Exhibit No.:	
Issue(s):	*Revenue,* *Billing Determinants*
Witness:	*Francisco Del Pozo*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Direct Testimony*
Case No.:	*ER-2024-0189*
Date Testimony Prepared:	*June 27, 2024*

MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

TARIFF/RATE DESIGNDEPARTMENT

DIRECT TESTIMONY

OF

FRANCISCO DEL POZO

EVERGY MISSOURI WEST, INC.,
d/b/a Evergy Missouri West

CASE NO. ER-2024-0189

Jefferson City, Missouri
June 27, 2024

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Q. Please state your name and business address.

A. My name is Francisco Del Pozo, 200 Madison Street, Jefferson City, MO 65101.

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

A. I am employed by the Missouri Public Service Commission ("Commission") as an Economist for the Tariff/Rate Design Department, in the Industry Analysis Division.

Q. Please describe your educational and work background.

A. I have a Master of Science degree in Agricultural Economics awarded from Kansas State University, Bachelor of Science in Forestry Engineering from La Molina National University, and several specialized trainings on macro and micro economic analysis. I have more than 15 years of experience in regulatory, risk management programs and agricultural trade policy research. My previous professional experience includes working as an Economist and Risk Management Specialist for the United States Department of Agriculture. I started my career with the Commission as an economist in April 2022.

Q. Have you previously testified in proceedings before the Missouri Public Service Commission?

A. Yes. I have provided written testimonies in multiple cases before the Missouri Public Service Commission. Please see Schedule FAD-d1.

EXECUTIUVE SUMMARY

Q. What is the purpose of your direct testimony?

A. The purpose of my direct testimony is divided into two topics. First, I discuss the weather variables Staff used to normalize weather billing determinants for Evergy Missouri West, Inc., d/b/a Evergy Missouri West ("EMW"); and second, I provide Staff's annualized revenues and billing determinants for the Lighting class rate schedules of EMW.

Q. Please summarize your testimony on normalized weather billing determinants.

A. Each year's weather is unique; consequently, test year usage, hourly loads, revenue, and fuel and purchased power expense need to be adjusted to "normal" weather so that rates will be designed on the basis of normal weather rather than any anomalous weather in the test year. In the quantification of the relationship between test year weather and energy sales, Staff used weather data observations for the update period, January 1, 2023, through December 31, 2023.

Q. Do you provide any recommendations that should be specifically reflected in the Commission's Report and Order in this case?

A. Yes, I recommend that the Commission Order reflect Staff's adjusted rate revenue for the lighting classes as provided in my direct testimony along with the billing determinants used to calculate the adjusted rate revenue.

NORMAL WEATHER

Q. What source did you use for weather data?

A. Staff used weather data produced by the Midwestern Regional Climate Center ("MRCC").[1] MRCC is a cooperative program between the National Centers for Environmental

[1] https://mrcc.purdue.edu/.

Information ("NCEI") and Purdue University in Indiana. The NCEI is a part of the Department of Commerce, National Oceanic and Atmospheric Administration ("NOAA").[2] Staff used the weather station data from the Kansas City International Airport ("MCI") in Kansas City, Missouri for the service territory of EMW for actual and normal weather variables. This weather station was selected based on the availability and reliability of the weather data as well as their approximate location to the customer base of EMW. The weather data sets consist of actual daily maximum temperature ("T_{max}") and daily minimum temperature ("T_{min}") observations. As is customary, "mean temperature" (T_{avg}) is defined as the average of T_{max} and T_{min} for the day.

Q. What is a climate normal?

A. A climate "normal" is defined by the NOAA as the arithmetic mean of a climatological element computed over three consecutive decades.[3] In developing climate normal temperatures, the NOAA focuses on the monthly maximum and minimum temperature time series to produce the serially-complete monthly temperature ("SCMT") data series.[4] Staff utilized the SCMT published in July 2011 by the National Climatic Data Center ("NCDC") of NOAA.

Q. Why does Staff use NOAA's SCMT?

A. The serially-complete monthly temperature is an intermediate product that includes adjustments for inconsistencies and biases that may occur in the 30-year time series of daily temperature, (e.g., such as the relocation, replacement, or recalibration of the weather

[2] https://www.ncei.noaa.gov/data.

[3] Retrieved on October 17, 2013, https://www.ncdc.noaa.gov/data-access/land-based-station-data/land-based-datasets/climate-normals.

[4] Retrieved on October 17, 2013, https://www1.ncdc.noaa.gov/pub/data/normals/1981-2010/source-datasets/. The SCMT, computed by the NOAA, includes adjustments to make the time series of daily temperatures homogeneous.

instruments). Changes in observation procedures or in an instrument's environment may also occur during the 30-year period. NOAA accounted for documented and undocumented anomalies in calculating its SCMT.[5] The meteorological and statistical procedures used in the NOAA's homogenization for removing documented and undocumented anomalies from the T_{max} and T_{min} monthly temperature series is explained in a peer-reviewed publication.[6]

To Staff's knowledge, NOAA is the only entity that provides reasonably reliable weather data for 30-year historical period and test year period for the Kansas City region. For the purposes of normalizing the test year energy usage and revenues, Staff used the adjusted T_{max} and T_{min} daily temperature series for the 30-year period of January 1, 1991, through December 31, 2010, at MCI and the raw data series from MCI for the period of January 1, 2011, through December 31, 2020. Staff used the raw data for the most recent period since NOAA has not made the updated SCMT available at this time.

