COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

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

REBUTTAL TESTIMONY OF JULIA J. TUCKER
ON BEHALF OF EAST KENTUCKY POWER COOPERATIVE, INC.

Filed: March 31, 2025

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A F F I D A V I T

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Julia J. Tucker, being duly sworn, states that she has read the foregoing prepared testimony and that he would respond in the same manner to the questions if so asked upon taking the stand and that the matters and things set forth therein are true and correct, to the best of her knowledge, information and belief.

Julia J. Tucker

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

Notary Public

GWYN M. WILLOUGHBY
Notary Public
Commonwealth of Kentucky
Commission Number KYNP38003
My Commission Expires Nov 30, 2025

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND POSITION.

A. My name is Julia J. Tucker. I am Vice President of Power Supply and Planning for East Kentucky Power Cooperative, Inc. ("EKPC"). My business address is 4775 Lexington Road, Winchester, Kentucky 40391.

Q. ARE YOU THE SAME INDIVIDUAL THAT PROVIDED DIRECT TESTIMONY IN THIS CASE?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my rebuttal testimony is to respond to the Direct Testimony of Elizabeth A. Stanton on behalf of the Joint Intervenors. Specifically, I will address issues regarding her assessment of EKPC's long term load forecast, with a focus on its Winter Peak and her assessment of alternative supply resource options; modeling and resource selection methods.

Q ARE YOU SPONSORING ANY ATTACHMENTS TO YOUR REBUTTAL TESTIMONY?

A Yes. I am sponsoring the following:

- Attachment JJT-1 – Press releases from Kentucky's governors announcing new large commercial consumers and expansions that are included in EKPC's long term load forecast
- Attachment JJT-2 – "Market System Definition.pdf"
- Attachment JJT-3 – Testimony of Manu Asthana, President and Chief Operating Officer of PJM Interconnection, LLC provided on March 25, 2025, to the U.S. House of Representatives Committee on Energy and Commerce, Subcommittee on

Energy in the Hearing: "Keeping the Lights On: Examining the State of Regional Grid Reliability"

- Attachment JJT-4 – Power Engineering article "FERC Chairman: Build more Combined Cycle", on Federal Energy Regulatory Commission (FERC) Chairman, Mark Christie's recent presentation at the CERAWeek Conference.

Q. PLEASE SUMMARIZE THE TESTIMONY OF JOINT INTERVENORS' WITNESS STANTON.

A. Witness Stanton recommends that the Commission reject EKPC's CPCN application for the Cooper CCGT project on the grounds that EKPC has not adequately supported its winter peak demand forecast, failed to provide the modeling and analytical support needed to justify the CCGT, and failed to demonstrate that the CCGT is superior to other available alternatives such as battery storage, demand response, or peaking resources.

Q. THE JOINT INTERVENORS' WITNESS STANTON FINDS FAULT WITH EKPC'S SHORT-TERM (THROUGH 2029) LARGE CUSTOMER LOAD FORECASTING AND LABELS IT IS "UNVERIFIED AND OPAGUE" BUT DOES NOT FIND FAULT WITH THE LONG-TERM FORECASTING APPROACH. IS THE SHORT-TERM FORECAST INCORRECT AND DOES IT IMPACT THE NEED FOR THE REQUESTED GENERATION?

A. No the short-term load forecast is not incorrect and yes it does impact the need for the requested generation. EKPC's 2024 Long Term Load Forecast ("LTLF") page 39 shows the annual change in consumers and annual change in class sales. The growth in large commercial sales in 2022 was 353,692 MWh and 2023 was 503,216 MWh. This is the strongest growth in this class in more than 25 years and would unlikely have been captured

by an econometric model. EKPC uses a consensus-based forecasting approach for this class because large commercial consumers and the owner-members are in contact with each other regarding new and expanding loads. In addition to new and expanding loads, EKPC incorporates decreases due to consumers reducing or ceasing operations. EKPC emphasizes the importance of including this input for long-term load forecasting. Excluding known changes to the large commercial class poses a risk to planning and reliability. The facilities requested in this Case are to be installed after 2029, which is based on long term forecast impacts.

Although EKPC cannot disclose confidential information between its owner-members and the owner-members' large customers, there are several publicly available documents that support EKPC's forecast for the growth in large commercial sales. Press releases from Kentucky's governors announcing new large commercial consumers and expansions that are included in EKPC's long term load forecast are listed below and are attached as Attachment JJT-1. This is not an exhaustive list of projects but demonstrates that recent historical and projected growth in the large commercial consumer classis unprecedented growth for Kentucky, and it is reasonable to include this new and expanded load when developing the LTLF.

- Nucor to Double Gallatin County Steel Mill's Capacity with $650 Million Expansion
- Gov. Beshear, Wieland North America Break Ground on $100 Million Copper Recycling Center in Shelby County, Adding 75 Jobs
- Nucor to Build $164 Million Tube Mill, Create 72 Well-Paying Jobs in Gallatin County
- LOTTE Group to Locate $238.7 Million Facility in Elizabethtown, Create 122 Jobs to Serve EV Sector

- Pernod Ricard USA to Create 55 Full-Time Jobs With New $196 Million Distillery in Marion County
- Gov. Beshear Joins INFAC North America to Break Ground on Taylor County Expansion
- Gov. Beshear: Safran Landing Systems Kentucky Confirms Expansion in Boone County, Creating 92 High-Wage Jobs
- Whiskey House of Kentucky Cuts Ribbon on New $130 Million Elizabethtown Operation Creating 100 Full-Time Jobs
- Gov. Beshear Joins Grissan Renewable Energy To Break Ground on $62.7 Million Facility in Marion County Creating 20 Full-Time Jobs
- Gov. Beshear Announces Largest Job-Creation Project in Kentucky Since 2022: Shelbyville Battery Manufacturing To Create 1,572 High-Tech Jobs With Nearly $712 Million Investment
- Gov. Beshear: Bosch Berries Celebrates Grand Opening of New $49.5 Million Agri-Business in Pulaski County, Creating 28 Full-Time Jobs

Q. THE JOINT INTERVENORS' WITNESS STANTON STATES THAT "EKPC MAY HAVE OVERESTIMATED ITS WINTER PEAK LOAD AND ITS WINTER PEAK REQUIREMENTS"[1]. HAS EKPC DEVELOPED A FORECAST BASED ON ITS ACTUAL EXPERIENCES, ECONOMETRICS AND NORMAL WEATHER CONDITIONS?

