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Witness: *Michael Stahlman*
Sponsoring Party: *MoPSC Staff*
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Case No.: *GR-2025-0107*
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MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

TARIFF/RATE DESIGN DEPARTMENT

REBUTTAL TESTIMONY

OF

MICHAEL STAHLMAN

SPIRE MISSOURI INC.,
d/b/a Spire

CASE NO. GR-2025-0107

Jefferson City, Missouri
May 2025

REBUTTAL TESTIMONY

OF

MICHAEL STAHLMAN

SPIRE MISSOURI INC.,
d/b/a Spire

CASE NO. GR-2025-0107

Q. Please state your name and business address.

A. My name is Michael L. Stahlman, and my business address is Missouri Public Service Commission, P.O. Box 360, Jefferson City, Missouri, 65102.

Q. Are you the same Michael L. Stahlman that filed direct testimony in this docket?

A. Yes.

Q. What is the purpose of your testimony?

A. I will respond to the actual and normal weather used by Spire Missouri Inc. d/b/a Spire ("Spire Missouri") and discussed in the direct testimony of Spire Missouri's Witness Trisha E. Lavin. I also briefly respond to the direct testimony of Spire Missouri's Witness David A. Yonce concerning the weather file.

Q. Please summarize your testimony.

A. Staff continues to recommend its ranked, 30-year normal weather.

Q. Did Spire Missouri's 10-year normal use the ranked method?

A. No. Based on Spire Missouri's worksheets it appears that Spire Missouri used a simple calendar date average.

Q. Why is there concern about using a simple calendar date average in this proceeding?

A. There are two major concerns. First, using the simple average of calendar weather tends to smooth the data so that the expected weather extremes are lost. Secondly, using the simple calendar average, rather than Staff's ranking method, tends to increase the amounts of adjustments from actual weather to normal weather. This is because the coldest (or warmest) days tend not to occur on the same calendar date from year to year.

As an example, the coldest temperature for the winter of 2022 to 2023 happened on December 23, 2022[1], while the coldest temperature for the following winter happened on January 14, 2024.[2] A simple mathematical average of the calendar dates would lose the important information on how cold is the expected coldest day because the coldest day is unlikely to fall on the same calendar date in subsequent years. In the examples above, December 23, 2023 and 2024[3] and January 14, 2023 and 2025[4] all had much warmer weather. While the calendar average may give a reasonable estimate of the expected temperature on a given calendar date, it underestimates what could be reasonably be expected for the coldest temperatures in a given season or calendar month. This would also then underestimate the peak demands on the distribution system.

Using that same example to elucidate Staff's second concern, the actual temperatures of a given test year are expected to have days of extremely hot weather and extremely cold weather. Because the simple calendar average tends to moderate these normal extremes, this method also means large adjustments to the dates those normal extremes occur. In contrast, the ranking method preserves those extremes and matches the normal extremes with actual

[1] December 23, 2022 had a high temperature of 8 degrees Fahrenheit and a low of -6 degrees.
[2] January 14, 2024 had a high temperature of 3 degrees Fahrenheit and a low of -7 degrees.
[3] December 23, 2023 had a high temperature of 64 degrees Fahrenheit and a low of 53 degrees and December 23, 2024 had a high temperature of 57 degrees Fahrenheit and a low of 38 degrees.
[4] January 14, 2023 had a high temperature of 39 degrees Fahrenheit and a low of 13 degrees and January 14, 2025 had a high temperature of 31 degrees Fahrenheit and a low of 14 degrees.

extremes. Thus Staff's ranked method not only provides a more realistic expectation of normal weather, it also minimizes the amount of adjustments to actual weather to achieve normal weather.

Q. On page 10, Ms. Lavin states that "Spire Missouri had requested that Atmospheric G2 look at a 10-year normal, 30-year normal, and Atmospheric G2's "Smart Normal," which uses a trend adjusted statistical model to produce normal weather data."[5] Are any of these weather sets comparable to Staff's normal weather?

