

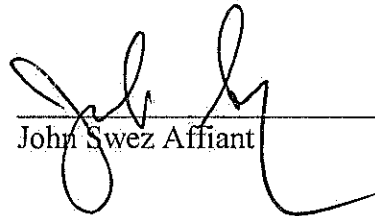
KyPSC Case No. 2024-00285
TABLE OF CONTENTS

<u>DATA REQUEST</u>	<u>WITNESS</u>	<u>TAB NO.</u>
STAFF-DR-03-001	Matthew Kalemba John Swez	1
STAFF-DR-03-002	Matthew Kalemba.....	2
STAFF-DR-03-003 CONF	John Swez	3
STAFF-DR-03-004	John Swez	4
STAFF-DR-03-005	Matthew Kalemba John Swez	5
STAFF-DR-03-006 CONF	John Swez	6
STAFF-DR-03-007	John Swez	7
STAFF-DR-03-008	Matthew Kalemba.....	8

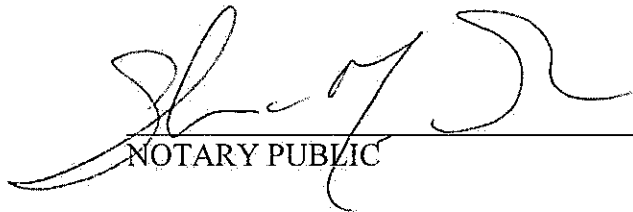
VERIFICATION

STATE OF NORTH CAROLINA)
) SS:
COUNTY OF MECKLENBURG)

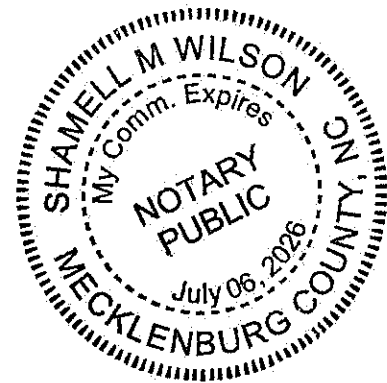
The undersigned, John Swez, Managing Director Trading & Dispatch, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of his knowledge, information, and belief.


John Swez Affiant

Subscribed and sworn to before me by John Swez on this 17th day of December 2024.


NOTARY PUBLIC

My Commission Expires:



VERIFICATION

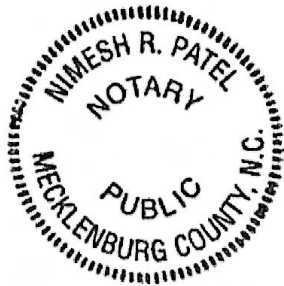
STATE OF NORTH CAROLINA)
) SS:
COUNTY OF MECKLENBURG)

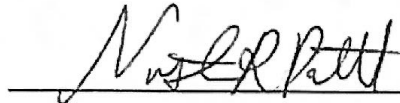
The undersigned, Matt Kalemba, Vice President Integrated Resource Planning, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of his knowledge, information and belief.



Matt Kalemba Affiant

Subscribed and sworn to before me by Matt Kalemba on this 18 day of Dec, 2024.





NOTARY PUBLIC

My Commission Expires: **My Commission Expires
Nov 7, 2029**

Duke Energy Kentucky
Case No. 2024-00285
STAFF Third Set of Data Requests
Date Received: December 16, 2024

STAFF-DR-03-001

REQUEST:

Refer to Duke Kentucky's response to Commission Staff's First Request for Information (Staff's First Request), Item 13. Explain what forecast the Base Residual Auction (BRA) clearing prices were assumed in the various analysis stages to arrive at Duke Kentucky's preferred portfolio.

RESPONSE:

Referring to Case No. 2024-00197, there is no Base Residual Auction (BRA) capacity price forecast utilized in the Company's IRP process to arrive at the Company's preferred portfolio. Referring to Case No. 2024-00285, Attachment JDS-1, the Company utilized a range of probable BRA capacity price forecasts to create this attachment.

Additionally, please refer to the response to STAFF-DR-03-002 for additional information.

PERSON RESPONSIBLE: Matthew Kalembe
John Swez

Duke Energy Kentucky
Case No. 2024-00285
STAFF Third Set of Data Requests
Date Received: December 16, 2024

STAFF-DR-03-002

REQUEST:

Confirm the Integrated Resource Plan (IRP) filed in Case No. 2024-00197¹ assumes that Duke Kentucky remains a fixed resource requirement (FRR) participant in PJM.