A. Yes, The chart below shows EKPC's three most recent winter peaks. Each of these peaks are higher than EKPC's 2022 winter peak forecast. Even after weather adjusting and

[1] *See,* Revised Direct Testimony of Elizabeth A. Stanton, p. 18 lines 14-16, (Feb. 20, 2025).

interrupting consumers in the interruptible program, the winter peaks are higher than the 2022 LTLF.

Winter Season	Actual Peak	Weather Adjusted and Interrupted	2022 LTLF
2022 – 23	3,747	3,435	3,289
2023 – 24	3,754	3,702	3,349
2024 – 25	3,744	3,631	3,370

EKPC completed a new load forecast in 2024, which incorporated the data from the December 2022 and January 2024 winter storms. EKPC has a substantial amount of residential load, which is highly responsive to weather conditions. Extreme cold weather drives heating load higher and remains high as long as temperatures are cold. The updated 2024 LTLF showed an expected peak of 3,517 MW for the 2024 – 25 winter peak season. It is closer to actual than the 2022 LTLF but it was still less than what was actually experienced. These results show that EKPC is not over forecasting its winter peak.

Q. IS IT STANDARD INDUSTRY PRACTICE TO DEVELOP A FORECAST BASED ON A UTILITY'S ACTUAL EXPERIENCES, ECONOMETRICS AND NORMAL WEATHER CONDITIONS?

A. Yes.

Q. WITNESS STANTON INDICATES THAT SHE BELIEVES PJM IS FORECASTING SUBSTANTIALLY LESS PEAK LOAD FOR EKPC THAN THE

EKPC FORECAST SHOWS.[2] IS THE COMPARISON OF THE EKPC WINTER PEAK LOAD FORECAST DIRECTLY TO THE REFERENCED PJM LOAD FORECAST ACCURATE? DOES WITNESS STANTON ADEQUATELY ADDRESS THE INFORMATION NEEDED TO BE ABLE TO COMPARE THE TWO FORECASTS ON AN APPLICABLE BASIS?

A. No, the comparison made by Witness Stanton of the EKPC winter peak load forecast directly to the referenced PJM load forecast is not accurate. Furthermore, Witness Stanton does not adequately address the information needed to be able to compare the two forecasts on an applicable basis. Witness Stanton references the 2025 PJM Long-Term Load Forecast Reportwhich lists each transmission owner's ("TO") zone that is included in the forecast. The zone is defined as "areas within the PJM Control Area, as defined in the PJM Reliability Assurance Agreement"[i].

The load that PJM defines as the EKPC Zone is not equivalent to EKPC's load contained in EKPC's 2024 LTLF. The PJM defined EKPC Zone includes load served by Kentucky Utilities and Lousiville Gas & Electric ("KU/LGE") and American Electric Power ("AEP"). The PJM defined EKPC Zone also ***excludes*** EKPC load that is on KU/LGE's, Duke Energy Ohio Kentucky's ("DEOK"), and AEP's systems.

EKPC's load on KU/LGE transmission during Winter Storm Gerri was more than 700 MW (approximately 20% of EKPC's total load during its all time winter peak). To suggest that EKPC should only plan to meet its load based on the PJM load forecast for the EKPC Zone would ignore a significant portion of EKPC load and poses an unreasonable risk to the service and reliability to EKPC owner-members. Refer to the "Market System

[2] *See, Id. at p. 14 lines 6-9.*

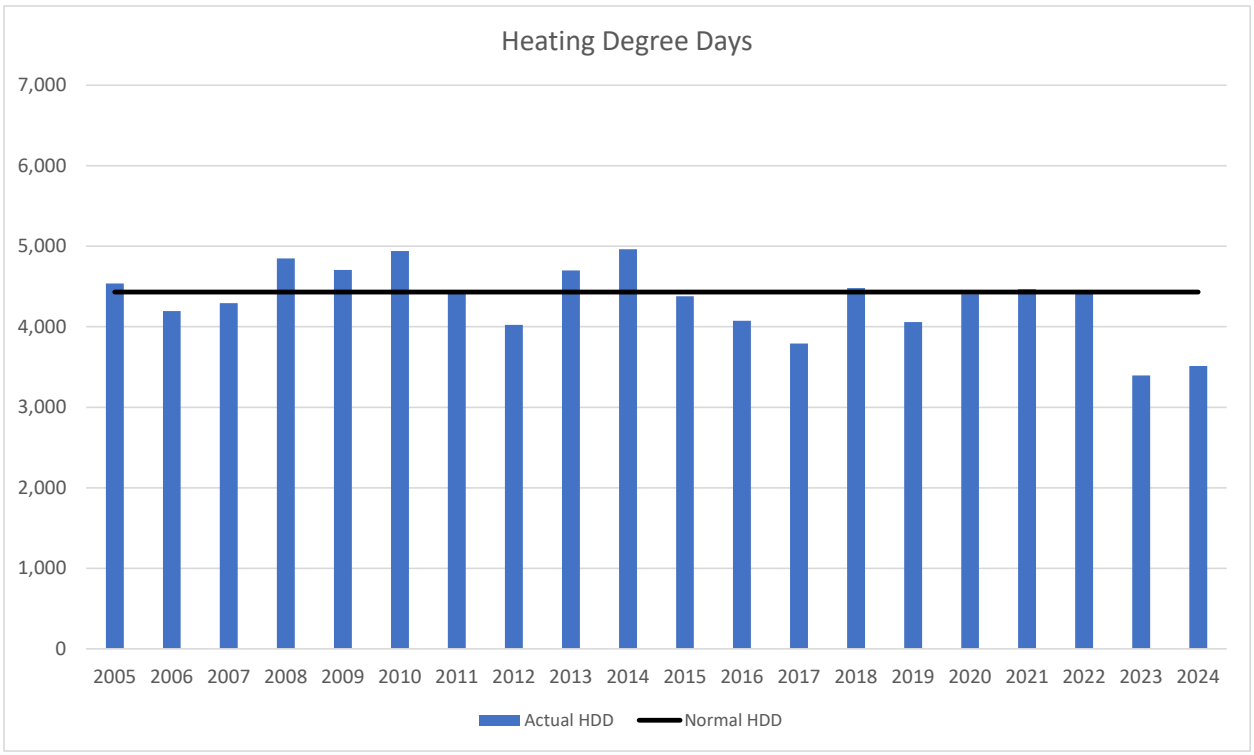
Definition.pdf" for a pictoral representation of EKPC's load which is attached as Attachment JJT-2.