A. No. As stated in my direct testimony, "NOAA's[6] published climatic normals are not directly usable by Staff because the daily normal is based on a calendar date average rather than the ranked daily average that Staff uses."[7]

Q. Are there other differences between the NOAA 30-year period and Staff's 30-year period?

A. Yes. Staff's analysis uses a more recent 30-year period, in this case 1993-2022, while the analysis Spire Missouri relies on NOAA's static 30-year period of 1991-2020.

Q. Does NOAA provide a 10-year climatic normal?

A. No. NOAA provides a 30-year climatic normal and recently has provided a 15-year climatic normal.

Q. Would Spire Missouri be able to calculate NOAA's 30-year or 15-year climatic normal?

A. Probably not. NOAA's 30-year and 15-year data includes adjustments to its temperature record that attempt to account for changes in the weather station data, such as

[5] Direct Testimony of Trisha E Lavin, p. 10, ll. 3-5.
[6] National Oceanic and Atmospheric Administration.
[7] Direct Testimony of Michael L. Stahlman, p. 3, ll. 6-8.

location changes or changes in instrumentation. The data that Spire Missouri uses is raw data and would not include any of these adjustments.

Q. Did Staff review the Atmospheric G2 study attached to Ms. Levin's direct testimony?

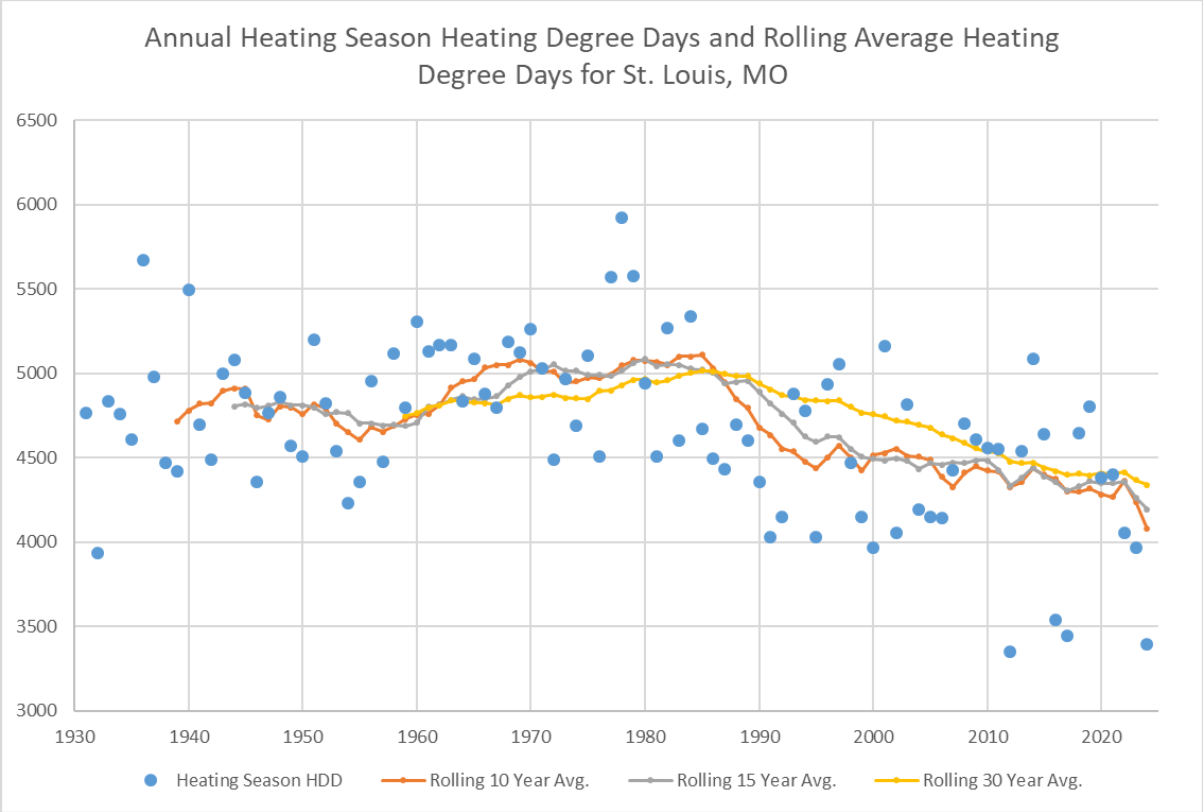
A. Yes. Staff Data Request 0234 asked for all models and data used to develop the analysis in that study.

