

KyPSC Case No. 2024-00197
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VERIFICATION

STATE OF NORTH CAROLINA)
)
COUNTY OF ~~MECKLENBURG~~ ⁸¹) SS:
 Lincoln)

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
Matt Kalemba Affiant

Subscribed and sworn to before me by Matt Kalemba on this 2 day of October 2024.

SHEILA LEMOINE
Notary Public, North Carolina
Lincoln County
My Commission Expires
July 21, 2029

Sheila Lemoine
NOTARY PUBLIC

My Commission Expires: July 21, 2029

VERIFICATION

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

The undersigned, John D. Swez, Managing Director, Trading and 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.



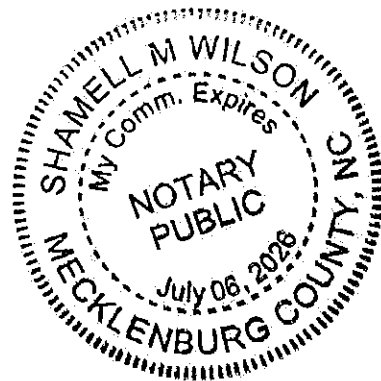
John D. Swez, Affiant

Subscribed and sworn to before me by John D. Swez on this 28 day of August, 2024.



NOTARY PUBLIC

My Commission Expires:



VERIFICATION

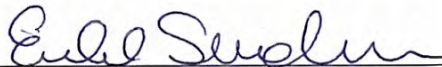
STATE OF OHIO)
) SS:
COUNTY OF HAMILTON)

The undersigned, Sarah Lawler, VP Rates & Regulatory Strategy, being duly sworn, deposes and says that she 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 her knowledge, information and belief.



Sarah Lawler Affiant

Subscribed and sworn to before me by Sarah Lawler on this 1st day of October, 2024.



NOTARY PUBLIC

My Commission Expires: July 8, 2027

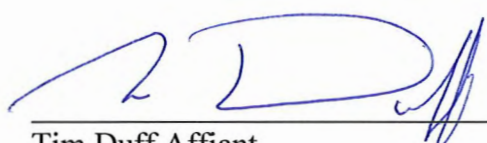


EMILIE SUNDERMAN
Notary Public
State of Ohio
My Comm. Expires
July 8, 2027

VERIFICATION

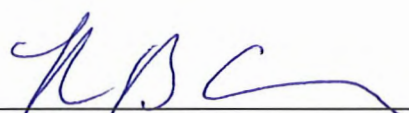
STATE OF NORTH CAROLINA)
) SS:
COUNTY OF MECKLENBURG)

The undersigned, Tim Duff, General Manager Customer Solutions Regulatory Enablement, 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.

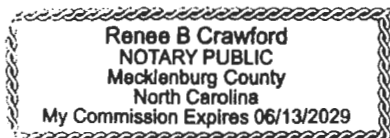


Tim Duff Affiant

Subscribed and sworn to before me by Tim Duff on this 30 day of September 2024.



NOTARY PUBLIC



My Commission Expires: 06/13/2029

Duke Energy Kentucky
Case No. 2024-00197
STAFF's Second Set Data Requests
Date Received: September 23, 2024

CONFIDENTIAL STAFF-DR-02-001
(As to Attachment only)

REQUEST:

On September 6, 2024, Duke Kentucky filed its application to the Commission to become a full participant in the PJM base residual and incremental auction construct for the 2027/2028 delivery year and for necessary accounting and tariff changes.¹

- a. Identify the time interval between when the Integrated Resource Plan (IRP) modeling was completed, and the decision was made to switch to a PJM reliability pricing model (RPM) construct.
- b. Provide any meeting minutes, notes, or correspondence relating to the decision to switch to the RPM construct.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachment only)

- a. The IRP modeling was completed on June 10th of this year. On June 5th of this year, approval for the decision to pursue a switch to the PJM RPM construct was received.
- b. Please see STAFF-DR-02-001 Confidential Attachment for a copy of the presentation that was discussed in the June 5 meeting.

