Exhibit No.:	
Issue(s):	*Weather, Transmission Service Class, Excess Facilities Charge*
Witness:	*Randall T. Jennings*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Direct Testimony*
Case No.:	*ER-2024-0261*
Date Testimony Prepared:	*July 2, 2025*

MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

TARIFF/RATE DESIGN DEPARTMENT

DIRECT TESTIMONY

OF

RANDALL T. JENNINGS

THE EMPIRE DISTRICT ELECTRIC COMPANY, d/b/a Liberty

CASE NO. ER-2024-0261

Jefferson City, Missouri
July 2025

** Denotes Confidential Information **

TABLE OF CONTENTS OF

DIRECT TESTIMONY OF

RANDALL T. JENNINGS

THE EMPIRE DISTRICT ELECTRIC COMPANY,
d/b/a Liberty

CASE NO. ER-2024-0261

DIRECT TESTIMONY

OF

RANDALL T. JENNINGS

THE EMPIRE DISTRICT ELECTRIC COMPANY,
d/b/a Liberty

CASE NO. ER-2024-0261

Q. Please state your name and business address.

A. My name is Randall T. Jennings, 200 Madison Street, Jefferson City, Missouri 65101.

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

A. I am employed by the Missouri Public Service Commission ("Commission") as a Research and Data Analyst for the Tariff/Rate Design Department, in the Industry Analysis Division.

Q. Please describe your educational and work background.

A. I have a Bachelor of Science degree in Business Administration awarded from Drury University. I have more than 14 years of experience in regulatory programs. My previous professional experience includes working as an Investigator for the Missouri Attorney General's Office and Regulatory Auditor and Regulatory Auditor Supervisor for the Missouri Division of Professional Registration. I started my career with the Commission as a Utility Regulatory Auditor in November 2021.

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 RTJ-d1.

EXECUTIVE 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 billing determinants for The Empire District Electric Company, d/b/a Liberty ("Empire"); and second, I provide Staff's annualized revenues and billing determinants for the Transmission rate class schedule and Empire's Excess Facilities Charge.

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

A. Each year's weather is unique; consequently, test year usage, hourly loads, revenue, 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, October 1, 2023, through September 30, 2024.

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's Order reflect Staff's adjusted revenue for the transmission rate class as provided in my direct testimony along with the billing determinants used to calculate the adjusted rate revenue. I also recommend that the Commission's Order reflect Staff's adjusted Excess Facilities Charges of Empire.

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 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 Springfield Regional Airport ("SGF") in Springfield, Missouri, for the service territory of Empire 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 Empire's customer base. 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 NOAA's SCMT 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.,

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

the relocation, replacement, or recalibration of the weather 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 a 30-year historical period and test year period for the Springfield 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 SGF and the raw data series from SGF 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

[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.

the calendar date within that month. The ranking process results in the normal extreme being the average of the 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, the 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. Seoung Joun 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 climate

[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.*

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 SGF weather station data as the basis for weather normalization adjustments in this case.

Q. Is the daily normal weather data used by any other Staff witnesses?

A. Yes. Staff witness Michael L. Stahlman used this information in his direct testimony for weather normalization of the test year Kilowatt hour ("kWh") usage and update period hourly loads.

RATE REVENUES AND BILLING DETERMINANTS

Q. What are rate revenues?

A. Rate revenue are the revenues a utility earns from its customers based on rates approved by the Commission. The rates consist of a fixed customer charge and variable rates that are dependent on usage for the season. For example, an energy charge rate for the winter could be different than an energy charge rate for the summer.

Q. What are billing determinants?

A. A billing determinant is a unit of measurement of different items on a customer's bill that rates are applied to calculate the customer's total bill. Examples of billing determinants include, but are not limited to, customer charge, energy usage in kilowatt-hours ("kWh"), and demand in kilowatts ("kW"). Some determinants are consistent, while others change depending on which month they were recorded. For example, the customer access and substation facilities charges do not fluctuate by season, while the on-peak demand and energy charges have different rates based on the season during which the power is received.

