Exhibit No.:	
Issue:	Unit Commitment; Market Offers
Witness:	John R. Carlson
Type of Exhibit:	Direct Testimony
Sponsoring Party:	Evergy Missouri Metro and Evergy Missouri West
Case No.:	EO-2020-0262 (Lead - Consolidated) EO-2020-0263 (Consolidated)
Date Testimony Prepared:	October 29, 2020

MISSOURI PUBLIC SERVICE COMMISSION

CASE NOS.: EO-2020-0262 (Lead - Consolidated)
EO-2020-0263 (Consolidated)

DIRECT TESTIMONY

OF

JOHN R. CARLSON

ON BEHALF OF

EVERGY MISSOURI METRO
and EVERGY MISSOURI WEST

Kansas City, Missouri
October 2020

DIRECT TESTIMONY

OF

JOHN R. CARLSON

Case Nos. EO-2020-0262 (Lead - Consolidated)
EO-2020-0263 (Consolidated)

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 of Missouri Operations for Evergy Metro, Inc. d/b/a Evergy Missouri Metro ("Evergy Missouri Metro") and Evergy Missouri West, Inc. d/b/a Evergy Missouri West ("Evergy Missouri West").

Q: Who are you testifying for?

A: I am testifying on behalf of Evergy Missouri Metro and Evergy Missouri West (collectively, "Evergy" or "the Company").

Q: What are your responsibilities?

A: My primary responsibilities include oversight of the Missouri operations' daily submittals to the Southwest Power Pool ("SPP"), including generation and load, and management of our transmission congestion portfolio and natural gas procurement. The Missouri Operations group also has responsibility for SPP registration activities and we develop and manage the Company's budget for Regional Transmission Organization ("RTO") fees and transmission charges

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, and in 2004 I received a Master of Business Administration from the University of Chicago Booth School of Business. I joined Kansas City Power & Light Company ("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[1] 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 before the Missouri Public Service Commission ("MPSC" or "Commission") or before any other utility regulatory agency?

A: Yes, I have testified before the MPSC.

[1] Following approval granted by the Commission in Case No. EM-2018-0012, Great Plains Energy, Inc. (the former holding company parent of KCP&L and KCP&L Greater Missouri Operations Company) merged with Westar Energy, Inc. in June 2018. The utility operating companies were subsequently re-named under the Evergy brand, with KCP&L becoming Evergy Metro, Inc., KCP&L Greater Missouri Operations Company becoming Evergy Missouri West and Westar Energy becoming Evergy Kansas Central.

Q: What is the purpose of your testimony?

A: The purpose of my testimony is to review baseload unit commitment in the Southwest Power Pool's ("SPP") Integrated Marketplace ("IM") and to discuss the Company's process for offering generation in the SPP IM.

UNIT COMMITMENT IN THE SPP IM

Q: Please provide some background on unit commitment.

A: Prior to the SPP IM, which went into effect in March 2014, SPP market participants were responsible for matching their generation to their load; they were their own balancing authority ("BA"). Being your own BA meant ensuring on an hourly basis that your load was fully covered by your online generation. For those hours that you had more generation than load you would sell the energy to the SPP at the real-time price. Likewise, for those hours that you were short generation relative to your load you had to buy energy from the SPP or from another market participant. This was known as a real-time balancing market.

Prior to the SPP IM, the Company operated its baseload generating assets similarly to most entities with large baseload units. That is, they would start-up and run for extended periods of time to meet a base level of the load requirements of each entity. Any need above that base level would be supplied with combustion turbines or other peaking generating assets. Typically, the large baseload units of each entity were the lowest production cost units in their generation fleet.

Q: How have things changed since implementation of the SPP IM?

A: With the SPP IM came the formation of the consolidated balancing authority ("CBA"). The CBA took the responsibility of each legacy balancing authority to

balance load with generation and gave it to the SPP for the entire market. Once this change took effect, market participants had to decide whether they should submit their generation in market commitment or self-commitment status. Market commitment allowed for the SPP to solve for the lowest cost, most reliable solution, across the entire SPP market, and commit generation accordingly. Self-commitment means the market participant has decided to commit the unit to the market, regardless of the SPP solution.

Q: How has the Company managed commitment of generation in the SPP?

A: Since 2017, the Company has increased its market commitment of generation and correspondingly reduced its self-commitment. By continuing to analyze flexible operations, in an ever-changing market, the Company continues to fine-tune its generation assets to meet the commitment decisions made by the SPP market. However, Evergy will continue to use self-commitment, but only when necessary, and primarily to meet safety, reliability, and/or environmental compliance reasons.

Q: How does this change by Evergy align with the broader SPP market?

A: The SPP Market Monitoring Unit's ("MMU") December 2019 report, "Self-committing in SPP Markets: Overview, impacts and recommendations" discussed how SPP has seen a decline in self-committed generation, dropping from 70% in 2015 to 50% in 2019. As discussed above, there are appropriate reasons this would never be 0% in the SPP market. Nonetheless, Evergy continues to be a leader within SPP in maximizing its market-committed generation. Year-to-date

through September 2020 Evergy has market-committed its baseload generation 97% of the time.

PROCESS FOR OFFERING GENERATION IN THE SPP IM

Q: How are generation offers developed by the Company?

