Exhibit No.:	
Issue:	SPP Markets; Unplanned Load Changes
Witness:	John R. Carlson
Type of Exhibit:	Direct Testimony
Sponsoring Party:	Evergy Missouri West
Case No.:	ER-2023-0444
Date Testimony Prepared:	October 31, 2023

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO.: ER-2023-0444

DIRECT TESTIMONY

OF

JOHN R. CARLSON

ON BEHALF OF

EVERGY MISSOURI WEST

CONFIDENTIAL

Kansas City, Missouri
October 2023

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. For the purpose of this testimony, I will refer to Evergy Missouri West as "Evergy Missouri West" or the "Company".

Q: What are your responsibilities?

A: My primary responsibilities include oversight of Evergy'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 direct testimony?

A: The purpose of my testimony is to address how unplanned load changes by Nucor are addressed in the Stipulation and Agreement ("Stipulation") between the Company, Commission Staff and Nucor in File No. EO-2019-0244. In addition, I will discuss how the real-time ("RT") and day-ahead ("DA") SPP markets effect the balancing relationship as contemplated in the Stipulation.

II. NUCOR STIPULATION

Q: Please provide an overview of Paragraph 7.d. of the Stipulation?

A: Paragraph 7.d. of the Stipulation outlines how the Company will identify if additional SPP-related costs resulting from unexpected operational events occurred. These costs could be incremental costs to non-Nucor customers or to the Company. In particular, the Stipulation states:

> If actual Nucor load experiences a 25% deviation from the expected Nucor load for more than 4 hours and that load change is not reflected in the GMO day-ahead commitments, GMO will quantify the balancing relationship between the hourly and day-ahead prices to identify the effect of the unplanned load change to apportion any additional SPP balancing charges and will incorporate the effect attributed to Nucor into the tracking of Nucor costs. If the effect of this relationship increases costs to non-Nucor customers, the amount will be reflected in a subsequent FAC rate change filing and the portion attributed to Nucor will be identified with supporting work papers and removed from the Actual Net Energy Cost prior to the calculation of the FAC rates.

Q: Walk us through the process of tracking deviations from forecasted Nucor load?

A: Nucor's hourly RT load is compared to its forecasted hourly DA load, and if the RT load deviates from the DA load by more than 25%, positive or negative, then that hour is noted. If there are more than 4 hours of more than 25% deviation from the forecasted load then the Company starts tracking the cost, comparing costs in the DA and RT SPP Market, starting in the 5th hour. The Company starts with the 5th hour because there is no "event" until there is more than a 4-hour deviation by more than 25%.

III. THE SPP MARKET AND THE BALANCING RELATIONSHIP

Q: What does the Stipulation language mean by the balancing relationship between the hourly and DA prices and SPP balancing charges?

A: This language addresses the interplay between the DA and RT markets and the SPP charges for market participant load. Market participants bid in their load in the DA market on a

daily basis and are charged a DA price based on their load node locational marginal price ("LMP"). The market participant's load expense is trued-up in the RT market depending on the actual load and the RT load node LMP. If the RT load was higher than the DA bid for a given hour, and the RT LMP was higher than the DA LMP for that same hour, then the market participant would be charged incremental load expense by the SPP Market. For Nucor, the actual load expense is compared to the expense if the forecast had been perfect (the DA forecast multiplied by the RT LMP). See the example below.

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In this example, the column labeled "Actual MW" are the RT load megawatts ("MW") for Nucor for the specified hour ("Usage HR"). Likewise, the "Forecast MW" column is the DA forecasted Nucor load. Once there are more than 4 hours of more than 25% deviation then the dollar impacts are tracked. In hour 20 the forecast load (DA) was **[redacted]** MW and the actual (RT) load was **[redacted]** MW. With this being the 5th hour of greater than 25% deviation, the Company starts tracking the costs. See below for the calculation (rounding has occurred with the Forecast and Actual MW).

