Exhibit No.:	
Issue(s):	*Revenue - Weather Normalization*
Witness:	*Seoung Joun Won, PhD*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Rebuttal Testimony*
Case No.:	*ER-2018-0145 and ER-2018-0146*
Date Testimony Prepared:	*July 27, 2018*

MISSOURI PUBLIC SERVICE COMMISSION

COMMISSION STAFF DIVISION

TARIFF AND RATE DESIGN DEPARTMENT

REBUTTAL TESTIMONY

OF

SEOUNG JOUN WON, PhD

KANSAS CITY POWER & LIGHT COMPANY
CASE NO. ER-2018-0145

AND

KCP&L GREATER MISSOURI OPERATIONS COMPANY
CASE NO. ER-2018-0146

Jefferson City, Missouri
July 2018

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Q. Please state your name and business address.

A. My name is Seoung Joun Won and my business address is Missouri Public Service Commission, P. O. Box 360, Jefferson City, Missouri 65102.

Q. Who is your employer and what is your present position?

A. I am employed by the Missouri Public Service Commission ("Commission") and my title is Regulatory Economist III in the Tariff and Rate Design Department of the Commission Staff Division

Q. Are you the same Seoung Joun Won who prepared the Weather Normalization section of Staff's Cost of Service Report ("Staff Report")?

A. Yes, I am.

EXECUTIVE SUMMARY

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to address issues with the hourly load research data ("HLRD") that Kansas City Power & Light Company ("KCPL") and KCP&L Greater Missouri Operations Company ("GMO") witness Mr. Albert R. Bass, Jr. used to calculate weather normalization adjustments.

Q. Which aspects of the HLRD used by Mr. Bass are you going to address?

A. I am addressing two issues: (1) the sample design to produce HLRD for weather normalization of GMO and (2) the Large Power Service ("LPS") class HLRD for weather normalization of both KCPL and GMO.

SAMPLE DESIGN FOR GMO

Q. What sample design was used to produce HLRD for Mr. Bass' weather normalization of GMO?

A. The Company used the samples developed for pre-GMO rate consolidation and modified samples for post-GMO rate consolidation. GMO's response to Staff data request No. 0124 provided:

> Pre-GMO Consolidation, (07/16 through 02/17) load research analyses were ran separately for GMO-MPS and GMO-L&P for the sampled (non-census) classes using normal methodology. Post-GMO Consolidation, Load research points were reviewed for their pre- and post-GMO Consolidation rates. If the pre- and post-GMO Consolidation rates were within the same class, no changes were made, other than new class names were created for any affected GMO classes.

Q. Is this treatment consistent with the Non-Unanimous Stipulation and Agreement approved by the Commission in GMO's last rate case, Case No. ER-2016-0156?

A. Given the timing of GMO's filing for this case, yes. In the Non-Unanimous Stipulation and Agreement in Case No. ER-2016-0156, GMO agreed that,

> If GMO does not file a rate case including at least 12 months of resampled consolidated rate billing data by June 30, 2019, it shall file a rate design case by June 30, 2019 that includes 12 months consolidated rate billing data using the April 30, 2018 resample of load research as the basis of GMO's direct filing. For any rate case or rate design case filed prior to June 30, 2019, GMO commits to provide hourly load data for GMO's test year and Staff's update period no later than three months and one week after the end of each period and weather

> normalized class hourly load data for each period no later than six months after the end of each period. **For any rate case or rate design case filed prior to June 30, 2019, the data used in GMO's analysis will utilize a prior sample design.**
>
> **(Emphasis added).**

Q. Does the timing of GMO's filing for this case impact the reliability of the weather normalization adjustment in this case?

A. Yes. For proper weather normalization, the HLRD would need to be calculated using a sample design consistent with the new consolidated rates. The old sample design, which is used for this rate case, was developed based on pre-GMO rate class configurations that have two separate service districts, L&P and MPS.[1] GMO's rate consolidation made a significant alteration of rates including rate design, rate structures, and rate class configuration.[2] In addition, there are significant customer migrations between rate classes because of GMO's rate consolidation.[3] For these reasons, a simple redistributed sample method may not properly represent GMO's consolidated rate configuration.