A: In the SPP, generation offers are comprised of three parts: start-up, no-load and energy. As described in SPP's Market Protocols, a unit's start-up offer is the dollars per start that can include start fuel, total fuel-related cost, performance factor, electrical costs, start variable operations and maintenance ("VOM") cost, start major maintenance cost, and additional labor cost, if required above normal station manning levels" [2]. The no-load offer is the hourly fixed cost required to operate the asset at zero electricity output to the grid. Like the start-up offer, the no-load portion includes fuel, performance factor, VOM and major maintenance components.[3] It is the discretion of market participants as to which costs to include in their start-up and no-load offers.

Energy offer curves are developed and submitted to the SPP daily, using a cost-based approach. Each fossil fuel asset has a heat rate curve, developed by the Company's engineering group, that details the heat input required by the asset per MWh of generation output. That is multiplied by the applicable fuel price and performance factor to get a $/MWh value. Any VOM expenses, on a $/MWh basis, are added in to get the final offer price. As the heat rates change based on output of the unit, offer prices are developed across the operating range of the unit, thus coming up with an offer curve.

[2] Integrated Marketplace Protocols 78 – Active Version.pdf, pgs. 923-925; https://spp.org/spp-documents-filings/?id=18162.
[3] Ibid, pgs. 925-927.

Q: How does the SPP use the three-part offer to determine unit commitment and dispatch?

A: Start-up, no-load and energy offers are used by the SPP in determining unit commitment, whereas energy offer curves are used in determining unit dispatch. Baseload generation assets can have significant start-up and/or no-load costs, dependent on the fuel used for start-up and the start times. The SPP only looks forward one operating day when solving for the commitment of resources. If a unit has significant start-up costs and/or long start times, there is an increased likelihood of not being committed.

Q: Regarding the fuel prices used in the offer curve, how are those determined?

A: Because offers are submitted on a day-ahead basis (i.e. offers are submitted to SPP on Monday for Tuesday's operating day), the fuel price used for natural gas offers is estimated based on gas pricing on the morning offers are submitted. The Company's natural gas buyers look at pricing in the morning and might adjust slightly to account for potential variance in pricing for the next day, when the units might run.

For the baseload coal units, the fuel price is an all-in price that includes commodity and transport, in addition to other items such as additives. Total fuel related costs for coal units typically change less frequently (e.g. monthly) than total fuel related costs for other generation sources. Contracts with suppliers can be multiple years in duration and include fixed or variable, or market-based, rate structures. The Company attempts to optimize operations in relation to supply contracts. For example, coal commodity and transport contracts include

volumetric components (e.g. "X" tons of coal delivered) and can include tiered pricing structures. Typically, liquidated damages are paid by the buyer in the case where specified volume levels are not attained. For tiered fuel pricing, rates can be correlated to generation; the more one generates the lower the fuel rate. In cases like these, the Company would optimize the generation offers to account for peculiarities in commodity and transport contracts and pricing.

Q: Please describe the VOM used in the Company's market offers.

A: Aside from the Jeffrey Energy Center ("Jeffrey"), the VOM for the Company's generating assets is calculated by using a percentage of total non-fuel operations and maintenance expenses, a process approved by the MMU. These updates were made on a quarterly basis.

Jeffrey uses a different process because the generator operator ("GOP") of the unit is responsible for the offer process. Legacy Westar was the GOP for Jeffrey and had systems in place to capture more detailed VOM information. Jeffrey's VOM is calculated using specific account and work class code data that comes out of their work management system. Updates are made on an annual basis using a 10-year average of operations and maintenance expenses and generation. This process is also approved by the MMU.

Q: Have there been changes to how the Company commits resources, or calculates market offers, since the formation of Evergy?

A: Yes, there have been. Through an increased focus on flexible operations we continue to increase the amount of time we market commit assets. Flexible operations can include lowering minimum operating megawatt ("MW") levels,

increasing maximum operating MW levels, reducing cycle times and working on accelerated unit start-up procedures. Further, the Company continues to analyze and implement the "best of both" as we continue to merge operations of legacy KCP&L and legacy Westar. For example, in 2019 the Evergy Metro and Missouri West operating units began updating VOM on an annual basis, using an historical average process in line with the legacy Westar process. The Company also implemented a new work management system that should allow for more detailed tracking and accounting of VOM expenses in the future.

Q: Does this conclude your testimony?

A: Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Third Prudence Review of Costs Subject to the Commission-Approved Fuel Adjustment Clause of Evergy Missouri West Inc., d/b/a Evergy Missouri West	))))	File No. EO-2020-0262
In the Matter of the Third Prudence Review of Costs Subject to the Commission-Approved Fuel Adjustment Clause of Evergy Metro, Inc., d/b/a Evergy Missouri Metro	))))	File No. EO-2020-0263

AFFIDAVIT OF JOHN R. CARLSON

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. and serve as Senior Manager Missouri Operations – Generation Resources for Evergy Metro, Inc. d/b/a Evergy Missouri Metro ("Evergy Missouri Metro) and Evergy Missouri West, Inc. d/b/a Evergy Missouri West ("Evergy Missouri West").

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Evergy Missouri Metro and Evergy Missouri West consisting of eight (8) 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 29th day of October 2020.

Notary Public

My commission expires: 4/26/2021

ANTHONY R WESTENKIRCHNER
Notary Public, Notary Seal
State of Missouri
Platte County
Commission # 17279952
My Commission Expires April 26, 2021