RESPONSE:

The planning reserve margin used in the IRP is based on the PJM Installed Reserve Margin (IRM), which is the same as the reserve margin for the FRR construct. Additionally, since the Company cannot project future Capacity Clearing Prices, the Company would have used this same Reserve Margin whether or not the Company assumed it became an RPM participant. Therefore, the decision to remain an FRR participant or move to an RPM designated participant was not an explicit planning assumption that was needed to be made in the development of the IRP. Said differently, the IRP portfolio is not impacted by the Company's decision to remain as an FRR participant or to convert to an RPM participant.

PERSON RESPONSIBLE: Matthew Kalemba

¹ Case No. 2024-00197, *Electronic 2024 Integrated Resource Plan of Duke Energy Kentucky, Inc.* (filed June 21, 2024), 2024 IRP.

PUBLIC STAFF-DR-03-003

REQUEST:

Refer to the Direct Testimony of John Swez (Swez Direct Testimony), generally. Explain whether being an FRR or a reliability pricing model (RPM) designated PJM participant affects how Duke Kentucky intends to bid the East Bend and Woodsdale generation units into the BRA and subsequent incremental auctions. If the designation matters, explain the impact.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET

While participating as an FRR member, the Company may make an offer for East Bend or Woodsdale for the excess amount of capacity above that needed to satisfy the FRR plan. The quantity of the offered amount incorporates the implication of being an FRR participant, namely the required 3% FRR holdback. Additionally, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

PERSON RESPONSIBLE: John Swez

**Duke Energy Kentucky
Case No. 2024-00285
STAFF Third Set of Data Requests
Date Received: December 16, 2024**

STAFF-DR-03-004

REQUEST:

Refer to the Swez Direct Testimony, page 21 and Duke Kentucky's response to Staff's First Request, Item 13. It appears that if Duke Kentucky receives authorization to change its PJM designation to RPM and participate in the BRA, then its generation resources would constitute additional supply to the seasonal capacity markets.

RESPONSE:

Duke Energy Kentucky generation resources would not constitute additional supply to the PJM capacity markets if Duke Energy Kentucky received authorization to change its PJM designation to RPM. The only thing that could arguably be considered additional supply would be the elimination of the 3% holdback that is currently required under FRR prior to selling excess capacity into the BRA. This amount is currently approximately 24 MW.

PERSON RESPONSIBLE: John Swez

Duke Energy Kentucky
Case No. 2024-00285
STAFF Third Set of Data Requests
Date Received: December 16, 2024

STAFF-DR-03-005

REQUEST:

Explain whether Duke Kentucky has considered and factored in the potential effects of additional supply in its forecasting of BRA and Incremental auction clearing prices. If so, explain how Duke Kentucky accounted for changes both in its cost and benefit calculations and in its IRP analyses. If not, explain why not.

RESPONSE:

The Company has not factored in additional supply in the IRP analysis. The Company cannot project BRA or incremental auction clearing prices and the impact that would have on the planning reserve margin. Additionally, using the PJM Installed Reserve Margin (IRM), or FRR planning reserve margin, is a reasonable proxy for future long-term planning reserve requirements.

Referring to the Case No. 2024-00285, the Company utilized a range of probable BRA capacity prices in its analysis.

PERSON RESPONSIBLE: Matthew Kalemba
John Swez

PUBLIC STAFF-DR-03-006

REQUEST:

Explain whether Duke Kentucky has factored into its analyses changes to the Effective Load Carrying Capability (ELCC) methodology in future BRAs or PJM's anticipated move to a seasonal auction. If so, explain how. If not, explain why not.