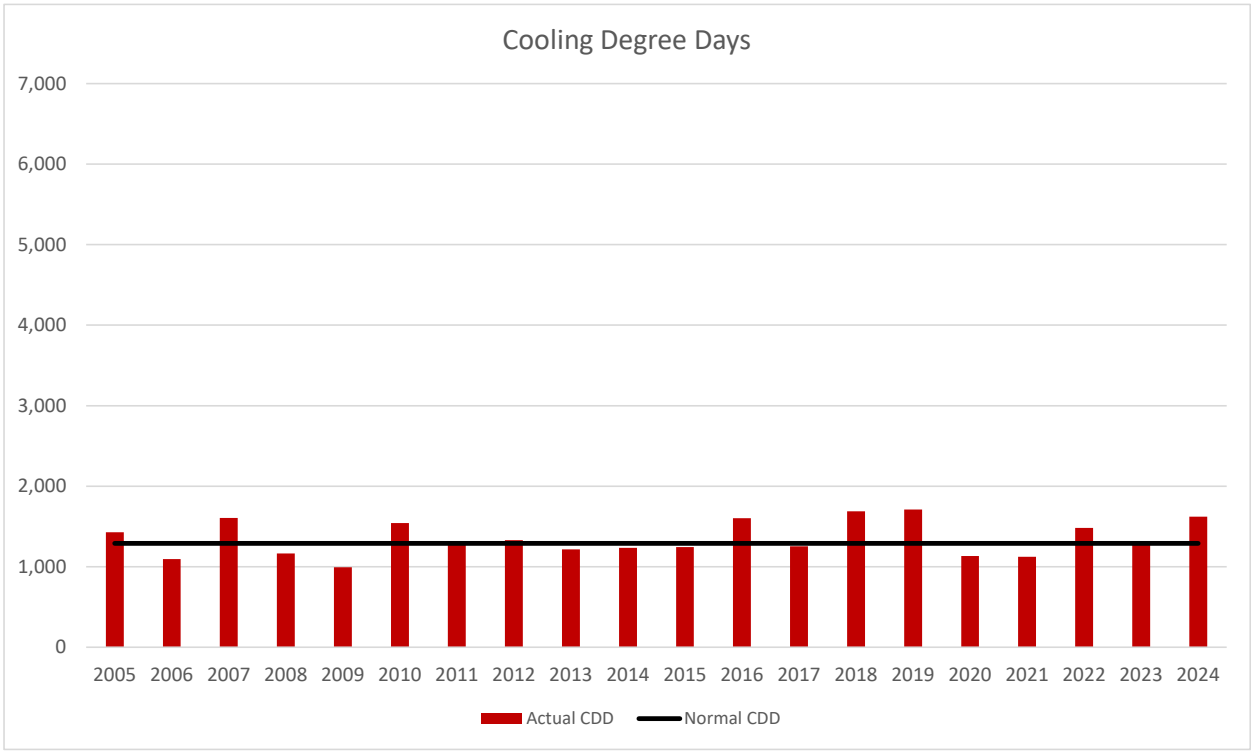
Q. WITNESS STANTON REFERS TO HISTORIC NEGATIVE LOAD GROWTH. IS THIS DATA DUE TO ACTUAL NEGATIVE GROWTH OR A PRODUCT OF WEATHER IMPACTS ON LOAD?

