KyPSC Case No. 2024-00197 TABLE OF CONTENTS

<u>DATA REQUEST</u>	<u>WITNESS</u> <u>TAB NO.</u>
AG-DR-02-001	John Swez1
AG-DR-02-002	Matthew Kalemba2
AG-DR-02-003	John Swez
AG-DR-02-004	Matthew Kalemba4
AG-DR-02-005 CONF	John Swez Alan Mok
AG-DR-02-006	John Swez Bryan Garnett6
AG-DR-02-007	John Swez Bryan Garnett7
AG-DR-02-008	Daniel Sympson8
AG-DR-02-009	Matthew Kalemba9
AG-DR-02-010	Legal10
AG-DR-02-011	Matthew Kalemba11
AG-DR-02-012	Bruce Sailers
AG-DR-02-013	Matthew Kalemba13
AG-DR-02-014	Matthew Kalemba 14

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

_, 2024.

NOTARY PUBMC

My Commission Expires:



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

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

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

My Commission Expires: July 21,2029

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

The undersigned, Alan Mok, Financial Market Manager, 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.

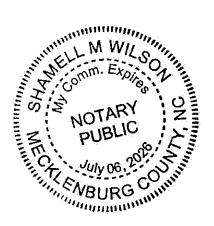
Alan Mok, Affiant

Subscribed and sworn to before me by Alan Mok on this 21 day of

August , 2024.

MOTARY PUBLIC

My Commission Expires:



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

The undersigned, Bryan Garnett, RTO Policy & Compliance Manager, 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.

Bryan Garnett, Affiant

Subscribed and sworn to before me by Bryan Garnett on this $\frac{28}{2}$ day of

August, 2024.

My Commission Expires:

WILSON EXDINGS ON NOTARY NOTAR

STATE OF KENTUCKY)	
)	SS:
COUNTY OF JEFFERSON)	

The undersigned, Dan Sympson, General & Regulatory Strategy Director, 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.

Dan Sympson, Affiant

Subscribed and sworn to before me by Dan Sympson on this 3rd day of Sympson on the Sympson on this 3rd day of Sympson on the Sympson on the Sympson on this 3rd day of Sympson on the Sympson on the

My Commission Expires: 0 1 /20/207 7

NOTARY PUBLIC

BENJAMIN BERDICHEVSKY
Notary Public - State at Large
Kentucky
My Commission Expires Sept. 20, 2027
Notary ID KYNP79738

Duke Energy Kentucky Case No. 2024-00197 AG Second Set of Data Requests Date Received: September 25, 2024

AG-DR-02-001

REQUEST:

Provide the equivalent availability factor of the East Bend plant for each of the past five (5) calendar years.

RESPONSE:

Please refer to response to SIERRA-DR-01-010, subpart (o).

PERSON RESPONSIBLE: John Swez

AG Second Set of Data Requests

Date Received: September 25, 2024

AG-DR-02-002

REQUEST:

Explain whether the proposed DFO conversion of East Bend is projected to have an impact

on the plant's equivalent availability factor. Provide any relevant data, or if in the IRP,

identify its exact location.

RESPONSE:

Within the IRP model, Duke Energy Kentucky did not adjust the plant's equivalent

availability factor. However, adding natural gas as a secondary fuel can improve the

availability factor of East Bend if outages or derates are caused by issues related to coal

handling or other factors that were not impacting the natural gas fuel system at East Bend.

At this point, that benefit has not been quantified.

PERSON RESPONSIBLE:

AG Second Set of Data Requests

Date Received: September 25, 2024

AG-DR-02-003

REQUEST:

Explain by what metric(s) DEK tracks the rate at which PJM dispatches the East Bend

plant, i.e., whether on an hourly, daily or weekly basis.

a. Provide the total number of hours PJM dispatched the East Bend plant for each of

the years 2019-2023, and for 2024 to date.

b. Explain whether DEK ever self-dispatches East Bend. If so: (i) provide the number

of hours of self-dispatch for the same time frame identified in subpart (a.) of this

question; and (ii) explain whether DEK receives any payments from PJM of any

type in a self-dispatch scenario, and if so in what PJM market (e.g., energy, day-

ahead, etc.).