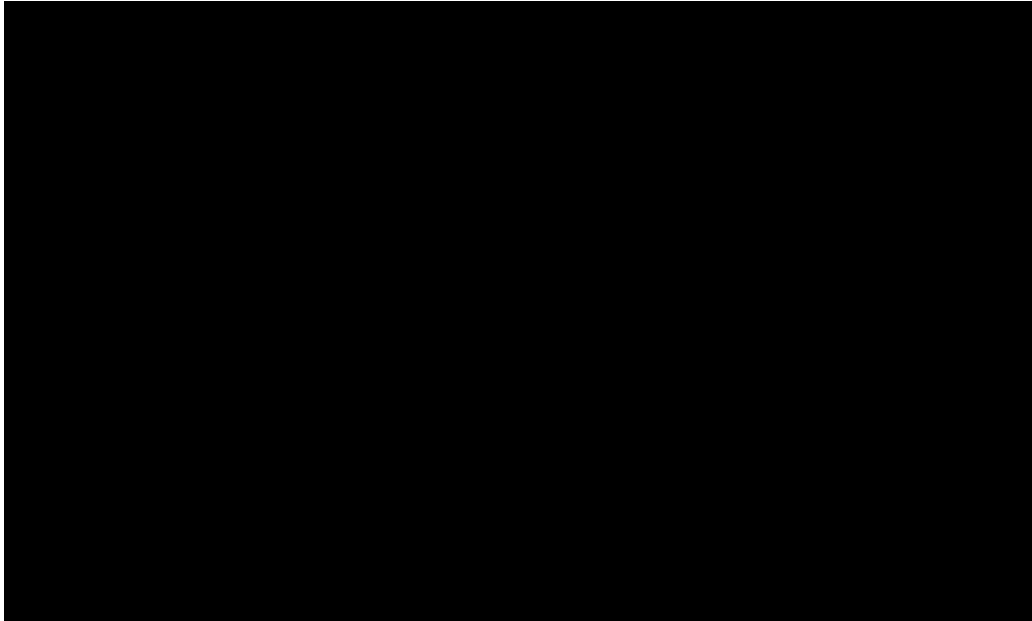
RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET

For the response to this question, two different aspects of ELCC are discussed: (1) the impact of ELCC methodology changes on the overall Duke Energy Kentucky (DEK) supply/demand position, and (2) the impact of ELCC methodology changes on the decision to pursue a change from the FRR to RPM capacity construct.

1) Impact of ELCC on the overall DEK supply/demand position:

The change in ELCC methodology started with the 2025/2026 delivery year. Prior, generation accreditation used the 1-EFORd method. Since the changes in ELCC methodology impacted both the Company's customer demand and resources, both are discussed below. Referring to AG-DR-02-005 Confidential Attachment from Case No. 2024-00197, the Company's total resources (cell J134 on each respective sheet) and the Company's total customer load plus reserve obligation (cell D24 on each respective sheet) for the 2020/2021 through 2026/2026 delivery years are:



Note: the changes in ELCC methodology started with the 2025/2026 delivery year.

Although both the amount of total resources and load plus reserve margin decreased starting with the ELCC methodology changes in 2025/2026, the decrease in load plus reserve margin was greater than the decrease in the amount of total resources; thus, the Company's Net Position (or difference) increased. Thus, the ELCC methodology changes, all else being equal, resulted in an increased Net Positive Long Position in the first year of the new ELCC methodology.

2) Impact of ELCC on decision to pursue change from FRR to RPM:

The analysis completed in Case No. 2024-00285, Attachment JDS-1, was designed and completed before the recent PJM ELCC methodology change was made for the 2025/2026 Delivery Year (please refer to the response to STAFF-DR-01-011). While the math used in the analysis doesn't change, the Company's position along the Vertical Y-

Axis in the Heat Map changes because of the ELCC methodology change. Thus, the heat map analysis applies under both the EFORd and ELCC methods.

The purpose of the analysis completed in Case No. 2024-00285 was to help determine which capacity market participation, either FRR or RPM, was in the best interest of customers within a range of probable Company Net Positions and at a range of auction clearing prices. Due to the number of variables contained in Attachment JDS-1, the impact that a change in ELCC has on the decision to participate as either a FRR or RPM cannot specifically be determined from this attachment. This is because there are multiple variables that impact the calculations within Attachment JDS-1, specifically the Net Position (which includes the impact of ELCC), Base Residual Auction clearing prices, Incremental Auction clearing prices, the FRR holdback amount, the amount and cost of bilateral capacity purchased, and any FRR deficiency penalty. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The Heat Map

completed in Case No. 2024-00285 is included below for convenience.