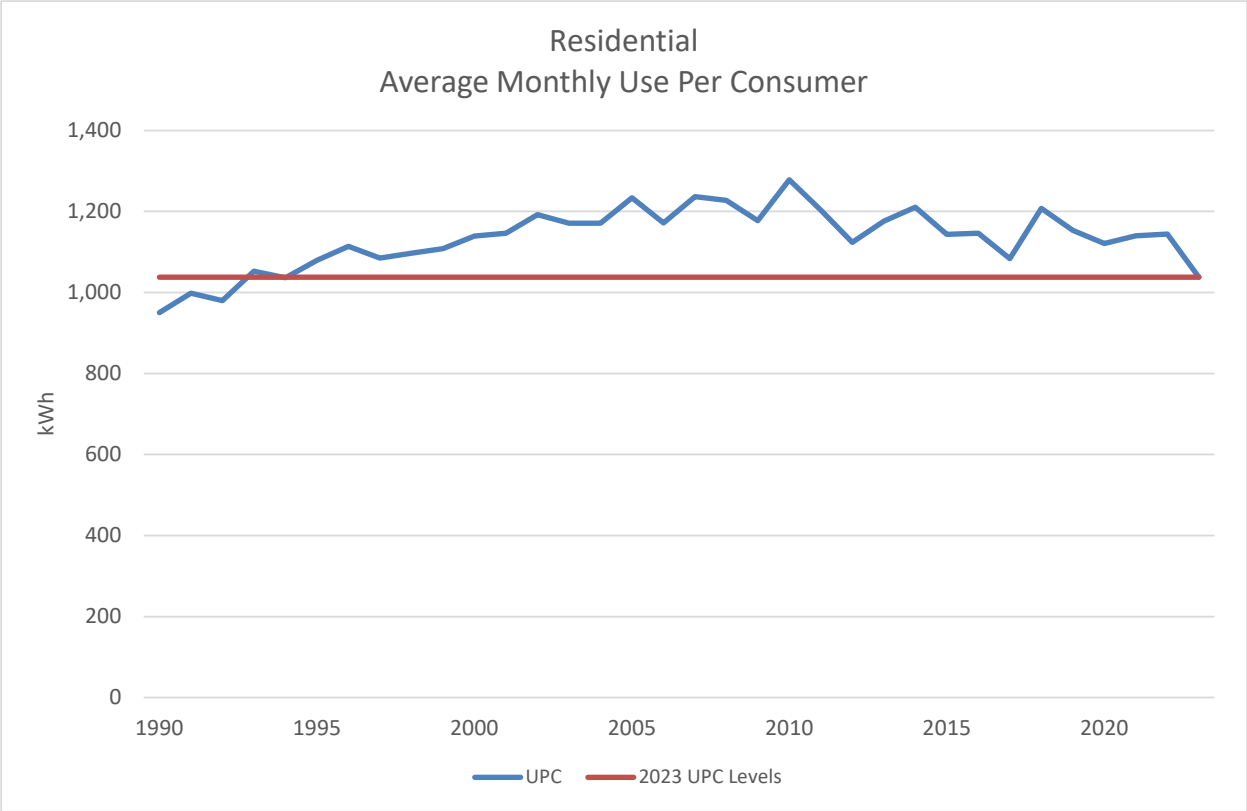
A. It is due to weather effects on load and has been incorrectly compared to a forecast based on normal weather expectations. More than 50% of EKPC's energy sales are to the residential class. The residential class is most sensitive to weather due to home heating and cooling equipment. Refer to the residential summary table and charts below. Residential average monthly use per consumer ("UPC") in 2023 was 1,038 kWh – the lowest per consumer energy usage since 1994. Lower than normal heating degree days ("HDD") due to mild winter weather reduced residential energy sales. EKPC's LTLF assumes normal weather and it is unreasonable to compare negative growth rates due to non-normal weather to the growth rates in the forecast period.

Residential Summary

	Consumers			*Use Per Consumer*			*Class Sales*		
	Annual Average	Annual Change	% Change	Monthly Average (kWh)	Change (kWh)	% Change	Total (MWh)	Annual Change (MWh)	% Change
1990	306,593			951			3,497,016		
1991	314,756	8,163	2.7	998	48	5.0	3,770,594	273,578	7.8
1992	324,205	9,449	3.0	980	-18	-1.8	3,813,231	42,637	1.1
1993	335,031	10,826	3.3	1,052	72	7.3	4,230,152	416,920	10.9
1994	344,516	9,485	2.8	1,036	-16	-1.5	4,284,788	54,637	1.3
1995	354,598	10,082	2.9	1,079	43	4.1	4,592,620	307,832	7.2
1996	364,757	10,159	2.9	1,114	35	3.2	4,875,394	282,774	6.2
1997	376,367	11,610	3.2	1,085	-29	-2.6	4,900,871	25,476	0.5
1998	388,193	11,826	3.1	1,097	12	1.1	5,108,828	207,957	4.2
1999	400,130	11,937	3.1	1,108	11	1.0	5,320,598	211,770	4.1
2000	411,596	11,466	2.9	1,139	31	2.8	5,626,331	305,734	5.7
2001	421,382	9,786	2.4	1,147	7	0.7	5,797,711	171,379	3.0
2002	431,168	9,786	2.3	1,192	45	3.9	6,166,514	368,804	6.4
2003	441,638	10,470	2.4	1,171	-21	-1.8	6,205,196	38,682	0.6
2004	451,117	9,479	2.1	1,171	0	0.0	6,337,580	132,384	2.1
2005	456,104	4,987	1.1	1,234	63	5.4	6,752,547	414,967	6.5
2006	465,748	9,644	2.1	1,172	-62	-5.0	6,548,160	-204,386	-3.0
2007	471,585	5,837	1.3	1,237	65	5.6	6,998,554	450,394	6.9
2008	479,042	7,457	1.6	1,227	-9	-0.8	7,055,277	56,723	0.8
2009	480,527	1,485	0.3	1,177	-50	-4.1	6,789,142	-266,135	-3.8
2010	481,871	1,344	0.3	1,278	100	8.5	7,389,197	600,055	8.8
2011	482,351	480	0.1	1,204	-74	-5.8	6,967,413	-421,784	-5.7
2012	487,769	5,418	1.1	1,124	-80	-6.6	6,577,784	-389,629	-5.6
2013	489,630	1,861	0.4	1,176	52	4.6	6,909,853	332,069	5.0
2014	491,708	2,078	0.4	1,210	34	2.9	7,142,350	232,497	3.4
2015	494,254	2,546	0.5	1,143	-67	-5.5	6,781,622	-360,728	-5.1
2016	497,781	3,527	0.7	1,146	3	0.2	6,847,090	65,468	1.0
2017	500,233	2,452	0.5	1,083	-63	-5.5	6,502,113	-344,977	-5.0
2018	505,322	5,089	1.0	1,208	125	11.5	7,324,079	821,967	12.6
2019	508,561	3,239	0.6	1,153	-55	-4.5	7,036,916	-287,163	-3.9
2020	514,083	5,522	1.1	1,121	-32	-2.8	6,915,401	-121,515	-1.7
2021	521,184	7,101	1.4	1,140	19	1.7	7,127,199	211,798	3.1
2022	525,887	4,703	0.9	1,144	4	0.4	7,218,271	91,072	1.3
2023	530,007	4,120	0.8	1,038	-106	-9.3	6,598,806	-619,465	-8.6


