Exhibit No. 25

Evergy Missouri Metro – Exhibit 25
John R. Carlson
Rebuttal Testimony
File Nos. ER-2022-0129 & ER-2022-0130

Exhibit No.:	
Issue:	Nucor SIL; Capacity Costs; and SPP Charges
Witness:	John R. Carlson
Type of Exhibit:	Rebuttal Testimony
Sponsoring Party:	Evergy Missouri Metro and Evergy Missouri West
Case No.:	ER-2022-0129 / 0130
Date Testimony Prepared:	July 13, 2022

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO.: ER-2022-0129 / 0130

REBUTTAL TESTIMONY

OF

JOHN R. CARLSON

ON BEHALF OF

EVERGY MISSOURI METRO and EVERGY MISSOURI WEST

Kansas City, Missouri
July 2022

REBUTTAL TESTIMONY

OF

JOHN R. CARLSON

Case No. ER-2022-0129 / 0130

I. INTRODUCTION

Q. Please state your name and business address.

A: My name is John R. Carlson. My business address is 1200 Main, Kansas City, Missouri 64105.

Q: By whom and in what capacity are you employed?

A: I am employed by Evergy Metro, Inc. and serve as Senior Manager – Market Operations for Evergy Metro, Inc. d/b/a as Evergy Missouri Metro ("Evergy Missouri Metro"), Evergy Missouri West, Inc. d/b/a Evergy Missouri West ("Evergy Missouri West"), Evergy Metro, Inc. d/b/a Evergy Kansas Metro ("Evergy Kansas Metro"), and Evergy Kansas Central, Inc. and Evergy South, Inc., collectively d/b/a as Evergy Kansas Central ("Evergy Kansas Central") the operating utilities of Evergy, Inc.

Q: On whose behalf are you testifying?

A: I am testifying on behalf of Evergy Missouri West. ("Company").

Q: What are your responsibilities?

A: My primary responsibilities include oversight of the Company's Market Operations. This includes daily submittals to the Southwest Power Pool ("SPP"), including generation and load and the procurement of natural gas for generation assets.

Q: Please describe your education, experience and employment history.

A: I received a Bachelor of Science degree in Architectural Engineering from the University of Kansas in 1997. In 2004, I received a Master of Business Administration from the University of Chicago Booth School of Business. I joined KCP&L in 2006 as an Energy Consultant in the Delivery Division. My responsibilities included managing all facets of the customer relationship for KCP&L's large industrial customers and developing solutions that met the customer's needs, as well as demand response and energy efficiency opportunities. In 2007, I became Manager of Market Competitiveness where I was responsible for developing and implementing non-regulated products and services for residential, commercial and industrial customers. In 2010, I moved to the Supply Division at KCP&L and started work as an Originator of wholesale power transactions. Since 2017 I have been in market operations and manage the group responsible for submitting assets and load to the SPP daily.

Q: Have you previously testified in a proceeding at the Missouri Public Service Commission ("MPSC" or "Commission") or before any other utility regulatory agency?

A: Yes. I have testified before the MPSC.

Q: What is the purpose of your rebuttal testimony?

A: I will be responding to the direct testimony of Staff witness J Luebbert and his analysis of Nucor Steel Sedalia's ("Nucor") revenue requirement. In particular, I will discuss Mr. Luebbert's analyses of Nucor's purchased power costs and customer event balancing.

II. PURCHASED POWER COSTS

Q: How did witness Luebbert calculate Evergy Missouri West's purchased power costs attributable to Nucor?

A: In his direct testimony workpapers witness Luebbert calculated a Nucor load cost by multiplying the average monthly locational marginal price ("LMP") for the Evergy Missouri West ("EMW") load node by the MWh of Nucor load for the month. He then calculated the revenue from the Cimarron Bend III ("CBIII") wind farm, multiplying the megawatt-hours ("MWh") of generation by the LMP at the CBIII pricing node. Lastly, he calculated the cost of the CBIII generation by multiplying the MWh of generation by the contractual price per MWh of generation. The Nucor load cost plus the CBIII cost minus the CBIII revenue was witness Luebbert's calculation for total purchased power costs attributable to Nucor. This is outlined in more detail in witness Luebbert's direct testimony.

Q: Were there any errors in Staff witness Luebbert's purchased power cost testimony?

A: Yes, there were. The first error was in the hourly metered load data for Nucor that was provided by the Company in response to DR 0249. From January 2021 forward, the metered data for five of the six Nucor meters was provided twice (e.g. on January 1, 2021 there were two hour-ending one entries, two hour-ending two entries, and etc.).

The second error dealt with the CBIII revenue calculation. The CBIII contract specifies settlement of the generation at the Evergy Missouri West load node. Mr. Luebbert's analysis assumed settlement at the CBIII pricing node. I understand that when the PPA was established, the Company contracted to have the output from CBIII "delivered" to the Evergy Missouri West node. With this step the Developer of the CBIII resource carries the risk of transmission to the Evergy Missouri West node, not the

Company. This is expected to reduce risk for the renewable resource and the economics of service to Nucor.