Q. Does Staff agree with the conclusion that either a 15-or a 10-year normal would be a more accurate predictor than a 30-year normal?

A. No. Figure 1 shows the annual heating season heating degree days[8] for Lambert International Airport in St. Louis, the weather station used by Staff and Spire Missouri for Spire Missouri East. The data used in this analysis is the raw data from the Midwestern Regional Climate Center ("MRCC"); it does not include any adjustments to account for changes in instrumentation or location.

[8] The annual heating season is the calendar year from July 1 through June 30. Heating degree days are base 65 degrees. The data was also reviewed on an annual basis (January 1 through December 31), but my conclusions remained the same.

Figure 1.

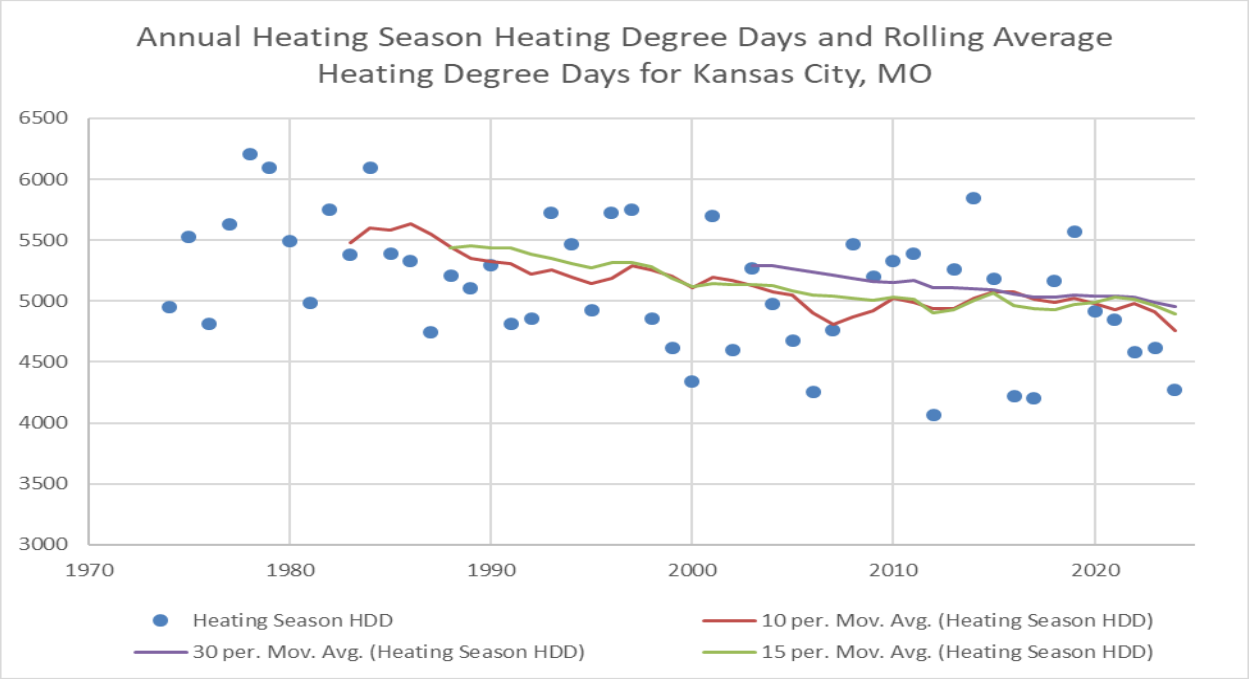


As can be seen, since 2010, there have been four years that have had unusually mild winters even on a historical basis. But even with those years, between 2010 and 2020 the majority of years had winters colder than the 30-year average.

Q. Is the trend similar for Kansas City?

A. Yes. Figure 2 below is an equivalent graph using data from the Kansas City International Airport ("MCI"), the weather station used by Staff and Spire Missouri for Spire Missouri West. The amount of data available for MCI is limited compared to St. Louis, but there is a similar pattern for Kansas City.