Q. How did Staff calculate daily normal weather?

A. Staff used a ranking method to calculate normal weather estimates of daily normal temperature values, ranging from the temperature that is "normally" the hottest to the temperature that is "normally" the coldest, thus estimating "normal extremes." Normal weather is used to build the base forecast of future energy use. Staff ranked Mean Daily Temperatures ("MDT") for each month of the 30-year history from hottest to coldest and then calculated the normal daily temperature values by averaging the ranked MDTs for each rank, irrespective of the calendar date. The ranking process results in the normal extreme being the average of the

[5] Arguez, A., I. Durre, S. Applequist, R. S. Vose, M. F. Squires, X. Yin, R. R. Heim, Jr., and T. W. Owen, 2012: NOAA's 1981-2010 U.S. Climate Normals: An Overview. Bulletin of the American Meteorological Society, 93, 1687-1697.

[6] Menne, M.J., and C.N. Williams, Jr., (2009) Homogenization of temperature series via pairwise comparisons. J. Climate, 22, 1700-1717.

most extreme temperatures in each month of the 30-year normal period. The second most extreme temperature is based on the average of the second most extreme day of each month, and so forth.

Q. Is Staff's calculation of daily normal temperatures the same as NOAA's calculation of daily normal temperatures?

A. No. The Staff's calculation of daily normal temperatures is not the same as NOAA's calculation of smoothed daily normal temperatures. NOAA's published climatic normals are not directly useable by Staff since the daily normal is based on a calendar date average rather than the ranked daily average that Staff uses. NOAA's normal values are derived by statistically "fitting" smooth curves through the monthly temperatures. As a result, the NOAA daily normal values reflect smooth transitions between seasons and do not directly relate to the 30-year time series of MDTs as used by Staff.[7] Staff calculated its normal daily temperatures based on the rankings of the actual temperatures of the test year, and the test year temperatures do not follow smooth patterns from day to day. Therefore, ranked daily average method has the ability of generating mean daily temperatures of each rank, irrespective of the calendar date. More details of Staff's ranked average method for normal weather are explained in a peer-reviewed publication co-authored by Staff witness Dr. Seoungjoun Won.[8] The article highlights the importance of the ranked method in which both hot and cold extreme temperatures variations are incorporated in the normals calculations whereas these extreme values are dampened in the standard climate normal estimation. The standard

[7] Won, S. J., Wang, X. H., & Warren, H. E. (2016). Climate normals and weather normalization for utility regulation. *Energy Economics, 54*, 405-416.
[8] *Id.*

climate estimation methodology can inadvertently introduce biases in the weather normalization adjustment.

Q. What is your recommendation regarding weather normalization in this case?

A. I recommend reliance on the weather normal Staff derived from the MCI weather station data as the basis for weather normalization adjustments in this case. Staff witness Michael L. Stahlman used this information in his direct testimony for weather normalization of the test year kWh usage and update period hourly loads.

LIGHTING REVENUES AND BILLING DETERMINANTS

Q. What are billing determinants?

A. Billing determinants are the combination of components to which rates are applied to calculate the customer's bill. Additionally, to produce rates the revenue requirement is divided by the appropriate billing determinants[9].

Q. What billing determinates are used to set rates for Lighting Classes?

A. Specifically, for lighting classes the billing determinants used for the metered lighting rate classes are: customer charge and energy usage.

Q. What process was used to estimate test period revenues and billing determinants by lighting rate schedule?

A. EMW provided the billing determinants by class, rate code and then item number, which is the identifier for each charge type within a lighting class. For the test year, I calculated revenues for each lighting class and each item number. This was done by

[9] A billing determinant is a calculation usage data by each unique Lighting rate schedule to create rate charges. The billing determinant calculation applies a mathematical operator in kWh sales to interval data within a use period. Retrieved on June 17, 2024, https://docs.itrontotal.com/IEEMDMHelp/Content/Topics/billing_determinant.htm?TocPath=Rate%20modeler%7CBilling%20determinant%7C_____0

multiplying the units provided for each lighting item number by the verified tariff rate to come up with a monthly revenue for each rate code and item number. The summation of the monthly revenues provides the total annual revenue for each lighting rate code.

Staff updated test-year lighting revenues by making adjustments to reflect the change in usage through the 12-months ending December 31, 2023, for lighting rate schedule revenues. The update period revenue adjustment is calculated by subtracting test year revenue from the update period revenue.

Q. Did you adjust the lighting usage for weather-sensitivity?

A. No. The lighting class is not considered to be weather sensitive. The determinants for both the metered and non-metered lighting classes remain relatively consistent regardless of weather, because the lighting classes are subject to regular schedules to serve public places in all incorporated municipalities and other governmental agencies through long term contracts.