Q. How are the billing determinants used in this Staff's analysis?

A. Determinants are multiplied by the appropriate tariff rates on file in order to calculate the monthly revenues.

TRANSMISSION SERVICE CLASS

Q. What billing determinants are used to set rates for the Transmission Service ("TS") class?

A. Specifically, for the TS class, the billing determinants used are the monthly customer access charge, customer demand charge, substation facilities charge, and energy usage.

Q. How did Staff determine the usage and demand amounts and the rate revenue for the TS class for the test year?

A. Staff began by calculating the test year[9] revenue based on the usage and demand numbers along with the billing determinants provided by Empire.[10] Staff requested the data and billing determinants by class, rate code, and then item number, which is the identifier for each charge type within the TS class. Test year revenues were then calculated by multiplying the units provided for each transmission item number by the verified tariff rate to come up with a monthly revenue for each rate code and item number. The sum of the monthly revenues provides the test year's total annual revenue for each transmission rate code.

Q. How did Staff determine the usage and demand amounts and the rate revenue for the TS class for the update period?[11]

[9] Twelve months ending September 30, 2023.
[10] Company response to Staff Data Request 0333.
[11] Twelve months ending September 30, 2024.

A. Staff applied the same procedure used for the test year to the update period data provided by Empire.[12]

Q. Once the usage, or sales and revenues for the test year and update period were calculated, was Staff able to determine amounts to use as update period adjustments?

A. Yes. The update period adjustments are calculated by subtracting the test year amounts from the update period amounts. The results of these calculations were upward adjustments in sales and revenue of ** [redacted] ** kWh and ** [redacted] ** respectively.

Q. Were there fluctuations in the Total Energy (kWh) usage in the transmission class?

A. Yes. Despite sizeable fluctuations between some months within the same year and between some months and the same month the previous year, Empire has claimed that the monthly usage and demand was correctly billed based on the usage from the meter, and Empire stated any monthly swings in usage were due to differences in the transmission customer's usage patterns.[13]

Q. Have there been other billing irregularities?

A. Yes. The TS class has had multiple months billed at once with some months not being billed. When asked for an explanation, Empire stated the delayed billing occurred as a result of its new CIS system conversion.[14]

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

A. Yes.

[12] Company response to Staff Data Request 0333.
[13] Company responses to Staff Data Requests 0324 and 0325.
[14] Company response to Staff Data Request 0410.1.

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

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

EXCESS FACILITIES CHARGE

Q. What is an Excess Facilities Charge ("XC") and how is it calculated?

A. Specifically, for the XC, if Empire is required, for the service of a customer, to install and maintain special or additional facilities not normally provided by Empire for the customer's rate or service classification, the customer will pay an added monthly charge of 1.25% of such excess investment by Empire.[15] Because of the way the charge is calculated, the XC varies for each customer depending on that customer's circumstances.

Q. How did Staff determine the test year revenue for the XC?

A. Staff began by calculating the test year[16] revenue based on the data provided by Empire.[17] Staff requested XC contract information by class, rate code, and contract number, which is the identifier for each customer paying an XC. The test year revenue was calculated by adding the monthly payments provided in each XC contract during the months of the test year each XC contract was in effect. The sum of the monthly revenues per contract provided the test year's total annual XC revenue.

[15] Empire District Electric Company d/b/a Liberty Tariff Section 4, Original Sheet No. 1.
[16] Twelve months ending September 30, 2023.
[17] Company response to Staff Data Request 0312.1.

Q. How did Staff determine the update period revenue for the XC?

A. Staff applied the same procedure used for the test year to the update period data provided by Empire.[18]

Q. Once the revenues for the test year and update period were calculated, was Staff able to determine amounts to use as update period adjustments?

A. Yes. The update period adjustments are calculated by subtracting the test year amounts from the update period amounts. The result of these calculations was a reduction in revenue of ** [redacted] **.