Figure 2.



Q. Which years did the Atmospheric G2 study examine?

A. Spire Missouri provided the data and calculations of the Atmospheric G2 study in response to Staff Data Request No. 0234. The study only examined the impact on three years: 2021, 2022, and 2023. As can be seen in Figures 1 and 2, these years tended to be warmer than all estimated normals, thus it would be expected that the trend with the lowest normal would be determined as having the least errors.

Q. Are there other factors that the Commission should consider when determining the best period for normal weather?

A. Yes. The Commission should consider that the climatic normals are meant to be a standard that actual weather can be compared to. The 30-year period has less volatility than the 10 or 15-year period, and is less subject to outlier temperatures. No temperature normal is a very good predictor of future temperature trends, and it remains to be seen whether the most recent years is a new trend or an outlier similar to the cold winters of the late 1970s.

Additionally, as a climatic standard that NOAA has used for over a century, breaking away from the 30-year period precedent would lead to other utilities being able to choose periods of weather more favorable to their own revenue requirements in rate cases.

Q. On page 16 of his direct testimony, Spire Missouri Witness David A. Yonce discusses three recommendations regarding the weather file. Should Spire Missouri "own, update and manage the weather file used to calculate the WNAR"?

A. Nothing currently prevents Spire Missouri from updating or managing the weather file used to calculate the WNAR. Currently Staff provides Spire Missouri updated weather files as a courtesy since Spire Missouri has previously indicated its inability to update that file. Concerning the language of "owning" the file, Staff would disagree that Spire Missouri owns documents developed by Staff, as they are used for other natural gas utilities within Missouri as well.

Q. On page 16, Spire Missouri Witness David A. Yonce also discusses continuously updating the normal weather. Should the normal weather be updated?

A. No. The weather coefficients used in the WNAR are tied to the regression analysis and normal weather used in the most recent rate case. Updating the normal weather would invalidate these coefficients and not provide the proper corrections to account for the weather.

If Mr. Yonce's suggestion is to also update the coefficients continuously with the normal weather, Staff remains opposed. First, it is unclear how this process would even work. Among the many issues, it is unclear whether the normal weather is updated on a monthly basis, what coefficients can be included in new weather regression analysis, and even if the analysis would include a 365-day adjustment. Secondly, this would break the important link of tying the WNAR mechanism to the billing determinants set in a prior rate case. Setting retail rates

based upon one set of billing determinants and other factors in a rate case, while granting recovery based on a different set of factors, could allow Spire Missouri to recover more than its fair return.

Q. Finally, Spire Missouri Witness David A. Yonce states that "the normal weather being used should be consistent with the 10-year normal weather that Spire Missouri Witness Trisha Lavin has proposed…"[9]. Do you agree?

A. No. For the reasons above, Staff continues to recommend Staff's ranked 30-year normal. However, if the Commission uses a different normal weather, the WNAR should be consistent with the weather used in the weather normalization process. Additionally, the Commission should require that any weather file be updateable by all interested parties, and be clear on what data sources are used, what weather is to be updated and through what time periods. Many of the excel files included as workpapers in this docket by Spire Missouri include hard coded values and there was also discrepancies in the daily actual data from the Midwestern Regional Climate Center; thus it would be difficult for Staff to audit and verify the correct values are being used.

Q. What is your overall recommendation?

A. Staff recommends the Commission use Staff's ranked 30-year normal weather. This normal weather is less volatile and more reflective of actual weather which results in fewer necessary adjustments from actual weather to normal weather.

Q. Does this conclude your testimony?

A. Yes, it does.

[9] Lines 5-6 on page 16.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Spire Missouri Inc. d/b/a Spire's Request for Authority to Implement a General Rate Increase for Natural Gas Service Provided in the Company's Missouri Service Areas	))))	Case No. GR-2025-0107

AFFIDAVIT OF MICHAEL L. STAHLMAN

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW MICHAEL L. STAHLMAN and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Rebuttal Testimony of Michael L. Stahlman*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

MICHAEL L. STAHLMAN

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 23rd day of May 2025.

Notary Public

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