RESPONSE:

The primary "metric" that Duke Energy Kentucky "tracks the rate at which PJM dispatches

the East Bend plant," and which is used to inform the commitment status offer for East

Bend, is the generators forecasted daily margin. Duke Energy Kentucky personnel perform

this economic review each business day called the Daily Profit and Loss Analysis. This

analysis projects expected operating margins (revenues minus variable costs) from

operation of East Bend for the next 21 days based on a unit's operating parameters (variable

cost, minimum load, maximum load, and startup cost) and expected PJM market prices.

However, it should be noted that the unit's commitment status offer is not only determined

from the results of this daily analysis, but consideration of additional factors such as unit

availability, required unit testing, other unit operational constraints, or potential exposure of the customer to undue risk of price volatility.

a. If East Bend is committed either as the result of a Must Run or Economic commitment status offer, PJM dispatches the unit between minimum and maximum capability unless the unit is unable to change output such as the case when, for example, an environmental test requires a specified generation output for a period. See table below for East Bend Station's annual service hours, or the hours in which PJM dispatched the unit aside from the mentioned unit testing or other constraint:

Year	Hours
2019	6515
2020	5081
2021	5297
2022	6404
2023	5740
2024 YTD (through Aug)	4779

- b. For the purposes of this response, "self-dispatches" is assumed to mean that the Company employes the use of a Must Run commitment status offer.
 - (i) Please see AG-DR-02-003 Attachment 1, column J for the unit's commitment status offer utilized by the Company for each day between 2019 and 2024 YTD (August). Note that PJM allows the use of one of four different commitment status offers to be utilized by a Market Participant, either (MustRun, Emergency, Economic, or Not Available). Additionally, note that the Company changed software vendors and this data is only available beginning from November 12, 2021, to present. However, the Company does maintain NERC GADS data for these dates. This data will reflect when the East Bend unit was off-line for

reserve shutdown, meaning that the Company did not commit the unit by employing use of a Must Run commitment status offer and that PJM did not commit the unit. Thus, the unit was off-line on reserve shutdown. Please see AG-DR-02-003 Attachment 2 for a listing of the dates and hours in which East Bend was off-line on reserve shutdown. As discussed in previous proceedings, not that East Bend was off-line for a total of 57 days on reserve shutdown during the start of the COVID pandemic between March and June of 2020. Finally, note that the data in AG-DR-02-003 Attachment 2 will not represent all the hours in which East Bend was offered with an Economic commitment status offer, since it is possible that the Company may have utilized an Economic commitment status offer and PJM committed the unit (meaning it cleared in either the PJM Day-Ahead or Real-Time Energy Market) and was operational. Thus, the unit would not have been offline and not been recorded in the NERC GADS system as being on reserve shutdown.

(ii) If a generator is committed by the Company using a MustRun commitment status offer, energy and ancillary services revenues are received by the Company from PJM. If the unit is committed in the Day-Ahead market, the primary energy and ancillary services revenues are from the Day-Ahead market with the Real-Time (Balancing) market revenues/charges being the difference between Day-Ahead commitment amount and Real-Time actual amount. If the unit is

committed in the Real-Time Day-Ahead market, energy and ancillary

services revenues are received from PJM Real-Time actual amount. The

primary revenue difference between a Company commitment (from use

of a Must Run commitment offer) and a PJM commitment (from use of

an Economic commitment offer), is that units committed by PJM retain

eligibility for "Make Whole Payments."