Heating Degree Days
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024
Actual HDD
Normal HDD


Cooling Degree Days
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024
Actual CDD
Normal CDD



Q. DOES WITNESS STANTON DEMONSTRATE A KEEN UNDERSTANDING OF THE ELECTRIC LOAD FORECAST PRESENTED BY EKPC?

A. No. For example, refer to Joint Intervenor's response to EKPC's First Request for Information, Item 1-4(a), where Witness Stanton states "Demand typically refers to annual energy use or sales."[3] This is incorrect. The North American Electric Reliability Corporation ("NERC") defines demand as "the rate at which electric energy is delivered to or by a system or part of a system, generally expressed in kilowatts or megawatts, at a given instant or averaged over any designated interval of time"[4]. This definition of demand is

[3] *See,* Responses of Joint Intervenors to East Kentucky Power Cooperative's First Request for Information, Item 1-4(a), (March 17, 2025).

[4] *See*, https://www.nerc.com/pa/Stand/Version%200%20Relaibility%20StandardsRD/Glossary_Clean_1-07-05.pdf.

used by most electric utilities in tariffs and cases filed with the Kentucky Public Service Commission ("Commission"). Witness Stanton lacks the understanding of fundamental terminology used in the electric utility industry. Witness Stanton makes several references to demand but shows energy in her referenced materials.[5] The distinction between demand and energy is a basic, fundamental concept in the electric utility industry which Witness Stanton clearly does not understand. As a result, by focusing on annual energy usage, her analysis ignores peaks and the need for EKPC to serve that forecasted peak demand instantaneously at that moment in time.

Q. WITNESS STANTON STATES, "JOINT INTERVENORS BELIEVE THAT PRIOR COMMISSION ORDERS DO NOT FORECLOSE EKPC FROM ADDRESSING PEAK DEMANDS DURING EXTREME WINTER WEATHER CONDITIONS THROUGH CONTINUED RELIANCE ON PJM MEMBERSHIP RATHER THAN A NEW 7% WINTER RESERVE MARGIN."[6] DOES EKPC BELIEVE THAT THIS FOLLOWS THE INTENT/GUIDANCE PROVIDED BY THE KENTUCKY PUBLIC SERVICE COMMISSION?

A. No. EKPC is allowed to recover its actual fuel and purchased power costs incurred within a month through the Fuel Adjustment Clause ("FAC") mechanism. The fuel and purchased power costs allowed to flow through the FAC must be at or below the highest cost unit that

[5] *See e.g.,* Revised Direct Testimony of Elizabeth Stanton, p. 7 lines 14-16, ("Past EKPC annual **demand** projections and overestimated customer demand by millions of **megawatt-hours"**) (emphasis added); p. 8, lines 11-12, ("EKPC expects higher growth in customer **demand** than it has seen in the past. EKPC anticipated **MWh sales** growth from 2025-2039....") (emphasis added); p. 9, lines 6-8., ("A review of EKPC's last three annal demand projects (2020, 2022, and 2024, see Figure 2) shows each new projection exceeded EKPC's annual sales (shown in bold). Actual 2023 and 2024 sales were millions of MWhs below projections.") (emphasis added), (Feb. 20, 2025).

[6] *See,* Joint Intervenors' Response to Kentucky Public Service Commission Staff's First Request for Information, Item 2(b), (March 17, 2025).

the utility either owns or has contracted. Market purchases that are in excess of this limit are not allowed to flow through the FAC and must be borne as a cost to the utility. Extreme pricing during high load events can quickly add up to millions of dollars that cannot be recovered through the FAC. EKPC's Locational Marginal Price ("LMP") reached as high as $5,000/MWh for multiple hours during Winter Storm Elliott on December 23 and 24, 2022. For amounts that cannot be recovered through the FAC, a utility's only option is to attempt to seek recovery through a general adjustment of rates, which adds significant time for recovery of these costs. The underlying premise for this constraint is to ensure that utilities are appropriately planning for their load with resources that can provide adequate service and have been approved by the Commission. EKPC is a generation and transmission cooperative that does not have stockholders to cover the added expense of FAC non-recovery. The only option for EKPC's recovery is to use its margins to help cover the added expenses or fail some or all of its financial covenants because it does not have adequate reserves to cover an extreme weather, and therefore price event like Winter Storm Elliott. EKPC believes it would be better to develop and enact prudent plans that help cover the risk of such events. Knowing that its winter peak load has exceeded its forecast and choosing to ignore that exceedance by simply relying on the market for a few hours each winter would be to directly ignore the guidance that has been provided by the Commission.

In the Joint Intervenors' Response to EKPC's First Request for Information Item 1(c), Witness Stanton stated that "EKPC is currently able to cover its winter peak load plus a minimal reserve margin because the PJM RTO has more than 20% capacity reserves during

the winter peak period".[7] When EKPC joined PJM in 2013, EKPC initially believed it could rely on the RTO market for winter power supply. In January 2014, the Polar Vortex occurred, and the PJM market quickly revealed that it was not as flush with excess winter capacity as perceived and that relying on that market could prove to be risky and expensive. Market purchases made during that time period exceeded EKPC's highest cost unit for the FAC, and EKPC was denied recovery of that amount.[8] That is when EKPC became aware of its need to continue to provide adequate power supply for its native load regardless of market conditions. Subsequently, EKPC purchased the Bluegrass Station that has three large combustion turbines and covered its expected winter peaks with known generation capacity for a period of time. EKPC's winter peak loads have now grown past what capacity is available, including the Bluegrass Station. It is prudent for EKPC to construct new generation to have sufficient capacity to meet its peak load.