PERSON RESPONSIBLE: Matt Kalemba – a.
John Swez – a., b.

¹ See Case No. 2024-00285, *In the Matter of the Electronic Application of Duke Energy Kentucky, Inc. to Become a Full Participant in the PJM Interconnection LLC, Base Residual and Incremental Auction Construct for the 2027/2028 Delivery Year and for Necessary Accounting and Tariff Changes* (filed Sept. 6, 2024).

**CONFIDENTIAL PROPRIETARY TRADE
SECRET**

**STAFF-DR-02-001
CONFIDENTIAL ATTACHMENT**

FILED UNDER SEAL

**Duke Energy Kentucky
Case No. 2024-00197
STAFF's Second Set Data Requests
Date Received: September 23, 2024**

STAFF-DR-02-002

REQUEST:

Refer to Duke Kentucky's IRP, page 39 and Figure 7.1 page 61. Assume that the Commission grants Duke Kentucky's request to transition to PJM's RPM construct, provide an update to Duke Kentucky's EnCompass modeling and explain what effect, if any, this change would have on Duke Kentucky's IRP modeling outcomes and whether a different Preferred Plan would likely be a result.

RESPONSE:

There is no change to Duke Energy Kentucky's IRP modeling outcome from the Company's decision to pursue a change to the PJM RPM capacity construct.

PERSON RESPONSIBLE: Matt Kalembo
John Swez

Duke Energy Kentucky
Case No. 2024-00197
STAFF's Second Set Data Requests
Date Received: September 23, 2024

STAFF-DR-02-003

REQUEST:

Refer to Duke Kentucky's IRP, Figure 7.1 page 61.

- a. Explain whether the EnCompass model takes stranded costs into account when it retires an asset.
- b. In Figure 7.1, the East Bend generator is converted to dual fuel in 2030 and then retired in 2038. State how much of the conversion cost will be recovered between conversion and retirement.
- c. If the cost to convert the East Bend generator is not fully recovered, explain why it would not be more economical to build the combined cycle unit earlier and then add carbon capture technology at a later date, if ultimately required, rather than undergo the dual fuel transition cost.
- d. Confirm that, after the East Bend generator is retired and a combined cycle generator is brought on-line, the new generator would include carbon capture and sequestration technology. If not confirmed, explain why not.

RESPONSE:

- a. The Encompass model does not take into account stranded costs when retiring an asset.
- b. The full cost of the dual fuel conversion is included in Encompass. The Company has not performed this analysis. Recovery will depend upon the timing of rate cases,

and whether the Commission approves depreciation rates that align with the life of the station.

- c. The assumption is that the East Bend conversion is fully recovered.
- d. The base plan in the IRP does not assume that carbon capture and sequestration (CCS) technology is available for the CC. While CCS may be available in the late 2030s at East Bend, because of the uncertainty, Duke Energy Kentucky wanted to confirm that even without CCS, the Combined Cycle plan was the least cost plan. However, Duke Energy Kentucky did evaluate the impact of CCS as a sensitivity, and it was cost effective. The Company expects to continue to evaluate the CCS option in future IRP filings.

PERSON RESPONSIBLE: Matthew Kalemba – a. thru d.
Sarah Lawler – b.

Duke Energy Kentucky
Case No. 2024-00197
STAFF's Second Set Data Requests
Date Received: September 23, 2024

STAFF-DR-02-004

REQUEST:

Refer to Duke Kentucky's IRP, page 39. Explain whether the risks of acquiring or contracting for assets outside Duke Kentucky's service territory and the PJM Duke Energy Ohio/Kentucky (DEOK) zone are ameliorated in any way if Duke Kentucky were to transition to an RPM construct as opposed to Fixed Resource Requirement (FRR).

