Exhibit No.:	
Issue:	Fuel Adjustment Clause
Witness:	Jessica L. Tucker
Type of Exhibit:	Surrebuttal Testimony
Sponsoring Party:	Kansas City Power & Light Company
Case No.:	ER-2016-0285
Date Testimony Prepared:	January 27, 2017

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO.: ER-2016-0285

SURREBUTTAL TESTIMONY

OF

JESSICA L. TUCKER

ON BEHALF OF

KANSAS CITY POWER & LIGHT COMPANY

Kansas City, Missouri
January 2017

SURREBUTTAL TESTIMONY

OF

JESSICA L. TUCKER

Case No. ER-2016-0285

Q: Please state your name and business address.

A: My name is Jessica L. Tucker. My business address is 1200 Main Street, Kansas City, Missouri 64105.

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

A: I am employed by Kansas City Power & Light Company ("KCP&L" or the Company) as Senior Manager of Power System Operations.

Q: On whose behalf are you testifying?

A: I am testifying on behalf of KCP&L

Q: What are your primary responsibilities?

A: My primary responsibilities are to oversee Power Control Center operations, including Southwest Power Pool ("SPP") Integrated Marketplace ("IM") participation. Power Control Center operations include both the power marketing and generation dispatching functions. My group interacts on a daily basis with SPP regarding market participation and operations.

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

A: I graduated Summa Cum Laude from Kansas State University in December 1999 with a Bachelor's of Science degree in Agriculture. I began my career in the energy industry in January 2001 with Aquila as an Associate Hourly Trader. In this role, my efforts were focused on executing short term physical power transactions in the real time market across various North American Electric Reliability Corporation ("NERC") regions. My employment with KCP&L began in August of 2002 as an Hourly Trader on the real time desk. From August 2002 to May 2006, my role focused on buying and selling power in the real time market. In June 2006, I was promoted to Interchange Marketer, which focused my trading activity on day ahead and monthly power transactions. I was also a part of KCP&L's RTO integration team that prepared the generation dispatching and trading area for participation in the SPP Energy Imbalance Service ("EIS") market, which launched on February 1, 2007. In November 2010, I was promoted to Manager, System Operations (Power). My primary responsibility was to oversee 24x7 Power Control Center functions, which consisted of real time and day ahead power trading, power scheduling, and generation dispatching operations. This not only included overseeing our participation in the SPP market, but compliance with applicable NERC Reliability Standards. I was also responsible for preparing the dispatching and trading group for participation in the SPP IM, which launched on March 1, 2014. During preparations for the launch of the SPP IM, I was a voting member of the SPP Consolidated Balancing Authority Steering Committee ("CBASC"). After the launch of the IM, this group transitioned to the Balancing Authority Operating Committee ("BAOC"). In April 2015, I was promoted to Senior Manager, Power System Operations. Additionally, I am NERC certified in the area of Reliability.

Q. What does it mean to be NERC certified?

A. NERC certification is a system operator certification program that promotes the reliability of the North American bulk power system by ensuring that employers have a workforce of system operators that meet minimum qualifications. NERC's system operator certification examination tests specific knowledge of job skills and the NERC Reliability Standards, and prepares operating personnel to handle the bulk power system in both normal and emergency conditions. In order to obtain certification, one must pass an examination and subsequently maintain certification by completing NERC-approved continuing education program courses and activities that meet NERC's requirements every three years.

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: No, I have not previously testified in a proceeding before the MPSC or any other utility regulatory agency. However, I have made presentations relating to the SPP Integrated Marketplace to the MPSC (2013), MPSC Staff (2013), and the Kansas Corporation Commission and Staff (2013 and 2014).

Q: What is the purpose of your testimony?

A: I will address OPC witness Lena M. Mantle's claim at page 4 of her Rebuttal Testimony that "most of the Southwest Power Pool ("SPP") costs are not fuel costs, are not purchased power costs and are not costs directly linked to the transmission of true purchased power or off-system sales." There are two issues that I will address in this quote from Ms. Mantle's testimony. First, the Company agrees that SPP costs are not fuel costs incurred by the Company's owned generation. Second, I will explain how the Integrated Marketplace costs and revenues must be taken as a whole and not segregated to eliminate portions of the costs and revenues necessary to serve our customers. In order to refute Ms. Mantle's claim, I will explain how the SPP market works.