Q. DOES WITNESS STANTON BELIEVE THAT EKPC SHOULD CARRY A RESERVE MARGIN ON ITS EXPECTED WINTER PEAK LOAD? DO YOU AGREE WITH HER REASONING?

A. No, witness Stanton does not believe that EKPC should carry a reserve margin on its expected winter peak load, and I do not agree with her reasoning. Witness Stanton believes EKPC should rely on the market to cover its load. Witness Stanton is correct that EKPC is using the market for its reserve margin today. However, based on the most recent winters, EKPC has found that solely relying on the market is an undesirable and expensive

[7] *See, Responses of Joint Intervenors to East Kentucky Power Cooperative's First Request for Information, Item 1(c), (March 17, 2025).*

[8] *An Examination of the Application of the Fuel Adjustment Clause of East Kentucky Power Cooperative, Inc. from November 1, 2013, through April 30, 2013*, Case No. 2014-00226, January 30, 2015 Order (Ky. PSC January 30, 2015).

position. Utilities carry reserve margins for two main reasons, to cover higher than expected load due to extreme weather conditions (forecasts are based on normal weather) and for generation unit derates and/or forced outages. Before EKPC joined the PJM market, EKPC was its own balancing authority and EKPC used a 12% capacity margin to cover both of these types of events.

EKPC utilizes the load forecast to project future capacity and energy needs. The 2024 LTLF serves as the basis for evaluating resource planning needs. A Reserve Margin is then added to the base forecast to account for unknown risks in weather and generation availability. The base forecast plus Reserve Margin constitutes the forecasted capacity need. The Reserve Margin of 7% for winter peak represents a significant change from EKPC's 2022 IRP capacity reserve methodology which assumed a 0% Reserve Margin. This change is driven by two risks associated with winter peaks: higher than anticipated demand driven by extreme cold weather events (Winter Storms Elliott and Gerri) and generator outage probability. EKPC is a winter-peaking system; and thus, it is necessary and reasonable to plan for a generation portfolio to both meet expected forecasts and account for these unknown risks. On average, the actual peak load during those events was 12% higher than forecasted. A portion of that increase is included in the revised 2024 LTLF; however, there remains the risk of an unexpected extreme weather event or generator outage. EKPC quantified this risk by analyzing the 1 in 10 probability of extreme weather events and spreading that risk over the planning horizon, with an extreme weather event occurring every two years for a 48-hour period within each of those two-year periods. This is consistent with actual events in Winter Storms Elliott and Gerri, which were multiple-day, cold weather events, driving load saturation from residential consumption.

The Reserve Margin of 7% reflects this inherent risk above the base forecast and enables EKPC to increase reliability while also improving the owner-member's hedge against PJM energy market prices during peak winter periods.

Carrying an adequate reserve margin also helps to address EKPC's exposure to potential Performance Assessment Intervals ("PAI") penalties that can occur in the PJM market when load is high, and generators are not performing as expected.

EKPC believes this is still a conservative approach and does not overestimate its generation needs but does help to address its risk of incurring abnormal load / generation conditions.

Q. WITNESS STANTON STATES IN THE JOINT INTERVENORS' RESPONSE TO EKPC'S FIRST REQUEST FOR INFORMATION ITEM 6(a) THAT "THE NUMBER OF HOURS PER YEAR THAT A UTILITY CAN REASONABLY PLAN FOR ITS LOAD TO EXCEED ITS INSTALLED CAPACITY DEPENDS ON MULTIPLE FACTORS"[9]. DO YOU BELIEVE THIS REPRESENTS PRUDENT UTILITY PLANNING PRACTICES?

A. No, I do not believe this represents prudent utility planning practices. In Case No. 2012-00169 issued on 12//21/2012, the Commission stated, "The Commission further finds that approval of EKPC's Application will not diminish the Commission's jurisdiction or authority with respect to:…(3) EKPC's obligation to provide bundled generation and transmission service to its members"[10]. EKPC believes that obligation occurs every hour of the year, nothing less. A portion of that obligation can be met with programs that alter

[9] *See,* Joint Intervenors' Response to East Kentucky Power Cooperative's First Request for Information, Item 6(a), (March 17, 2025).

[10] *Application of East Kentucky Power Cooperative, Inc. to Transfer Functional Control of Certain Transmission Facilities to PJM Interconnection, LLC*, Case No. 2012-00169, December 21, 2012 Order (Ky. PSC, Dec 21, 2012).

demand, but the net demand must be met every hour. EKPC's peak load expectations are net of load that can be interrupted or moved to another time period. Planning to not be able to provide service to all load each hour introduces a significant risk to the electric system. It not only assumes that forecasts are precise enough to truly reflect what will happen under all conditions, it assumes every operating condition can be accurately forecasted and expected. Prudent planning practices have utilities developing plans and resources to be able to serve all of its load under multiple system contingencies including extreme weather conditions, poor operating conditions and a combination of those conditions.

Q. WITNESS STANTON STATES IN HER TESTIMONY THAT "EKPC ALSO FAILS TO APPROPRIATELY CONSIDER OR MODEL ALTERNATIVE PEAKING RESOURCES SUCH AS STORAGE, STORAGE PLUS SOLAR, OR DEMAND RESPONSE."[11] DO YOU AGREE THAT EKPC FAILED TO APPROPRIATELY CONSIDER ALTERNATIVES? WHY?