Q. Does the currently effective EMW tariff include all of the rates that are charged to the lighting class?

A. No. First, in the EMW tariff, lighting rate classes can have several items, and those items are unique elements associated with a specific rate. Items are distributed across multiple rates classes. Staff has submitted several inquiries in current[10] and former rate cases[11] to clarify if the applied rate for specific items used in the EMW workbooks correspond to the EMW tariff. In the previous rate case, Case No. ER-2022-0130, Staff requested the Tariff page number containing the rate codes associated with the Item "MDCA" that appears in the rate codes MON36, MON47, MON85, MOMLL. EMW's response was that:

[10] Data Response 0403 response in case EO-2024-0189
[11] Data Responses 0356 and 0331 in case EO-2022-0130

> "The item type, MDCA, is a special contract for decorative lighting that is unique to various historical districts..."[12]

While this response identifies what item MDCA is, it does not provide the rate that is charged.

Q. Do you have any recommendation to enhance the process used to estimate test period revenues and billing determinants by lighting rate schedule?

A. Yes, I recommend that EMW's finalized "special lighting contracts between the Company and the Customer[13]" be submitted with the next rate case application. Staff understands that each contract is unique; however, an early disclosure of the specific rates used will add transparency to the process.

Q. What is your recommendation concerning lighting revenues and billing determinants?

A. I recommend the Commission rely upon the level of lighting class revenues and determinants Staff has provided for incorporation into Staff's revenue requirement and rate design.

Q. Does this conclude your direct testimony?

A. Yes.

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[12] Data response for 0356 in case EO-2022-0130

[13] Refers to individual installations served under special contract. EMW Tariff Page number No. 94.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

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-2024-0189

AFFIDAVIT OF FRANCISCO DEL POZO

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW FRANCISCO DEL POZO and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Direct Testimony of Francisco Del Pozo*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

____
FRANCISCO DEL POZO

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 26th day of June 2024.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: April 04, 2025
Commission Number: 12412070

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Notary Public

Francisco A. del Pozo

Education

2007	M. S., Agricultural Economics, Kansas State University, Manhattan.
2007	B.S., Forestry Engineering, Summa Cum Laude, La Molina National Agricultural University, Lima, Peru.

Professional Experience

2022 -	Regulatory Economist, Missouri Public Service Commission
2019-	Technical Advisor, AVCON Industries, Newton, Kansas.
2009-2017	Agricultural Economist, United States Department of Agriculture (Foreign Agricultural Service and Risk Management Agency), Washington DC and Kansas City, MO.
2007-2009	Congressional Hunger Fellow, United Nations Food and Agriculture Organization, Rome, Italy
2006	Economic Research Service of the United States Department of Agriculture ("USDA"), Summer Fellowship Program
2003-2006	Graduate Teaching/Research Assistant, Kansas State University
1997-2002	Program Manager, National Project on Watershed Management and Soil Conservation. Lima, Peru.
1996	Research Assistant, ADEFOR- Forestry Research Center. Cajamarca, Peru.

Recent Case Summary

Case Number	Company	Issues
GA-2023-0441	Spire Missouri	CCN Case
GA-2023-0374	Spire Missouri	CCN Case
GO-2024-0180	Missouri American Water	Carbon Offset Innit. Case
GA--2024-0100	Spire Missouri	CCN Case
GE-2023-0393	Spire Missouri	Tariff Rule Variation
GA-2023-0110	Spire Missouri	CCN
GR-2023-0038	Spire Missouri	C&I Custom Rebate Program
ER-2022-0337	Ameren Missouri	Electric Tariffs to Adjust to Revenues
GR-2021-0320	Liberty Utilities	Gas Rate Case
ER-2022-0129	Evergy Missouri Metro	Electric Rate Case

Expert Professional Presentations and Publications

Foreign Agricultural Service ("USDA"), Washington, DC July 2012

In the Matter of USDA review of proposals for several free trade agreements tariff lines, developed and presented results scenarios of the tariff rate quotas using computational econometric methods in Both English and Spanish languages during high level trade negotiation meetings with foreign government representatives from Panama, Colombia and CAFTA-DR groups.

United Nations Food and Agriculture Organization, Rome, Italy ("FAO") June 2009

In the Matter of the policy analysis to prevent trade disruptions during due to increase of agricultural commodities, presented a research on the linking trade barriers imposed by countries in the Western Hemisphere based on the case of Argentina's move to restrict agricultural exports during the 2008 food price crisis causing distortions on prices paid to local agricultural producers with the matrix serving as a key tool for the Regional Office for the Latin America and Caribbean Office of FAO.

Agricultural Economics Department, Kansas State University. May 2007

Size of Entry in Food Economy Firms in the United States between 1977 to 1992," M.S. Thesis, Manhattan, Kansas.

Forestry Department, La Molina National Agricultural University. June 1997

Determination of coefficient of sawing of plantations of Pinus in the Andean region