RESPONSE:

If Duke Energy Kentucky were to transition to the PJM RPM capacity construct, the consequences of the PJM Minimum Internal Generation Requirement would be eliminated. However, as stated in the IRP, if Duke Energy Kentucky were to transition to an RPM participant and own a generating asset outside of the DEOK PJM zone, Duke Energy Kentucky would be exposed to zonal pricing risk between the loads purchase price and the resource sell price. Thus, the risks of owning a resource outside of the DEOK zone are lessened by transitioning away from the PJM FRR construct, but not eliminated.

PERSON RESPONSIBLE: John Swez

Duke Energy Kentucky
Case No. 2024-00197
STAFF's Second Set Data Requests
Date Received: September 23, 2024

STAFF-DR-02-005

REQUEST:

Refer to Duke Kentucky's IRP, Table H.3 page 153. Refer also to Case No. 2024-00285, the Direct Testimony of John D. Swez, page 7.3 In Table H.3, Duke Kentucky lists firm capacity from existing resources of 888 MW summer and 959 MW winter in 2024. In Mr. Swez's testimony, summer firm capacity is listed as 1,076 MW. Confirm that the difference between these amounts is installed capacity (ICAP) versus unforced capacity (UCAP). If not, explain what the difference represents.

RESPONSE:

Confirmed.

PERSON RESPONSIBLE: Matt Kalembo
John Swez

Duke Energy Kentucky
Case No. 2024-00197
STAFF's Second Set Data Requests
Date Received: September 23, 2024

STAFF-DR-02-006

REQUEST:

Refer to Duke Kentucky's IRP, Figure 7.1 page 61 and Table H.3 page 153.

- a. Confirm that the data presented in Table H.3 is based on Duke Kentucky's Preferred Portfolio presented in Figure 7.1. If not, explain which portfolio generated the data in Table H.3.
- b. Under PJM's FRR construct, explain whether and how the EnCompass model allows the sale of excess capacity, either in the PJM incremental auction or through bi-lateral contracts.
- c. Under PJM's RPM construct, explain whether and how the EnCompass model allows the sale of excess capacity into the Base Residual Auction, Incremental Auctions or through bi-lateral contracts.
- d. If excess capacity sales are allowed under either FRR or RPM constructs, explain whether the modeled sales differ according to Duke Kentucky's differing amounts of seasonal excess capacity.

RESPONSE:

- a. Confirmed.
- b. The Company did not allow the Encompass model to build excess capacity for sale into the PJM marketplace under the FRR construct. The model was only allowed to build to meet Duke Energy Kentucky's energy and capacity needs.

- c. The Company did not allow the Encompass model to build excess capacity for sale into the PJM marketplace under the RPM construct. The model was only allowed to build to meet Duke Energy Kentucky's energy and capacity needs.
- d. Excess capacity sales were not allowed.

PERSON RESPONSIBLE: Matthew Kalemba

Duke Energy Kentucky
Case No. 2024-00197
STAFF's Second Set Data Requests
Date Received: September 23, 2024

STAFF-DR-02-007

REQUEST:

Refer to Duke Kentucky's response to Commission Staff's First Request for Information (Staff's First Request), Item 14. Explain what historical DEOK PJM7a ERA-5 wind speed profiles were used in the IRP modeling.

RESPONSE:

Wind profiles are developed using historical wind speed data along with wind turbine power curves. For the Duke Energy Kentucky profile, ERA-5 wind speed data was collected from 3 generic sites within the DEOK service territory for the period 2001 – 2022. This data was compiled into an average hourly wind speed profile. The wind speed profile was then used with the power curve from a generic wind turbine to yield expected power output on an hourly basis.