Nucor operations impact = DA expense + RT true-up – Perfect forecast (no Nucor impact)

(1) DA expense = DA LMP x Forecast MW

= $**[redacted]**/MW x **[redacted]**MW

=$**[redacted]**

(2) RT true up = RT LMP x (Actual MW – Forecast MW)

= $**[redacted]**/MW x (**[redacted]** MW – **[redacted]** MW)

= - $**[redacted]**

(3) Perfect forecast = DA LMP x Actual MW

= $**[redacted]**/MW x **[redacted]** MW

= $**[redacted]**

Nucor operations impact = (1) + (2) - (3)

= $**[redacted]** +(**[redacted]**) - $**[redacted]**

= $**[redacted]**

In the above example, the Company purchased more MW in the DA market than was needed for Nucor's actual load in the RT market. The extra MWs purchased in the DA were sold back to the market at a lower price, thus causing an additional expense of **[redacted]** due to Nucor operations. The opposite occurred in hour 21, the 2nd hour of the tracked deviation. In this hour the extra MWs were sold back to SPP at a higher price in the RT market, creating an incremental benefit from Nucor operations.

Q: Does this flipping from benefit to detriment, shown previously, occur frequently?

A: Yes. While the difference between the Forecast MW and the Actual MW for Nucor impact the cost calculations, the constantly changing SPP market is a large factor as well. The

generation mix and transmission system within the SPP are in a constant state of flux, so LMPs are constantly adjusting as well, resulting in some hours being a benefit and some hours being a detriment.

Q: So, there can be benefits to non-Nucor customers when Nucor's actual load deviates from its forecasted load?

A: Yes.

Q: Does the Stipulation state that the Company should only identify the effect of unplanned load changes if they impact non-Nucor customers in a negative way?

A: No. The Stipulation states the Company will identify the effect of any unplanned load changes to apportion any additional SPP balancing charges to Nucor. If the effect is an increase in costs to non-Nucor, then an adjustment will be made to reduce the FAC costs. However, this doesn't mean that the Company shouldn't also track those times when the unplanned load changes reduce non-Nucor costs.

Q: How has the Company identified the effects of unplanned load changes from Nucor?

A: The Company has tracked all of the effects of unplanned load changes from Nucor. That is to say, both positive and negative effects have been tracked.

Q: How would you summarize your testimony?

A: The Stipulation states that when Nucor's load deviates from its forecasted load by 25% for more than 4 hours those events need to be tracked. Starting with the 5th hour of an operational event, the Company has tracked the hourly impact of Nucor's RT load deviation from its DA forecast. Due to the dynamics of the SPP market, Nucor's load deviation can have a positive or negative impact on non-Nucor customers, all of which have been tracked by the Company.

Q: Does that conclude your testimony?

A: Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Evergy West, Inc. d/b/a Evergy Missouri West for Authority To Implement Rate Adjustments Required by 20 CSR 4240-20.090(8) and the Company's Approved Fuel and Purchased Power Cost Recovery Mechanism	))))))	File No. ER-2023-0444

AFFIDAVIT OF JOHN R. CARSLON

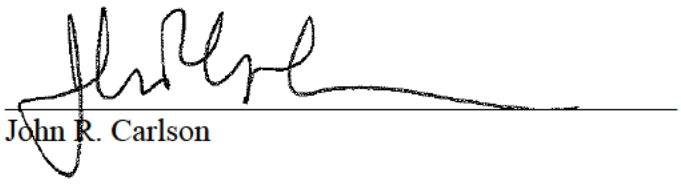
STATE OF MISSOURI)
) ss
COUNTY OF JACKSON)

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.

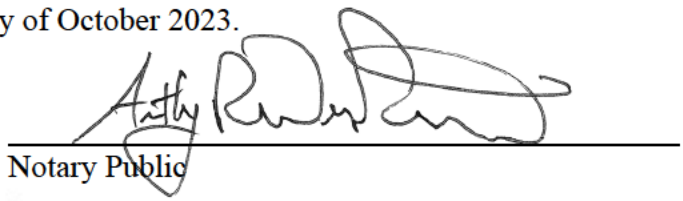
2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Evergy Missouri West consisting of seven (7) pages, having been prepared in written form for introduction into evidence in the above-captioned docket.

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 31st day of October 2023.



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