Q. Did Staff have any additional or manual adjustments to the XC revenues during the update period?

A. Yes. Multiple contracts had billing irregularities involving some months being billed by multiples of the expected amount, while other months did not have an XC charge listed at all. For each contract, all of the charges during the update period were added and compared to the amount that would have been charged if each month had been charged correctly. The difference, either positive or negative, was then entered as a manual adjustment. These manual adjustments were then totaled for the update period. The result of these calculations was an increase in revenue of ** [redacted] **. Combined with the adjustments listed earlier, the adjusted XC revenues have a net decrease of ** [redacted] **.

[18] Company response to Staff Data Request 0312.1.

Test Year (Actual Revenue)	** [redacted]	**
Update Period (Actual Revenue)	** [redacted]	**
Update Period Adjustment	** [redacted]	**
Manual Adjustments	** [redacted]	**
Net Adjustment	** [redacted]	**
Ending XC Revenues	** [redacted]	**

Q. What is annualization?

A. Annualization adjusts a utility's billing to account for known conditions at the end of the update period as if these conditions were carried out through the entire 12-month period. Adjustments for customers that begin XC contracts or have the rates adjusted after the first date of the examination period is an example of an annualization adjustment.

Q. Were there fluctuations in XC charges for any of the participating customers, and did Staff adjust XC usage for annualization?

A. Yes. Data provided by Empire[19] indicated two contracts had their monthly XC rate change during the update period. Empire was asked the reason for the changes. Empire claimed one of the customers in question was incorrectly billed for the wrong amount and the other customer in question had its contracted amount changed; no additional detail was provided.[20] The recommended amount of XC charges moving forward reflect the updated monthly rates and have been adjusted accordingly. These changes in rates are also reflected in the manual adjustments mentioned earlier.

Q. Does the currently effective Empire tariff include the conditions that would require a customer to pay an XC on a monthly basis?

[19] Company true-up response to Staff Data Request 0312.1.
[20] Company response to Staff Data Request 0312.3.

A. Yes. Of the ** [redacted] ** XC contracts provided by Empire,[21] ** [redacted] ** have customers that require Empire to maintain distribution transformer capacity in excess of that reasonably required for the customer's service, or require multiple transformer installations on a single meter, and ** [redacted] ** contracts have customers that require Empire to install and maintain other special or additional equipment not normally provided by Empire for the customer's rate or service classification. The remaining contracts have customers that use welding or other equipment characterized by fluctuating or severe demand necessitating the installation of additional or increased facilities in order to serve its customers.

Q. Do the XC charges end once the customer's payments accumulate to the amount of Empire's excess investment for that customer?

A. No, the payments continue in perpetuity.[22]

Q. What is your recommendation concerning XC revenues?

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

Q. Does this conclude your direct testimony?

A. Yes.

[21] Company response to Staff Data Request 0312.1.
[22] Ibid.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Request of The Empire District Electric Company d/b/a Liberty for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in Its Missouri Service Area	)))))	Case No. ER-2024-0261

AFFIDAVIT OF RANDALL T. JENNINGS

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW RANDALL T. JENNINGS and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Direct Testimony of Randall T. Jennings*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

RANDALL T. JENNINGS

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 27th day of June 2025.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: April 04, 2029
Commission Number: 12412070

Notary Public

Randall T. Jennings

Present Position:

I began employment with the Missouri Public Service Commission in October 2021 as a Utility Regulatory Auditor and was later promoted to the position of Senior Utility Regulatory Auditor; both in the Financial Analysis Department of the Financial and Business Analysis Division. I currently hold the title of Research and Data Analyst in the Tariff and Rate Design Department of the Industry Analysis Division and have held this position since July 2024.

Educational Background and Work Experience:

I earned a Bachelor of Science degree in Business Administration from Drury University in Springfield, MO. I was previously employed as a Regulatory Auditor and Supervisor with the Missouri Division of Professional Registration for 11 years and prior to that as an Investigator for the Missouri Attorney General for 8 years.