A. No I do not agree that EKPC failed to appropriately consider alternatives. Witness Stanton's methodologies work well in a robust electric system that has adequate reserves and resources. The current state of the system is signaling the need for additional secure, reliable and dispatchable resources. Alternative resources, such as solar, wind, virtual power plants, etc., have replaced traditional dispatchable resources to the point that there are multiple concerns with the reliability and adequacy of generation. Manu Asthana, President and Chief Operating Officer of PJM Interconnection, LLC recently provided testimony on March 25, 2025 to the U.S. House of Representatives Committee on Energy and Commerce, Subcommittee on Energy in the Hearing: "Keeping the Lights On:

[11] *See,* Revised Direct Testimony of Elizabeth A. Stanton, p. 18 lines 9-10, filed Feb. 20, 2025.

Examining the State of Regional Grid Reliability".[12] Mr. Asthana stated that there is "significant new demand forecasted to enter the system, due primarily to data center proliferation but also due to expansion of the electric vehicle market, electrification of building heating systems and growth in U.S. manufacturing."[13] He went on to say, "[a]fter more than a decade of mostly flat demand growth, these developments are welcome because they represent economic development."[14] While EKPC might not see all of these growth sectors directly on its system, EKPC will still be impacted by this growth in the PJM system. The additional load will move the marginal unit cost for the entire system as more resources are required to be dispatched to meet load and the higher cost units will start setting the marginal cost in the market more often. This drives up the cost and risk of depending on the market too much.

Additionally, Mr. Asthana stated, "the pace of retirements of existing dispatchable fossil-based resources, largely due to state and federal policies, is clearly outpacing the rate of construction of new resources, shown in Figure 4."[15]

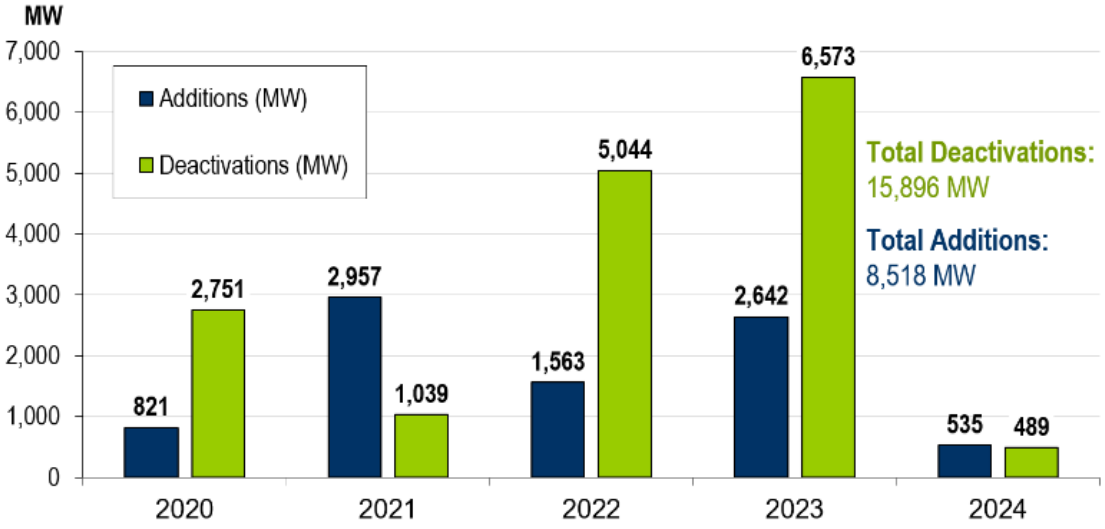
[12] https://d1dth6e84htgma.cloudfront.net/03_25_2025_ENG_Testimony_Asthana_dcac17e12c.pdf. A hardcopy of Manu Asthana's Testimony is also provided as Attachment JJT-3.

[13] *Id.* at 1.

[14] *Id.* at 4.

[15] *Id.*

Figure 4. Deactivations and Additions – Estimated Unforced Capacity MW (Based on 2026/2027 BRA ELCC Class Averages)



Mr. Asthana also stated, "Although today the category of dispatchable generators largely refers to fossil-fuel based resources, longer duration batteries and potentially other technologies could also serve in this role in the future to the extent they can become more cost-effective and be deployed at scale."[16]

In addition to Mr. Asthana's testimony, Federal Energy Regulatory Commission (FERC) Chairman, Mark Christie, recently presented at the CERAWeek Conference and his remarks were captured in the Power Engineering article, "FERC Chairman: Build more Combined Cycle"[17] The following are excerpts from the article regarding Chairman Christie's remarks:

> "We're seeing load forecasts that, in my experience as a state regulator, are mind boggling," said Christie. Renewable energy resources, while growing quickly, are weather-dependent and can't be relied upon all the time. "It's not enough to have enough power supply on average from your different resources over the course of the year," said Christie. "We have to have sufficient power supplies

[16] *Id*. at 6.

[17] *See*, https://www.power-eng.com/gas/combined-cycle/ferc-chairman-build-more-combined-cycle/

> at peak times." Citing the example of PJM Interconnection, the largest grid operator in the U.S., which hit an all-time winter peak demand in January 2025, Christie noted that 88% of the power generation during that peak came from dispatchable resources. This included 44% from natural gas, 22% from nuclear and 22% from coal. Meanwhile, wind contributed only 2.4%, and solar was largely ineffective due to the pre-dawn peak. The challenge of skyrocketing demand is further compounded by the retirement of aging dispatchable units, primarily coal, in PJM and other regions. One of the fundamentals of the energy industry is each form of generation has its trade-offs. Coal, while it provides baseload generation, continues to be phased out in the U.S. for environmental reasons. It's been more than a decade since the last new coal plant came online in the U.S., and there are no plans for new coal generation. Nuclear power, consistent and reliable once built, has extraordinarily expensive CAPEX and takes a long time to build. Smaller, more modular units, with the promise of a faster and cheaper build, are still years away and far from a sure bet. Simple cycle gas turbines, commonly used in peaking power plants because of their rapid startup capabilities and ability to quickly respond to fluctuating demand, will continue to be built. But Christie says it's combined cycle units that are the hero of this story, at least for now, due to their high efficiency and use as baseload power resources. "When you run a roll call, it doesn't take long to get to combined cycle gas as a baseload generating resource of choice," he said.[18]