PERSON RESPONSIBLE:

John Swez

DUE TO SIZE AG-DR-02-003 ATTACHMENT 1

IS ONLY BEING PROVIDED ELECTRONICALLY AS AN EXCEL

Unit	Event No	Event Start	Event End	Event Type	Cause Description	Event Description	Event Duration Hours	Event Duration Days
East Bend Steam-2	1	1/25/20 6:32 AM	2/13/20 12:05 AM	RS	Reserve shutdown		449.55	18.73
East Bend Steam-2	12	3/28/20 5:52 AM	5/14/20 5:00 AM	RS	Reserve shutdown		1,127.13	46.96
East Bend Steam-2	17	5/24/20 12:00 PM	6/1/20 9:45 PM	RS	Reserve shutdown		201.75	8.41
East Bend Steam-2	19	6/3/20 1:00 AM	6/4/20 12:54 PM	RS	Reserve shutdown		35.90	1.50
East Bend Steam-2	73	8/22/22 5:01 AM	8/29/22 4:01 AM	RS	Reserve shutdown	Reserve Shutdown	167.00	6.96
East Bend Steam-2	81	9/23/22 1:46 AM	9/24/22 4:00 AM	RS	Reserve shutdown	Reserve Shutdown	26.23	1.09
East Bend Steam-2	2	2/9/23 5:30 PM	2/12/23 5:00 AM	RS	Reserve shutdown	Reserve Shutdown	59.50	2.48
East Bend Steam-2	4	2/20/23 11:00 AM	2/21/23 5:00 AM	RS	Reserve shutdown	Reserve Shutdown	18.00	0.75
East Bend Steam-2	28	4/28/24 4:00 AM	5/6/24 9:13 AM	RS	Reserve shutdown	Reserve Shutdown	197.22	8.22
							2,282.28	95.10

AG Second Set of Data Requests

Date Received: September 25, 2024

AG-DR-02-004

REQUEST:

Reference the response to AG-DR-1-1 (a). Confirm that under the 100% natural gas

conversion case, the Company would have to rely on PJM market power to a greater extent

than in the DFO case.

a. Can the Company confirm that prices for PJM market power are expected to

increase during the planning period? If so confirmed, explain whether the IRP

provides a price projection. If it does not contain such a projection, please provide

one.

RESPONSE:

Under a 100% natural gas conversion case, the Company would be much more exposed to

market price volatility because using 100% natural gas as fuel on a relatively inefficient

coal plant would cause the plant to be less competitive in the PJM marketplace. As such,

East Bend would not be called on to operate and the Company would be much more reliant

on PJM market power.

a. As shown in confidential Figures 3.15 and 3.16, PJM market power prices are

generally expected to increase over the planning period.

PERSON RESPONSIBLE:

AG Second Set of Data Requests

Date Received: September 25, 2024

CONFIDENTIAL AG-DR-02-005

REQUEST:

Explain whether DEK's PJM reliability requirement has changed from 2020 through the

most recent PJM auction results.

a. Explain whether the reliability requirements vary for FRR as opposed to RPM

members, and if so: (i) what the requirements are; and (ii) how they will or could

affect DEK's portfolio.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET

Please refer to AG-DR-02-005 Confidential Attachment for the Duke Energy Kentucky's

PJM reliability requirement, or the FRR load obligation. Duke Energy Kentucky's FRR

load obligation has varied between a low of MW in Delivery Year (DY) 2022/2023 to

a high of MW in DY 2024/2025. With FERC's approval of Docket #ER24-99, PJM

uses the ELCC methodology to access the load obligation and capacity accreditation in the

footprint starting in DY 2025/2026. While the PJM Installed Reserve Margin (IRM) (in

ICAP terms) for Duke Energy Kentucky has not materially been impacted, the Forecasted

Pool Requirement (FPR) (in UCAP terms) decreases to reflect the ELCC changes. Duke

Energy Kentucky's FRR load obligation has dropped to approximately MW for these

two DY years.

The reliability requirement for FRR and RPM members are the same as PJM

calculates the IRM and FPR values for each Delivery Year and they are the same for both

FRR and RPM members.