Case Participation:

Company Name	Case Number	Case Type / Type of Testimony or Filing	Utility
The Raytown Water Company	WF-2021-0427	Finance – Staff Memorandum	Water
Evergy Missouri West, Inc., d/b/a Evergy Missouri West	EF-2022-0103	Finance – Staff Memorandum	Electric
Summit Natural Gas of Missouri, Inc.	GR-2022-0122	Tariff Revision – Rebuttal & Surrebuttal Testimony	Gas
Missouri American Water Company	WF-2022-0161	Finance – Staff Memorandum	Water
Union Electric Company, d/b/a Ameren Missouri	EF-2022-0164	Finance – Staff Memorandum Financing Compliance – Staff Memorandum	Electric
Spire Missouri Inc.	GF-2022-0169	Finance – Staff Memorandum	Gas
Summit Natural Gas of Missouri, Inc.	GF-2022-0216	Finance – Staff Memorandum	Gas
S.K. & M. Water and Sewer Company	SR-2022-0239 WR-2022-0240	Rate Case – Staff Memorandum	Water
Missouri American Water Company	WR-2022-0303	Rate Case – Direct, Rebuttal & Surrebuttal Testimony	Water
Argyle Estates Water Supply	WR-2022-0345	Rate Case – Staff Memorandum	Water
Liberty Utilities (Midstates Natural Gas) Corp., d/b/a Liberty	GF-2023-0280	Finance – Staff Memorandum	Gas
The Raytown Water Company	WR-2023-0344	Rate Case – Direct, Rebuttal & Surrebuttal Testimony	Water
Evergy Metro Inc., d/b/a Evergy Missouri Metro	EF-2023-0425	Finance – Staff Memorandum	Electric
Union Electric Company, d/b/a Ameren Missouri	EO-2023-0448	Nuclear Decommissioning – Rebuttal & Surrebuttal Testimony	Electric
Evergy Missouri West, Inc., d/b/a Evergy Missouri West	ER-2024-0189	RESRAM Prudence – Staff Memorandum	Electric
Union Electric Company, d/b/a Ameren Missouri	ER-2024-0319	RESRAM Prudence – Staff Memorandum	Electric
Holtgrewe Farms Water Company, LLC	SR-2024-0344 WR-2024-0343	Rate Case – Staff Memorandum	Sewer Water
Missouri American Water Company	WF-2024-0353	Finance – Staff Memorandum	Water
Union Electric Company, d/b/a Ameren Missouri	ER-2025-0119	RESRAM Adjustment Mechanism – Memorandum	Electric

Evergy Missouri West, Inc., d/b/a Evergy Missouri West	ET-2025-0121	RESRAM Tariff Sheet – Memorandum	Electric
Evergy Missouri Metro, Inc., d/b/a Evergy Missouri Metro	EO-2025-0173	RESRAM Tariff Sheet – Memorandum	Electric
Evergy Missouri West, Inc., d/b/a Evergy Missouri West	EO-2025-0174	DSIM Rider Rate Tariff Sheet – Memorandum	Electric

Transmission Service (TS) 12ME September 2024	Current Rates	Billing Determinants	Revenue
TS Customer Charge	$ 275.00	12	$ 3,300.00
Summer On-Peak Period kWh	$ 0.05594	4,756,558	$ 266,081.83
Summer Shoulder Period kWh	$ 0.04467	6,529,676	$ 291,680.64
Summer Off-Peak Period kWh	$ 0.03387	11,606,969	$ 393,128.03
Winter On-Peak Period kWh	$ 0.03890	21,633,695	$ 841,550.73
Winter Off-Peak Period kWh	$ 0.03181	24,293,433	$ 772,774.09
Summer Demand Charge	$ 27.06	31,952	$ 864,633.19
Winter Demand Charge	$ 18.39	64,727	$ 1,190,322.17
Summer Facilities Charge	$ 0.53000	32,170	$ 17,050.26
Winter Facilities Charge	$ 0.53000	64,775	$ 34,330.86
			$ 4,674,851.81