1

Table 1: “Heat Map” - Annual Financial Impact of FRR vs. RPM

FRR - RPM		BRA Clearing Price, \$/MW-Day									
		50	100	150	200	250	300	350	400	450	500
DEK Portfolio Length Long (Positive) or Short (Negative) Position <small>(Position = Length before holdback or Short divided by Load Obligation)</small>	9%	\$ 584,584	\$ 855,998	\$ 814,242	\$ 459,316	\$ (334,918)	\$ (1,644,143)	\$ (2,145,504)	\$ (2,711,820)	\$ (3,343,090)	\$ (4,039,313)
	8%	\$ 591,008	\$ 865,405	\$ 823,190	\$ 464,363	\$ (338,598)	\$ (1,662,210)	\$ (2,169,081)	\$ (2,741,620)	\$ (3,379,827)	\$ (4,083,701)
	7%	\$ 597,432	\$ 874,811	\$ 832,137	\$ 469,411	\$ (342,279)	\$ (1,680,278)	\$ (2,192,658)	\$ (2,771,421)	\$ (3,416,564)	\$ (4,128,089)
	6%	\$ 603,856	\$ 884,218	\$ 841,085	\$ 474,458	\$ (345,959)	\$ (1,698,345)	\$ (2,216,235)	\$ (2,801,221)	\$ (3,453,301)	\$ (4,172,477)
	5%	\$ 610,280	\$ 893,624	\$ 850,033	\$ 479,506	\$ (349,640)	\$ (1,716,413)	\$ (2,239,812)	\$ (2,831,021)	\$ (3,490,039)	\$ (4,216,865)
	4%	\$ 616,704	\$ 903,031	\$ 858,981	\$ 484,553	\$ (353,320)	\$ (1,734,480)	\$ (2,263,389)	\$ (2,860,821)	\$ (3,526,776)	\$ (4,261,253)
	3%	\$ 623,128	\$ 912,437	\$ 867,928	\$ 489,601	\$ (357,000)	\$ (1,752,548)	\$ (2,286,966)	\$ (2,890,622)	\$ (3,563,513)	\$ (4,305,641)
	2%	\$ 649,846	\$ 962,432	\$ 937,758	\$ 575,824	\$ (259,211)	\$ (1,648,851)	\$ (2,168,485)	\$ (2,758,070)	\$ (3,417,604)	\$ (4,147,089)
	1%	\$ 777,523	\$ 1,214,345	\$ 1,310,465	\$ 1,065,883	\$ 343,374	\$ (939,401)	\$ (1,343,291)	\$ (1,817,846)	\$ (2,363,065)	\$ (2,978,948)
	0%	\$ 905,200	\$ 1,466,257	\$ 1,683,171	\$ 1,555,943	\$ 945,958	\$ (229,950)	\$ (518,097)	\$ (877,622)	\$ (1,308,525)	\$ (1,810,806)
	-1%	\$ 543,387	\$ 1,158,752	\$ 1,426,534	\$ 1,346,731	\$ 779,344	\$ (359,625)	\$ (601,956)	\$ (916,379)	\$ (1,302,893)	\$ (1,761,498)
	-2%	\$ (53,167)	\$ 582,973	\$ 868,087	\$ 802,175	\$ 243,852	\$ (891,713)	\$ (1,121,762)	\$ (1,424,616)	\$ (1,800,276)	\$ (2,248,741)
	-3%	\$ (649,721)	\$ 7,193	\$ 309,640	\$ 257,619	\$ (291,640)	\$ (1,423,801)	\$ (1,641,568)	\$ (1,932,854)	\$ (2,297,659)	\$ (2,735,983)
	-4%	\$ (1,246,274)	\$ (568,587)	\$ (248,807)	\$ (286,937)	\$ (827,133)	\$ (1,955,889)	\$ (2,161,374)	\$ (2,441,092)	\$ (2,795,042)	\$ (3,223,226)
	-5%	\$ (1,842,828)	\$ (1,144,366)	\$ (807,255)	\$ (831,493)	\$ (1,362,625)	\$ (2,487,977)	\$ (2,681,180)	\$ (2,949,329)	\$ (3,292,425)	\$ (3,710,468)
	-6%	\$ (2,439,382)	\$ (1,720,146)	\$ (1,365,702)	\$ (1,376,049)	\$ (1,898,117)	\$ (3,020,065)	\$ (3,200,986)	\$ (3,457,567)	\$ (3,789,809)	\$ (4,197,711)
	-7%	\$ (3,035,935)	\$ (2,295,926)	\$ (1,924,149)	\$ (1,920,605)	\$ (2,433,609)	\$ (3,552,153)	\$ (3,720,791)	\$ (3,965,805)	\$ (4,287,192)	\$ (4,684,953)
	-8%	\$ (3,632,489)	\$ (2,871,705)	\$ (2,482,596)	\$ (2,465,160)	\$ (2,969,102)	\$ (4,084,241)	\$ (4,240,597)	\$ (4,474,042)	\$ (4,784,575)	\$ (5,172,196)
	-9%	\$ (4,229,043)	\$ (3,447,485)	\$ (3,041,043)	\$ (3,009,716)	\$ (3,504,594)	\$ (4,616,328)	\$ (4,760,403)	\$ (4,982,280)	\$ (5,281,958)	\$ (5,659,439)

Positive value means FRR is a **better** financial outcome than RPM Capacity Construct annually for the amount shown.
Negative value means FRR is a **worse** financial outcome than RPM Capacity Construct annually for the amount shown.