Under the ELCC, the capacity accreditation of Duke Energy Kentucky's generation

changed from the (1- xEFORD) to ELCC class average/ unit specific performance

adjustment¹. For example, the Company has received 79% ELCC class average its

Woodsdale station, which is 11% higher than the CT class without the dual fuel. PJM also

accredited the East Bend station with the 84% Coal ELCC class. From 2024/25 to 2025/26,

Duke Energy Kentucky's total accredited generation decreases from MW to MW

due to the ELCC implementation. Although the ELCC affects both generation and load for

the Company's accreditation, so far Duke Energy Kentucky's portfolio has benefited from

the ELCC implementation as the load obligation decreases outsize the decrease in

generation accreditation.

PERSON RESPONSIBLE:

John Swez

Alan Mok

_

¹ Please refer to page 6 of https://pjm.com/-/media/committees-groups/committees/pc/2024/20240716/20240716-item-04--irm---fpr--elcc---2026-2027-delivery-year.ashx to see the ELCC class averages for 2025/2026 and 2026/2027.

AG Second Set of Data Requests

Date Received: September 25, 2024

AG-DR-02-006

REQUEST:

Provide a discussion regarding whether the DEOK zone of PJM has a sufficient level of

Capacity Emergency Transfer Limit (CETL) to enable DEOK's transmission system to

import capacity under peak load emergency conditions.

RESPONSE:

Please see AG-DR-02-006 Attachment for the CETL and Capacity Emergency Transfer

Objective (CETO) data for DEOK zone from Delivery Year (DY) 2020/2021 to present.

The CETL measured against CETO determines transmission system limit to import

capacity into LDA under peak load emergency. If CETL is greater than CETO, capacity

imports from RTO into the LDA can cover the CETO need. If CETL is less than CETO,

imports cannot cover the need. In this condition, PJM Board can order transmission

upgrades. In AG-DR-02-006 Attachment, the CETL to CETO ratio is calculated in the last

row of the table. In every year of the period studied, the CETL to CETO ratio has been

greater than 100%. Thus, the transmission system can currently support the DEOK zone to

import capacity under the peak load conditions.

PERSON RESPONSIBLE:

John Swez

Bryan Garnett

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
DEOK Reliability Requirement (MW)	7500	7557	7407	6714	6881	5596	5638
FRR Requirement (MW)	954	957	899	854	858	781	
Minimum Internal Resource Req (%)	42%	45%	34%	20%	34%	4%	2%
DEOK Reliability Req Adjust for FRR (MW)	7102	7129	7102	6545	6589	5562	5638
CETL to CETO Ratio %	139%	159%	202%	172%	153%	193%	195%

All data based on BRA only

For 2026/2027, DEOK Reliability Requirement does not have FRR adjustment

AG Second Set of Data Requests

Date Received: September 25, 2024

AG-DR-02-007

REQUEST:

Provide a discussion regarding whether the DEOK zone, at any time during the planning

period, is projected to have a need for energy imports to meet its reliability criteria. If this

metric is provided in the Capacity Emergency Transfer Objective (CETO) applicable to

the DEOK zone, please provide that metric as projected for each year of the planning

period.

RESPONSE:

From Delivery 2020/2021 to present, PJM projected a CETO value for the DEOK zone to

be greater than 0 MW. The positive CETO number implies that the DEOK zone has a need

for energy imports to meet its reliability criteria. Please refer to AG-DR-02-006

Attachment for the CETO values.

PERSON RESPONSIBLE:

John Swez

Bryan Garnett

AG Second Set of Data Requests

Date Received: September 25, 2024

AG-DR-02-008

REQUEST:

Reference the response to AG-DR-1-14 (a)(ii). Provide a discussion on why the lead time

for a new CC plant has increased to eight (8) years. Include in your discussion how this

impacts DEK's planning processes.

