Exhibit No.:	
Issue(s):	*Rate of Return*
Witness:	*Seoung Joun Won, PhD*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Rebuttal Testimony*
Case No.:	*GR-2022-0179*
Date Testimony Prepared:	*October 7, 2022*

MISSOURI PUBLIC SERVICE COMMISSION

FINANCIAL AND BUSINESS ANALYSIS DIVISION

FINANCIAL ANALYSIS DEPARTMENT

REBUTTAL TESTIMONY

OF

SEOUNG JOUN WON, PhD

SPIRE MISSOURI, INC., d/b/a SPIRE

CASE NO. GR-2022-0179

Jefferson City, Missouri
October 2022

** Denotes Confidential Information **

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SPIRE MISSOURI, INC.

CASE NO. GR-2022-0179

Q. Please state your name and business address.

A. My name is Seoung Joun Won and my business address is 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") as a member of Commission Staff ("Staff") and my title is Regulatory Compliance Manager for the Financial Analysis Department, in the Financial and Business Analysis Division.

Q. Are you the same Seoung Joun Won who filed Direct Testimony on August 31, 2022 in this proceeding?

A. Yes, I am.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to respond to the direct testimonies of Adam Woodard and David Murray regarding cost of capital issues such as return on equity ("ROE"), cost of debt, capital structure, and overall rate of return ("ROR"). Mr. Woodard filed his testimony on behalf of Spire Missouri, Inc. ("Spire Missouri" or "Company"), a subsidiary of Spire, Inc. ("Spire" or the "parent Company"). Mr. Murray filed testimony on behalf of the Missouri Office of the Public Counsel ("OPC"). Staff's rebuttal workpapers support its analysis and conclusions in this testimony.

I. EXECUTIVE SUMMARY

Q. What is the overview of your response to the testimony of Mr. Woodard?

A. Staff's rebuttal will focus on Mr. Woodard's proposed ROE, capital structure, and ROR. Mr. Woodard proposed an ROE of 10.50% within a range of 10.24% to 10.74%,[1] and an ROR of 7.57% utilizing a hypothetical capital structure consisting of 55.00% common equity and 45.00% long-term debt with a cost of debt of 3.98%.[2] To estimate his proposed ROE, Mr. Woodard employed Staff's comparative cost of equity ("COE") analysis used in Spire Missouri's last rate case, Case No. GR-2021-0108, in 2021 ("2021 Spire Case").[3] Mr. Woodard utilized the Constant Growth form of the Discounted Cash Flow ("DCF") model and the Capital Asset Pricing Model ("CAPM") for the comparative COE analysis based on comparison of two time-periods between 4/01/17 - 06/30/17 and 12/01/22 - 02/28/22.[4]

During the audit review process, Staff discerned that Mr. Woodard inappropriately utilized the comparative COE analysis to increase the estimations of his proposed ROE. First, for the benchmark authorized ROE, Mr. Woodard did not use the Commission's most recent natural gas rate case decision of 9.37% in the 2021 Spire Case but used the Commission's older decision of 9.80% in Spire East and Spire West rate cases, Case Nos. GR-2017-0215 and GR-2017-0216, ("2017 Spire East and Spire West Cases").[5] Second, Mr. Woodard overestimated his ROE by using improper adjustments based on his misunderstanding of Staff's comparative COE analysis.[6]

[1] On page 34, lines 5-8, Woodard's Direct Testimony.
[2] On page 3, Table 1, Woodard's Direct Testimony.
[3] On page 24, lines 9-10, Woodard's Direct Testimony.
[4] On pages 24-25, Woodard's Direct Testimony.
[5] On page 25, lines 5-11, Woodard's Direct Testimony.
[6] On pages 32-34, Woodard's Direct Testimony.

In this rebuttal testimony, Staff will provide a detailed explanation on how Mr. Woodard inappropriately used input data in his comparative COE analysis.

Mr. Woodard's proposed ROR is not based on Spire Missouri's actual standalone capital structure and cost of debt for Spire Missouri. Staff found that Spire Missouri's actual equity ratio of 51.87% as of June 30, 2022 is different from Mr. Woodard's proposed equity ratio of 55.0%.