Q: What is the impact of these errors?

A: Removing the duplicate lines from the Nucor load data and adjusting the CBIII settlement location to the MO West load node results in the CBIII revenue increasing from ** [redacted] ** Tracking settlement of CBIII at the Evergy Missouri West node is consistent with the method used by the Company and the revenue produced serves to offset the cost to serve Nucor.

III. CUSTOMER EVENT BALANCING

Q: Does Staff witness Luebbert correctly describe on p. 24, lines 4-12 of his direct testimony the aspects of Paragraph 7.d. of the non-unanimous Stipulation and Agreement ("Stipulation") between the Company, Commission Staff and Nucor?

A: Yes, he does.

Q: Was there anything wrong with how witness Luebbert calculated the balancing relationship contemplated in Paragraph 7.d of the Stipulation?

A: Yes, there was. The Stipulation states "If actual Nucor load experiences a 25% deviation from the expected Nucor load for ***more than 4 hours*** (***emphasis added***) and that load change is not reflected in the GMO day-ahead commitments…" GMO will quantify the effect of the unplanned load. In witness Luebbert's analysis he accounted for any time there was an assumed variance that was ***4 hours or more*** (***emphasis added***). Mr. Luebbert's analysis should have looked at those times when there was a valid variance for 5 hours or more (i.e., more than 4 hours).

Q: Earlier you mentioned an "assumed variance" calculated by Mr. Luebbert. What did you mean by that?

A: Witness Luebbert randomly selected day-ahead ("DA") MW levels for Nucor's load when calculating a potential imbalance. Instead of a particular load shape, Mr. Luebbert utilized a range of static value to represent the Nucor load at all hours of the day. Of the five "setpoints" analyzed, Mr. Luebbert selected ** [redacted] ** as the correct value to use for Nucor's DA position even though that value is not based on the actual operations of the Nucor facility. Issues with this approach and how it relates to the expectations for Nucor are described more fully in the rebuttal testimony of Mr. Bradley Lutz. Inherent in this analysis approach is that there had to be incremental costs resulting from unexpected operational events.

Q: Based on your evaluation of the Nucor loads and understanding of the market, were there any incremental costs for the year-ending December 31, 2021 from operational events as defined in Paragraph 7.d. of the Stipulation?

A: No, there were not.

Q: How could one more accurately calculate the impacts of potential operational events?

A: To more accurately calculate the impacts of potential operational events one needs to take into account load forecasting. The Company's load forecasting is provided by Tesla Forecasting Solutions ("Tesla"), a third-party vendor. As discussed in the Company's response to DR 0249.3,

> Evergy Missouri West utilizes a load forecast service for determining system load to bid into the SPP market on a day-ahead basis. This forecast service uses historical load data and weather forecasts to project day-ahead load for Evergy Missouri West.

Nucor load is included in the historical load data used to project day-ahead load for Evergy Missouri West.

Tesla currently has 11 years of historical load data from the Company, and every day the Company sends Tesla a file of that day's actual load. Tesla uses that historical load data, along with weather forecasts and many other variables to forecast loads for their customers. The 11 years of historical load data is weighted so that the most recent data is more impactful to the forecast versus the 11^{th} year. In particular, the Tesla model weights are shifted on a rolling 365 day basis so that the previous 365 days' data is weighted a 1.0. The weightings are based on the following formula, with n = the number years back in history:

$$\text{Weighting} = 1/1.3^{n-1}$$

With this model, data 11 years back would have a weighting of 0.07.

Q: To confirm, the Evergy Missouri West Day-Ahead commitments included provisions for Nucor based on Nucor's prior year actual loads?

A: Yes.

Q: What does Tesla's forecasting service tell us about Nucor load included in the Company's DA load forecast?

A: Because of the weighting described previously, we know that the previous year's historical load data is most impactful to the DA load forecast. We know that a portion of the Company's load forecast from Tesla includes Nucor load, and we can conservatively estimate that Nucor's load from 365 days prior to the operating day, since it is fully weighted in the Tesla model, is included in the Evergy Missouri West load forecast from Tesla. The only adjustment is having to account for Nucor starting operations in March 2020.

With a test year that ends on December 31, 2021, we can assume that any forecast from Tesla prior to March 1, 2021 would not have included Nucor load because there would not have been any historical data to point to in the model (again, Nucor started operations in March 2020). From March 1, 2021 forward we can assume the load from 365 days prior to the operating day was the value included in the Tesla model. For example, the Nucor load included in the Evergy Missouri West load forecast from Tesla on March 1, 2021 would have been the Nucor load from March 1, 2020 (365 days prior).

Q: When witness Luebbert's analysis is updated to include historical Nucor load in the forecast instead of the static setpoint, how does that change the estimated impact from operational events?