PERSON RESPONSIBLE: Matthew Kalemba

Duke Energy Kentucky
Case No. 2024-00197
STAFF's Second Set Data Requests
Date Received: September 23, 2024

CONFIDENTIAL STAFF-DR-02-008
(As to Attachments only)

REQUEST:

Refer to Duke Kentucky's IRP, Appendix B, Table B.2 and to Duke Kentucky's response to Staff's First Request, Item 27.

- a. Provide a copy of Itron, Inc.'s statistically adjusted end-use (SAE) methodology that explains the use and derivation of the Heating SAE term, Cooling SAE term, and Other SAE term variables used in the Residential Usage and Commercial Sales regressions.
- b. Identify the source and provide a copy of any data used to derive the weather and the economic variables used in both the Quarterly OPA sales and the Industrial sales regressions.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachments only)

- a. Please see STAFF-DR-02-008(a) Confidential Attachment.
- b. The weather data is sourced from National Ocean Atmospheric Administration (NOAA). The economic data is sourced from Moody's Analytics. Please see STAFF-DR-02-008(b) Confidential Attachment (Economics and Weather data used in the Industrial and OPA).

PERSON RESPONSIBLE: Ibrar A. Khera

**CONFIDENTIAL PROPRIETARY TRADE
SECRET**

**STAFF-DR-02-008(a)
CONFIDENTIAL ATTACHMENT**

FILED UNDER SEAL

**CONFIDENTIAL PROPRIETARY TRADE
SECRET**

**STAFF-DR-02-008(b)
CONFIDENTIAL ATTACHMENT**

FILED UNDER SEAL

Duke Energy Kentucky
Case No. 2024-00197
STAFF's Second Set Data Requests
Date Received: September 23, 2024

STAFF-DR-02-009

REQUEST:

Refer to Duke Kentucky's response to Staff's First Request, Item 37a. The response seems to indicate that the Neighborhood Energy Saver program team is willing to and able to work with Habitat for Humanity and the housing authority to explain and promote the program. Explain whether the program team does work with these organizations and if not, which organizations are program team partners.

RESPONSE:

Duke Energy Kentucky currently provides program information, collateral, and flyers to a number of local community business organizations in Northern, KY, including Habitat for Humanity. The Company also shares this information with many other groups that include churches, food pantries, neighborhood stores, schools, and community organizations.

PERSON RESPONSIBLE: Tim Duff

Duke Energy Kentucky
Case No. 2024-00197
STAFF's Second Set Data Requests
Date Received: September 23, 2024

STAFF-DR-02-010

REQUEST:

Refer to Duke Kentucky's responses to Attorney General's First Request for Information, Item 5 and to Joint Intervenors' First Request for Information, Item 14.

- a. Based on Duke Kentucky's responses and any other information, compare the reliability of coal-fired generation to other dispatchable generation.
- b. Identify any data sources, studies, and treatises Duke Kentucky has relied upon to compare the reliability of different types of dispatchable generation.

RESPONSE:

- a. As an initial matter, the referenced responses to AG Item 5 and Joint Intervener Item 14 both primarily refer to the reliability of coal supply and not the operating reliability of coal or other forms of dispatchable generation. For purposes of IRP modeling, Duke Energy Kentucky relied on the ELCC class ratings from the 2025/2026 Base Residual Auction for determining how much of a resource can be relied upon for meeting Duke Energy Kentucky's reserve margin requirement. Table 4.2 on page 37 of the Company's IRP shows coal can provide 87% of its installed capacity towards meeting reserve requirements while gas combined cycle provides 79%. Additionally, Duke Energy Kentucky includes an EFOR or Equivalent Forced Outage Rate for the various resources on the system that accounts for unplanned outages. For East Bend, the EFOR rate is based on historical

performance and is assumed to be 18.7% while the forced outage rate is assumed to be 1.7% for a new CC.

- b. The ELCC class ratings are provided by PJM as part of the 2025/2026 Base Residual Auction. EFOR rates are collected using the NERC Generating Availability Data System.

PERSON RESPONSIBLE: Matthew Kalemba