Q: What is the key takeaway from your testimony?

A: Purchased power cannot and does not consist solely of the cost of the energy itself. In order for power to serve load, it must include the necessary power support services including Operating Reserves and generation re-dispatch for transmission congestion management. Operating Reserves such as Spinning Reserve and Regulation are carried to ensure reliability. However, when called upon, they become deployed energy. Therefore, one cannot reasonably separate the energy that is purchased from the ancillary services that are being carried to support it. Moreover, given that Energy and Operating Reserves are cleared (awarded) in the Integrated Marketplace on a co-optimized basis with the objective of minimizing total production cost (which I will explain further below), there is no way to uncouple the economics of these products as the OPC proposal would do.

Q: Does Ms. Mantle identify "most of the Southwest Power Pool ("SPP") costs" which she then claims are not fuel costs, purchased power costs, or costs directly linked to the transmission?

A: No. At page 4 of her Rebuttal Testimony she simply says "most" and then points back to her Direct Testimony. Schedule LM-D-1 from Ms. Mantle's Direct Testimony lists "SPP Integrated Market Costs." Based on the discussion at page 11 of her Direct Testimony, it appears she means "most" to be all costs shown on Schedule LM-D-1 that are not Day Ahead Asset Energy, Day Ahead Non-Asset Energy, Real Time Asset Energy and Real Time Non-Asset Energy.

Q: Does SPP's Integrated Marketplace affect these various costs?

A: Yes. Under SPP's IM all of the costs shown on Ms. Mantle's Schedule LM-D-1 as "SPP Integrated Market Costs" are components of Integrated Marketplace Revenues or Integrated Marketplace Costs. The costs and revenues listed on her Schedule LM-D-1 are all a part of making purchased power possible. For example, the majority of costs listed under "SPP Integrated Market Costs" are directly attributable to Operating Reserves that are necessary to support purchased power in the Integrated Marketplace. Products such as Spinning Reserves and Regulation are utilized to ensure that demand continues to be served in the event of a system contingency or increase in load requirements. Put another way, these products ensure that power is available to be purchased for load regardless of system operating conditions.

Q: When did SPP implement its Integrated Marketplace ("IM")?

A: SPP implemented its IM on March 1, 2014.

Q: How did the market for power in SPP change on March 1, 2014?

A: SPP began operating an Integrated Marketplace for Day-Ahead and Real-Time Energy and Operating Reserves. As part of the IM, SPP conducts a market-based procurement for Energy and three types of ancillary services: Regulation (Regulation-Up and Regulation-Down), Spinning Reserves, and Supplemental (Non-spinning) Reserves. These types of ancillary services are known as Operating Reserves. Regulation-Up and Regulation-Down serve to follow the moment-to-moment system balance changes, while Spinning and Supplemental Reserves stand by ready to serve in the event of a system contingency. SPP co-optimizes procurement of these Operating Reserves with Day-Ahead and Real-Time Energy.

Prior to March 1, 2014, wholesale power transactions were conducted in a "bilateral" market where energy and ancillary services were bundled. That is, buyers and sellers negotiated each transaction or group of transactions. The negotiated transaction included consideration for whatever ancillary services were required. While all of the same services were performed before March 1, 2014, the new ancillary services market now gives us the data to know the cost of each of those integrated components.

Q: How does the IM determine those prices?

A: Market Participants submit offers to SPP for Energy and the various Operating Reserve products that they propose to deliver to SPP at their respective generator's node. Using those offers, SPP uses a co-optimized Security Constrained Economic Dispatch (SCED) model to calculate the Locational Marginal Price ("LMP") for each pricing node or settlement location. An LMP is the cost to serve the next increment of load at the specified bus or settlement location. LMPs include the cost of producing energy and some of the cost of getting that power to load (congestion and losses). Using the Operating Reserve product offers, SPP also calculates the Market Clearing Prices ("MCP") via the SCED model for the various Operating Reserve products. MCPs are the cost to provide the next capacity increment of that Operating Reserve product at that specific Reserve Zone. LMPs and MCPs are posted for each hour of the Day-Ahead Market and for each 5-minute period of the Real-Time Balancing Market.