A: The change is dramatic and represents a more reasonable impact between the DA and real time ("RT") markets when the Nucor load is appropriately reflected in the Company's DA position. The calculated customer event balancing drops from a ** [redacted] ** Of this, approximately ** [redacted] ** is due to correcting the "more than 4 hour" calculation found in Mr. Luebbert's direct testimony.

Q: Why is there such a difference between an arbitrary ** [redacted] ** setpoint for the DA load forecast and actual historical data being used in the load forecast?

A: First, in 2020 Nucor had just started operations and their load was lower relative to where they operate today. This resulted in a lower MW value being included in the DA forecast from Tesla. Second, for the Evergy Missouri West load node, the average DA LMP was higher than the average RT LMP in 2021. Therefore, on average, buying more load in the RT market versus DA was advantageous in 2021.

Q: What was the impact in February of 2021?

A: In February of 2021 the average DA LMP for the MO West load node was $548.07 while the average RT LMP was $191.83. Buying more load in the RT market was, on average, much more advantageous. For Evergy Missouri West there would have been no Nucor load included in the Tesla forecast for February (recall that Tesla uses historical load data in their model, and with Nucor starting operations in March 2021 there was no historical data for Tesla to use).

Of the ** [redacted] ** of benefit from operational events in 2021, ** [redacted] ** is from February alone. In other words, it was ** [redacted] ** more beneficial to purchase all Nucor load in the RT market, versus the DA market, in February 2021.

Q: Please summarize your testimony?

A: Regarding Nucor purchased power costs, there were two errors in Staff witness Luebbert's testimony. First, the Nucor hourly load data provided by the Company erroneously had double entries for every hour after January 1, 2021. Second, the revenue from the CBIII wind farm was calculated from the wrong SPP settlement node. Making these changes results in the CBIII revenue increasing from ** [redacted] **

Looking at customer event balancing, there were two issues of note. First, witness Luebbert incorrectly applied the specifics of Paragraph 7.d. in the Stipulation when calculating the event balancing (i.e. using "4 or more" hours instead of the correct "more than 4 hours" methodology). Second, accounting for Nucor load that was included in the Company's DA load forecast from its third-party vendor versus assigning a random "setpoint" changes the balancing event analysis. The revised analysis shows a ** [redacted]

[redacted] ** benefit in 2021 due primarily to much higher DA LMPs versus RT LMPs in February 2021.

This information is used by Company witness Bradley Lutz in his rebuttal testimony to evaluate the appropriateness of the Staff revenue adjustment for Nucor.

Q: Does that conclude your testimony?

A: Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Evergy Metro, Inc. d/b/a Evergy Missouri Metro's Request for Authority to Implement A General Rate Increase for Electric Service	))))	Case No. ER-2022-0129
In the Matter of Evergy Missouri West, Inc. d/b/a Evergy Missouri West's Request for Authority to Implement A General Rate Increase for Electric Service	))))	Case No. ER-2022-0130

AFFIDAVIT OF JOHN R. CARSLON

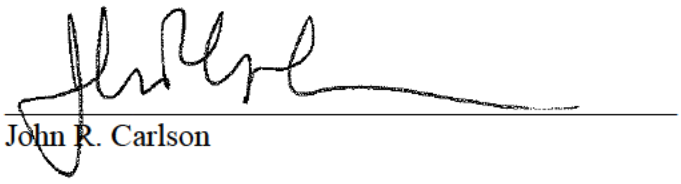
STATE OF MISSOURI)
) ss
COUNTY OF JACKSON)

John R. Carlson, being first duly sworn on his oath, states:

1. My name is John R. Carlson. I work in Kansas City, Missouri, and I am employed by Evergy Metro, Inc. as Senior Manager – Market Operations.

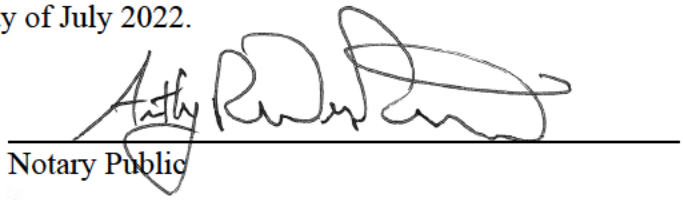
2. Attached hereto and made a part hereof for all purposes is my Rebuttal Testimony on behalf of Evergy Missouri Metro and Evergy Missouri West consisting of nine (9) pages, having been prepared in written form for introduction into evidence in the above-captioned docket.

3. I have knowledge of the matters set forth therein. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.



John R. Carlson

Subscribed and sworn before me this 13th day of July 2022.



Notary Public

My commission expires: 4/26/2025

ANTHONY R. WESTENKIRCHNER
NOTARY PUBLIC - NOTARY SEAL
STATE OF MISSOURI
MY COMMISSION EXPIRES APRIL 26, 2025
PLATTE COUNTY
COMMISSION #17279952