Finally, the impact from a change in ELCC methodology, regardless of participation under FRR or RPM, can be approximated by taking the change in annual capacity value due to this change in ELCC percentage multiplied by the capacity market price. For example, for purposes of illustration only, if ELCC at East Bend were to be increased by 1%, this translates to approximately 6 MW. Using the same \$250/MW-Day capacity market price from the last example, this annual capacity value would be 6 MW x \$250/MW-Day x 365 days or \$547,500/year.

PERSON RESPONSIBLE: John Swez

Duke Energy Kentucky
Case No. 2024-00285
STAFF Third Set of Data Requests
Date Received: December 16, 2024

STAFF-DR-03-007

REQUEST:

Explain at what level of import capacity the Duke Energy Ohio Kentucky (DEOK) Load Zone becomes transmission constrained. Include in the response where the constraints are located, by state.

RESPONSE:

The Capacity Emergency Transfer Objective (CETO) and Capacity Emergency Transfer Limit (CETL) rows from the response to AG-DR-02-006 (Attachment) are shown below (all values in MW) for the past 7 yearly PJM auctions:

CETL and CETO for DEOK zone							
Delivery Year	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027
DEOK Zone CETO (MW)	3650	3110	2710	3270	3270	2797	2826
DEOK Zone CETL (MW)	5072	4959	5465	5632	4999	5387	5524

CETO is the amount of transmission import capability needed to meet the Locational Deliverability Area (LDA) reliability requirement and CETL is the maximum amount of transmission import capability possible. Using the most recent data for 2026/2027, there is a 2,698 MW difference between CETL and CETO. Thus, since CETL is greater than CETO, capacity imports from the rest of PJM into the DEOK LDA can cover the need. Thus, currently, if load increased by 2,698 MW, if generation decreased by the same amount, or a combination of both occurred, transmission upgrades would be needed to allow more import into the DEOK zone.

Additionally, from the PJM 2025/2026 BRA planning parameters, the only listed limiting condition for DEOK is:

- *Pierce 345/138 kV transformer for the loss of Pierce - Foster 345 kV line and Conastone - Peachbottom pre-contingency*
 - Pierce – Foster 345 kV line location = Ohio
 - Conastone location = Maryland
 - Peach Bottom location = Pennsylvania

Finally, please also see the responses to AG-DR-01-022, AG-DR-01-034, AG-DR-01-053, AG-DR-02-006, STAFF-DR-01-010 (c), and STAFF-DR-01-025.

PERSON RESPONSIBLE: John Swez

Duke Energy Kentucky
Case No. 2024-00285
STAFF Third Set of Data Requests
Date Received: December 16, 2024

STAFF-DR-03-008

REQUEST:

Refer to the Swez Direct Testimony, page 23, lines 1-21 including footnote²³ and page 24, lines 1-3. Recognizing that Ohio is deregulated and Duke is under no obligation to replace retiring generation units or if units are replaced, explain whether Duke Kentucky has studied the potential effects of the 2027 retirement of the Zimmer and the Miami Fort power plants in this proceeding and in Case No. 2024-00197.3 If so, explain whether and how Duke Kentucky modeled in the EnCompass model the retirement of the Zimmer and Miami Fort plants and the additional supply from East Bend as a PJM RPM participant. Include in the response the effects on projected BRA clearing prices and the generation choices made in reaching its IRP Preferred Portfolio, which includes cofiring East Bend and adding additional solar generation.

RESPONSE:

In the IRP, the impacts of retiring Zimmer and the Miami Fort power plants, are reflected in the PJM power prices (*i.e.*, energy prices in \$/MWh) modeled by the Company. Those power plant retirements, as well as any other power plant retirements in PJM, impact the prices at which Duke Energy Kentucky purchases and sells power into the PJM market. The power prices modeled in the IRP impact the relative economics of the portfolios presented in the IRP.

In addition, regarding any “additional supply from East Bend as a PJM RPM participant,” please see the response to STAFF-DR-03-002.

PERSON RESPONSIBLE: Matthew Kalemba