RESPONSE:

The lead time of 8 years for a new CC plant is the currently estimated time from the start

of site selection to when the unit is placed in-service. This has increased from years past

due to an overall industry increase in demand and stated lead times for the gas and steam

turbine generators, heat recovery steam generators, transformers, and switchgear from

manufacturers. This impacts Duke Energy Kentucky's planning process with respect to

how quickly a CC plant is available to replace a retiring generation asset such as East Bend

2.

PERSON RESPONSIBLE:

Daniel Sympson

AG Second Set of Data Requests

Date Received: September 25, 2024

AG-DR-02-009

REQUEST:

Reference the response to AG-DR-1-15. Regarding the sentence, "That equates to nearly

7% of peak demand being met by distributed resources," confirm that this refers

exclusively to company-owned DSM and EE resources.

a. Does the Company have, or is it aware of any estimates of the amount of customer-

owned solar and/or other generation types (sometimes referred to as "behind the

meter resources") interconnected to the Company's distribution grid (both currently

and projected future)? If so, please provide same.

RESPONSE:

The DSM MWs included in the IRP are part of utility sponsored, Commission-approved,

programs that Duke Energy Kentucky Customers participate in or are expected to

participate in. EE, is not an asset or resource to own, but rather a modification to load

achieved through Commission -approved utility funded programs.

a. Please see AG-DR-02-009 Attachment.

PERSON RESPONSIBLE:

AG-DR-1-15 Follow-up

BTM Connections

Solar/S+S		Cumulative Counts		Cumulative Capacity (MWs)			
301d1/3+3	Residential	Non-Residential	Totals	Residential	Non-Residential	Totals	
2023	3,720	440	4,160	32.8	48.4	81.2	
2024	4,322	496	4,818	38.2	62.5	100.7	
2025	4,992	556	5,548	44.3	70.0	114.3	
2026	5,701	618	6,319	50.6	77.7	128.4	
2027	6,468	682	7,150	57.5	85.2	142.8	
2028	7,222	744	7,966	64.3	93.4	157.8	
2029	7,995	812	8,807	71.3	102.3	173.6	
2030	8,789	886	9,675	78.4	111.2	189.6	
2031	9,605	960	10,565	85.8	120.1	205.8	
2032	10,432	1,034	11,466	93.2	128.9	222.2	
2033	11,241	1,108	12,349	100.5	137.4	237.9	
2034	12,018	1,178	13,196	107.5	144.9	252.4	
2035	12,680	1,240	13,920	113.5	152.4	265.8	
2036	13,333	1,302	14,635	119.3	159.9	279.2	
2037	14,011	1,364	15,375	125.4	167.4	292.8	
2038	14,699	1,426	16,125	131.6	174.9	306.5	
2039	15,402	1,488	16,890	138.0	182.4	320.3	
2040	16,127	1,550	17,677	144.5	189.9	334.3	
2041	16,865	1,612	18,477	151.1	197.4	348.5	
2042	17,615	1,674	19,289	157.9	205.1	363.0	
2043	18,386	1,738	20,124	164.8	214.0	378.8	
2044	19,170	1,812	20,982	171.9	222.9	394.7	
2045	19,967	1,886	21,853	179.0	231.7	410.8	
2046	20,783	1,960	22,743	186.4	240.6	427.0	
2047	21,614	2,034	23,648	193.9	249.5	443.4	
2048	22,458	2,108	24,566	201.5	258.4	459.8	
2049	23,315	2,182	25,497	209.2	267.3	476.4	
2050	24,189	2,256	26,445	217.0	0.0	217.0	

Notes:

Data reflects year end values

2023 data represents actuals

2024 - 2050 is forecasted data

Data includes solar only installations as well as solar installations that also have storage

Wind		Cumulative Counts		Cumulative Capacity (MWs)			
vviiiu	Residential	Non-Residential	Totals	Residential	Non-Residential	Totals	
2023	22	10	32	0.1	2.1	2.2	

Notes:

Data reflects customer sited wind projects administered under a net metering rider

AG Second Set of Data Requests

Date Received: September 25, 2024

AG-DR-02-010

REQUEST:

Reference the response to AG-DR-1-40. Regarding the responses to subparts (c) and (d),

explain why no challenges were filed to the EPA's ELG and MATS rules identified therein.