Q: What are the components of an LMP?

A: The LMP, or Locational Marginal Price, consists of three components: (1) Marginal Energy Component (MEC), (2) Marginal Congestion Cost (MCC), and (3) Marginal Loss Component (MLC). The MEC is simply the price of the next available megawatt to serve demand and is only reflective of the energy cost itself. The MCC reflects the cost of congestion on the transmission system, or put another way, the cost of any necessary re-dispatch to allow energy to get to a particular location given the current system reliability conditions. The MLC reflects the cost of marginal losses associated with megawatts flowing on the transmission system. The sum of these three components is the LMP which represents the price of energy at a given location. LMPs fluctuate based upon operating conditions on an hourly or five-minute basis.

Q: How does SPP use those LMPs and MCPs to dispatch the various resources or generating units?

A: SPP uses security-constrained algorithms to simultaneously co-optimize Energy and Operating Reserves. That is, given reliability constraints, it optimizes for the lowest total production cost of Energy plus Operating Reserves. As discussed in Section 3.1 of the SPP Integrated Marketplace Protocols:

> Energy and Operating Reserve Markets operations will "simultaneously" or "jointly" optimize Resource Offers for Energy and Operating Reserve in the Security Constrained Unit Commitment (SCUC) and Security Constrained Economic Dispatch (SCED) algorithms. The objective function of joint optimization will be the minimization of the total production costs in the DA Market and the RTBM for energy and operating reserve products to meet the requirements. Procurement of Operating Reserve (Regulation-Up Service, Regulation-Down Service, Spinning Reserve, and Supplemental Reserve) will not be decoupled from the procurement of Energy from Resources capable of providing both Energy and Operating Reserve. Resources selected to provide Operating Reserve will receive opportunity cost payments when appropriate which are included in the Market Clearing Prices for each product. The simultaneous optimization logic considers various permutations of unit commitment, and the joint dispatch of Energy and Operating Reserve, arriving to a solution that results in the least overall production cost subject to reliability constraints.

Q: Does that mean that the cost of energy to serve load is inextricably joined with the cost of such Operating Reserve products as spinning reserve?

A: Yes. Through the co-optimization process, the cost of energy, which explicitly includes the cost of transmission congestion and losses, is inextricably joined with the cost of providing Operating Reserve products.

Q: Have these costs always been inextricably joined together?

A: Yes. Prior to the IM, KCP&L was the Balancing Authority ("BA") for its service territory. As the BA, the Company was responsible for balancing generation with load/obligations. To do that, the Company dispatched its units and purchased or sold power so the amount of generation on its system matched the amount of load or obligation on the system. Because generation and load are not constant, we maintained Operating Reserves (Regulation, Spinning, and Supplemental) on our system as we were required to do. Spinning Reserves are that extra generating capacity that is synchronized, unloaded, and ready to serve load immediately in the event of a system contingency while Regulation is that generation capacity that is responsive to AGC (Automatic Generation Control) and follows the moment-to-moment changes in system balance. The Company would maintain those reserves by operating one or more of its units below maximum such that this extra generation capability was held back in reserve in the event it was needed.

Prior to the IM, the cost of Spinning Reserves, for example, was not transparent because it was an opportunity cost or a fuel cost. That is, when units were "in-the-money," the cost of spinning reserves was the lost margin from sales that could have been made on the difference between the level at which we ran our units and their full capability. However, when the units were "out-of-the-money," the cost of Spinning Reserves was a portion of the ordinary cost of fuel necessary to keep the unit operating. Sometimes the cost of operating reserve services was the cost of purchased power. Prior to the IM, KCP&L experienced those costs but they were not explicitly recognized.

Q: How are energy costs and operating reserve services joined in the IM?

A: In the IM, SPP is responsible for balancing generation and load/obligations for the entire SPP footprint. To do that, SPP aggregates the load and Operating Reserve requirements for all member load-serving entities. The SPP IM then co-optimizes the Energy offers and Operating Reserve offers from all of the Market Participants for the lowest total cost of serving SPP's total load and obligation, given the security or reliability constraints.

Q: **You have discussed how prior to the IM Operating Reserve services such as Spinning Reserves were ultimately a fuel cost, opportunity cost of lost margins, or purchased power. Is that still the case for the IM?**

A: Yes. The difference is that SPP is now the entity making the decisions regarding where to carry these Operating Reserve products, not KCP&L.

Q: How can you say that Auction Revenue Rights and Transmission Congestion Rights (which are also part of the IM) are essentially compensation for additional fuel or production costs when the SPP market would not otherwise fully pay for a unit's fuel or production costs?

A: Transmission congestion costs are the additional production costs resulting from the lack of transmission capacity. Those additional production costs are incurred when low-cost generation must be backed down and higher-cost generation must be ramped up to serve load. Transmission congestion cost is the marginal cost of that re-dispatch of generation.

Those marginal costs reflect the incremental fuel and fuel related costs of the higher-cost generation. Transmission congestion costs are an integral part of the price of electricity in the IM and Auction Revenue Rights and Transmission Congestion Rights are the IM mechanism to compensate Market Participants for those costs

Q: What would happen if the Commission adopted Ms. Mantle's recommendation to grant FAC recovery of some components of the IM, but deny FAC recovery to other components?

A: It would result in an irrational and unfair FAC that did not allow KCP&L to recover all of its fuel and purchased power costs. It would also result in an FAC that did not fairly allow our customers to enjoy the full benefit of the IM. The various components of the IM are designed to work together with the focused intent of minimizing total production cost. For example, the revenue from the Make Whole Payments is compensation for fuel or production costs that are greater than the market price of power or Operating Reserves when SPP needs units to run for reliability or other noneconomic reasons. Much like an intricate complex machine, removing any one part will cause it to run inefficiently and increase the risk of failure. Ms. Mantle's separation of the integrated components of SPP's IM will ensure that the Company's customers do not receive the full benefit of the IM. As Company witness Wm. Edward Blunk discussed in his Rebuttal Testimony, although power price volatility has increased with SPP's establishment of the IM, total costs are lower today than they would have been otherwise.

Q: How do you recommend the Commission treat the IM revenues and costs shown on Ms. Mantle's Schedule LM-D-1?

A: SPP uses security constrained algorithms to jointly optimize offers for Energy and Operating Reserves for minimum total production cost. That co-optimization process ties these revenues and costs together into a complex whole. Therefore, I recommend that the Commission maintain the integrity of the IM's benefits for the Company's customers by keeping all of the Integrated Marketplace Revenues and Integrated Marketplace Costs in the FAC.

Q: Does that conclude your testimony?

A: Yes.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Kansas City Power & Light Company's Request for Authority to Implement A General Rate Increase for Electric Service	)))	Case No. ER-2016-0285

AFFIDAVIT OF JESSICA TUCKER

STATE OF MISSOURI)
) ss
COUNTY OF JACKSON)

Jessica Tucker, being first duly sworn on his oath, states:

1. My name is Jessica Tucker. I work in Kansas City, Missouri, and I am employed by Kansas City Power & Light Company as Senior Manager Power System Operations.

2. Attached hereto and made a part hereof for all purposes is my Surrebuttal Testimony on behalf of Kansas City Power & Light Company consisting of twelve (12) 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.

Jessica Tucker

Jessica Tucker

Subscribed and sworn before me this 27th day of January 2017.

Nicole A. Wehry

Notary Public

My commission expires: Feb. 4 2019

NICOLE A. WEHRY
Notary Public - Notary Seal
State of Missouri
Commissioned for Jackson County
My Commission Expires: February 04, 2019
Commission Number: 14391200