Q. Why does sample design matter for weather normalization?

A. Weather normalization is an adjustment process to remove abnormal temperature impacts for calculating normal usage of the test year. To accurately calculate normal usage, the relationship between temperature and usage must properly be analyzed. Improper sampling distorts the relationship, so that the result of weather normalization would be biased.

[1] L&P and MPS were rate districts in the tariff of GMO pre rate consolidation.
[2] See Staff's Class Cost of Service Report filed in Case No. ER-2016-0156.
[3] For the number of customer changes during the period of the rate consolidation, please see direct testimonies contained in the Staff Report of Staff witnesses Kim Cox and Jose Perez and the associated workpapers.

Q. What is Staff's expectation to resolve this issue?

A. Since the rate consolidation happened during the test year of this rate case, the old sample design was inevitably utilized, and, due to time constraints, it is impossible to get the HLRD using a proper sample design for this rate case. Therefore, for any future cases, Staff expects that either GMO uses proper HLRD based on a new sample design which is matched to GMO's consolidated rate design and rate classes, or utilizes its AMI metering and new Customer Information Service capabilities to present actual hourly class loads as incurred, not derived from samples.

LARGE POWER LOAD RESEARCH

Q. What is Staff's concern in the HLRD of LPS for Mr. Bass' weather normalization?

A. The HLRD of LPS is comprised of inconsistent customers during the test year and the update period. Inconsistent customers are customers that have stopped or have started being a LPS customer of KCPL or GMO at some point during the test year or update period. Some of the variation in usage of the class is directly attributable to the customers that are in the class for only portion of the test year and/or update period. Because of that, the relationship between usage and weather is distorted, so there is a potential risk of a biased adjustment of LPS weather normalization.

Q. Why are inconsistent customers relevant to weather normalization?

A. If usage is decided by inconsistent customers, the relationship between usage and weather is inaccurately calculated. In other words, variation of usage is not decided by temperature or seasonal variation, but by customers coming on and/or dropping off, so that the result of weather normalization would be biased.

Q. What is the evidence that inconsistent customers are used for HLRD of LPS weather normalization?

A. According to the Companies' responses to Staff's data request No. 0124.1, to produce HLRD of LPS weather normalization, "the census classes, (which include the Large Power classes), are 100% sampled." Based on the responses of data requests Nos. 97 and 124, the number of LPS customers used to make up HLRDs of KCPL and GMO, respectively, varied between 59 through 63 and 184 through 186 during the test year and the update period. Therefore, some usage changes are not caused by weather variation but instead by customer inconsistency. For this rate case, even if there are some customer changes, Staff has not been able to confirm that there are any significant biases in the weather normalization adjustments because of the limitation of data.[4] However, there is always the possibility of significant errors because of customer inconsistency in HLRD.

Q. What is Staff's expectation for any future cases to resolve this issue?

A. Staff expects KCPL and GMO use consistent customers to produce the HLRD of LPS for future weather normalization or provide the AMI hourly census data for each and every customer from every class so Staff can perform the adjustment for the LPS class.

CONCLUSION

Q. What is the conclusion of Staff's rebuttal testimony on these issues?

A. Staff expects for future cases that GMO employs new sample design of HLRD for weather normalization or provides actual hourly class loads as derived from AMI metering and the new Customer Information System. In addition, Staff recommends the Commission

[4] For an adequate investigation of weather normalization, Staff needs at least 24 months data of LPS individual customers. In data request No. 125, Staff requested the LPS individual customer data for the 24-month period ending December 31, 2017, but KCPL and GMO provided only 16 months of data from July 2016 through October 2017.

require that KCPL and GMO utilize consistent customers to produce HLRD of LPS class or provide the AMI hourly census data for each and every customer from every class so Staff can perform the adjustment for the LPS class as well as every class if that is possible.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

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-2018-0145
		and
In the Matter of KCP&L Greater Missouri Operations Company's Request for Authority to Implement a General Rate Increase for Electric Service	))))	Case No. ER-2018-0146

AFFIDAVIT OF SEOUNG JOUN WON, PhD

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW SEOUNG JOUN WON, PhD and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Rebuttal Testimony* and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

SEOUNG JOUN WON, PhD

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 24th day of July 2018.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

Notary Public