RESPONSE:

Objection. This request seeks information that is protected under the doctrines of attorney

client privilege as it seeks the Company's legal strategy.

PERSON RESPONSIBLE:

Legal

AG Second Set of Data Requests

Date Received: September 25, 2024

AG-DR-02-011

REQUEST:

Provide a discussion regarding the extent (if any) to which: (i) affordability of rates; and

(ii) system reliability, were considered and modelled in the IRP planning process, in

particular to resource selection.

a. Include in your response whether any of the computer programs DEK utilized in

the preparation of this IRP also model the reliability of DEK's system under the

various cases and scenarios the Company examined. If reliability modeling results

are included in the IRP, please identify where.

RESPONSE:

The Company's IRP did not include a discussion of affordability of rates. The cost of each

resource plan was evaluated using Present Value of Revenue Requirements (PVRR) as

described in Chapter 6.

The Company did not explicitly employ reliability modeling software in the 2024

IRP. However, the Company relied on PJM provided Effective Load Carry Capability

(ELCC) and planning reserve margin to ensure the plans were meeting those minimum

requirements. Additionally, the Company increased the fuel and energy diversity of the

Duke Energy Kentucky system, which supports reliability, by adding dual fuel operation

at East Bend and accelerating cost-effective solar in the 2030 timeframe.

PERSON RESPONSIBLE:

AG Second Set of Data Requests

Date Received: September 25, 2024

AG-DR-02-012

REQUEST:

Does the Company agree that prudent utility practice dictates that it should study and

manage its load commitments? If so, and in the further event that any data centers or

cryptocurrency businesses should seek to locate within DEK's service territory, explain

whether the Company would be willing to adopt tariffs similar to those proposed by AEP

Ohio 1 in which the proposed new businesses would be required to: (i) commit to service

contracts of a certain length of time, with an option to pay exit fees after five years; and

(ii) pay minimum demand charges based on 90% of their contract capacity. If these

particular terms would not be acceptable to the Company, please provide alternative terms

it believes may be more acceptable.

RESPONSE:

Objection. Calls for speculation. Without waiving said objection, and to the extent

discoverable, the Company would be willing to adopt similar language as referenced above

in a non-discriminatory fashion. The Company would likely not propose the same exact

terms. However, the terms would include credit requirements, and a minimum demand

charge based on contract capacity.

PERSON RESPONSIBLE:

As to objection, Legal

As to response, Bruce Sailers

AG Second Set of Data Requests

Date Received: September 25, 2024

AG-DR-02-013

REQUEST:

Explain to what extent, if any, the IRP modeling included the capital and O&M costs of

the proposed WFGD conversion in CPCN docket 2024-00152.

RESPONSE:

The capital and reagent costs associated with the WFGD conversion project were included

as a base assumption in each case modeled in the 2024 Duke Energy Kentucky IRP.

PERSON RESPONSIBLE:

AG Second Set of Data Requests

Date Received: September 25, 2024

AG-DR-02-014

REQUEST:

Provide a discussion regarding how the potential outcomes in docket no. 2024-00258 could

affect the modelling used in the IRP docket.

RESPONSE:

The way that Duke Energy Kentucky participates in the PJM capacity market as is at issue

in Case No. 2024-00258 does not have a material impact on IRP modeling. The Company

will still plan, for IRP purposes, to meet a target reserve margin within DEOK under either

construct. One change from moving to the Reliability Pricing Model is that the projected

reserve margin requirements will be based on the clearing price of capacity in base residual

auctions. Because the clearing price is not known ahead of time, the Company expects to

still plan to a single reserve margin over the planning horizon.

PERSON RESPONSIBLE: