, which is a summary report detailing a study that was performed by EKPC Transmission Planning staff in 2024 to simulate the events experienced during Winter Storm Gerri and evaluate various "what-if" analyses to determine potential repercussions of additional transmission and/or generation outages on the system. Exhibit 2 and Tables 5 and 6 of this report provide information regarding the potential system

constraints that could have been experienced if generation had not been available at Cooper Station during the event.

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REQUEST 25

RESPONSIBLE PARTY:           Darrin Adams

**Request 25.**           Refer to the Direct Testimony of Darrin Adams, generally. Provide the detailed evaluation that EKPC utilized to document the transmission system updates that could be implemented to negate the need for new generation sources.

**Response 25.**           See the response to Request #23, part c, of the Joint Intervenors' First Request for Information in this proceeding. Additionally, attachment *Staff2.25.xlsx* provides additional information regarding the evaluation performed by the subject matter expert team to determine the recommended transmission solution if no new generation resources are added in the area.