A detailed optimization model is not needed to qualitatively ascertain what generating options should be considered. EKPC knows the market is seeking dispatchable resources. Not only is the market becoming lean with dispatchable resources, EKPC's peak load has grown to the point that EKPC cannot cover the peak and has no reserves to rely on. EKPC needs to stay with proven technologies, being a demonstration site introduces much risk in the future to deal with unknown operating issues with new technologies. EKPC runs with a narrow margin for finances, any unexpected expenses cause disruption and accelerate rate cases. Proven dispatchable technologies using natural gas, coal, nuclear, or water for fuels were the only technologies considered. Nuclear, both large traditional technologies

[18] *Id.*

and small modular reactors, are too risky for the EKPC system. EKPC cannot afford the financial risk associated with these units at this time. Existing environmental and operational constraints make the development of a new coal plant unfeasible currently. Hydro is well proven and known, however, development of a new facility from initial licensing to completion is very time intensive and costly. EKPC has looked for existing hydro facilities from which to develop a Purchased Power Agreement (PPA). EKPC issued a Request for Proposals ("RFP") for up to 300 MW of renewable generation in 2024. The results of that RFP were used in the recent analysis for new solar development, but that's not a dispatchable resource. Solar could become dispatchable if paired with batteries, however, they are currently not cost-effective. As Mr. Asthana stated in his testimony "longer duration batteries and potentially other technologies could also serve in this role in the future to the extent they can become more cost-effective and be deployed at scale"[19]. EKPC did move forward attempting to enter into a long-term agreement for the hydro PPA. Negotiations have recently broken down due to another bidder offering better terms. This illustrates the risk of depending on others for power supply. The only other dispatchable fuel source remaining is natural gas.

The optimization model could be run to compare peaking combustion turbines (CT), reciprocating internal combustion engines (RICE) and combined cycle gas turbine (CCGT) facilities. However, the optimization model will not consider the strategic advantages of one technology over another, and those differences have become very apparent in the last few years of operation.

[19] *See,* Mr. Asthana's testimony p. 6.

The combustion turbines offer a lower installation cost than the other two technologies but operate at a higher heat rate (less fuel efficient). Combustion turbines dispatch intermittently and are generally expected to run 20% or less of the time. This sporadic operation profile makes purchasing firm gas delivery to the unit extremely expensive on a $/MWh fired basis and generally does not make economic sense to do so. Without firm gas pipeline transmission, then the gas commodity cannot be purchased forward to hedge the price of the fuel that will be burned. It is possible to utilize a third party's firm transmission at a cost. However, again because of the sporadic, intermittent dispatch of the units, it is very difficult to effectively hedge the forward price of the fuel for these units. EKPC has experienced during the past three winter peak conditions, that natural gas is expensive and hard to secure during extreme winter weather conditions. A combustion turbine, does provide dispatchable generation but not at a known price. Combustion turbines are subject to real-time gas prices and those prices double or triple during extreme winter weather conditions. The technology is proven.

The RICE units offer a better heat rate than the CT, so they run more often. However, they are not as fuel efficient as the CCGT. The RICE units are expected to run predictably enough to be able to economically justify firm gas pipeline transmission and provide the ability to hedge the fuel forward in a systematic manner. The technology is proven. These units are more flexible in their dispatch and offer great potential in the future to better follow the system as solar is added. EKPC has requested to build such a unit, as part of its comprehensive plan to serve EKPC's forecasted load. An economic comparison was made between the RICE and the PJM market, the CT and the PJM market and the RICE and the

CT. The optimization model would not take into account the ability to hedge the gas with the RICE but not the CT, it is not modeling level information.

The CCGT has a higher installation cost but a better heat rate or it is more fuel efficient. The technology is proven with many plants in service. The CCGT will be dispatched most of the time and will be considered baseload. This type of operation supports the economics of buying firm gas pipeline transportation and being able to hedge the delivered price of gas forward. The economics of this unit compared to the PJM market is positive, meaning it is a good investment for the system. EKPC is seeking to add one of these units to its system in this application. In summary, industry leaders concur that the eastern interconnect electric system needs additional dispatchable generation due to load growth and retirements driven by policy. EKPC has a need for additional generation to ensure it has adequate resources to serve its owner-members load. The benefit of the assets is greatly enhanced when the fuel supply can be contracted ahead of time and the price known. An optimization run would not take all of these factors into account, so it adds no value to this case.

Q. PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY.

A. Witness Stanton's recommendation to reject EKPC's CPCN application for the Cooper CCGT project and the Cooper 2 Co-firing modification on the grounds that EKPC has not adequately supported its winter peak demand forecast, failed to provide the modeling and analytical support needed to justify the projects, and failed to demonstrate that the CCGT and Co-firing are superior to other available alternatives such as battery storage, demand response, or peaking resources poses a reliability and economic risk to the EKPC Owner Members and does not comply with previous Orders entered from the Kentucky Public

Service Commission. EKPC's actual winter peak loads have already exceeded the levels expected in the LTLF, yet the witness still contends that the peak is overstated. Industry leaders are calling for more dispatchable, dependable generation resources to bolster the reliability of the electric grid because dispatchable units have been forced into retirement too quickly due to public policies and have been replaced with alternative non-dispatchable renewable resources. Yet, the Witness is recommending more of the same resources that are driving these concerns.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, it does.

[i] *See, 2025 PJM Long-Term Load Forecast Report, pp. 1-2, (Jan. 24, 2025).*