Q. What is the overview of your response to the testimony of Mr. Murray?

A. Mr. Murray recommended an ROE of 9.25% within a range of 9.00% to 9.25% and a ROR of 6.27% based on his recommended capital structure of 45.0% common equity, 48.0% long-term debt and 7.0% short-term debt and applying a cost of long-term debt of 3.99% and a cost of short-term debt of 2.7%.[7] Mr. Murray's recommended ROE of 9.25% is even lower than the most recent Commission's authorized ROE of 9.37% in the 2021 Spire Case.[8]

Mr. Murray's recommended common equity to total capital ratio ("equity ratio") of 45.0% is approximately 700 basis points lower than Spire Missouri's actual common equity ratio of 51.87% as of June 30, 2022.[9] Mr. Murray's recommended capital structure is the same as his recommended capital structure in his true-up direct testimony in the 2021 Spire Case, which captured data through May 31, 2021, more than one year ago.[10] Staff expresses concern with Mr. Murray's use of out-of-date information from Spire's 2021 rate case for his recommended capital structure in this proceeding. Mr. Murray's recommended equity ratio of 45.0% is much lower than Spire Missouri's current common equity ratio.

[7] Schedule DM-D-2, Murray's Direct Testimony.
[8] On page 97, *Amended Report and Order* issued November 12, 2021, in Case No. GR-2021-0108.
[9] Schedule SJW-d16, Won's Direct Testimony.
[10] On page 34, Murray's Direct Testimony, GR-2022-0179.

II. RESPONSE TO TESTIMONY OF SPIRE MISSOURI'S WITNESS

Q. What are the specific areas in which Staff is responding to Spire Missouri's witnesses?

A. Staff is responding to the testimony of Mr. Woodard. The areas in which Staff addresses issues of Mr. Woodard's direct testimony regarding his proposed ROE include:

- Recommended ROE,
- Assumptions of Comparative COE Analysis,
- Modifications of CAPM,
- Flotation Cost Adjustment,
- Credit Rating Agency, and
- Regulatory and Business Risks.

Then, Staff will address Mr. Woodard's recommended capital structure. Staff will discuss each in turn, below.

1. Recommended ROE

Q. What is Mr. Woodard's proposed ROE for Spire Missouri in this proceeding?

A. Mr. Woodard proposed an ROE of 10.50% for use in this proceeding.[11] In his direct testimony, Mr. Woodard did not clearly state what range he proposed as a zone of reasonableness of ROE but twice mentioned a reasonable ROE range 10.24% to 10.74%. First he states, "[…] the methodology that has already been endorsed by the Commission would yield a reasonable range of return on equity of 10.24% to 10.74% with a midpoint of 10.49%."[12] Then he states "Staff's comparative methodology with the two suggested modifications yields a reasonable range of return on equity of 10.24% to 10.74% with a midpoint of 10.49%,"[13] Therefore, it is Staff's

[11] On page 2, lines 21-22, Woodard's Direct Testimony.
[12] On page 34, lines 6-7, Woodard's Direct Testimony.
[13] On page 34, lines 12-13, Woodard's Direct Testimony.

understanding that Mr. Woodard proposed the range of 10.24% to 10.74% as a zone of reasonableness of ROE in this proceeding.

Q. How did Mr. Woodard determine his recommended ROE?

A. Mr. Woodard determined his proposed ROE of 10.50% based upon his modifications to the methodology of Staff's comparative COE analysis that was endorsed by the Commission in the 2021 Spire Case.[14] Mr. Woodard utilized a comparative approach analyzing the COE at the time of the development of the 2018 Order in the 2017 Spire East and Spire West Cases and the COE as of February 28, 2022.[15] Mr. Woodard then produced a recommended range of 9.82% to 10.32% with a 10.07% midpoint based upon the calculated COE being 27 basis points higher today than it was in 2017.[16] Staff will explain below why the decision of the 2017 Spire East and Spire West Cases is inappropriate to use as an input when calculating an authorized ROE in this proceeding.

Mr. Woodard proposed three modifications to Staff's comparative COE analysis: (1) to eliminate the geometric mean in the CAPM analysis;[17] (2) to use a prospective risk-free rate;[18] and (3) to make a flotation cost adjustment.[19] After these unreasonable modifications, Mr. Woodard calculated an ROE range of 10.24% to 10.74% with a midpoint of 10.49%.[20] Then, without stated reason, Mr. Woodard adds one more basis point to calculate his proposed 10.50%.[21] In summary, Mr. Woodard's proposed ROE is based on his misapplication of the comparative COE analysis.

[14] On page 34, lines 5-8, Woodard's Direct Testimony.
[15] On page 25, lines 5-7, Woodard's Direct Testimony.
[16] On page 25, lines 8-9, Woodard's Direct Testimony.
[17] On page 32, lines 8-22, Woodard's Direct Testimony.
[18] On page 33, lines 3-11, Woodard's Direct Testimony.
[19] On page 33, lines 12-23, Woodard's Direct Testimony.
[20] On page 34, lines 5-7, Woodard's Direct Testimony.
[21] On page 34, lines 7-8, Woodard's Direct Testimony.

Mr. Woodard used incorrect benchmark ROEs and improper adjustments based on his misunderstanding of Staff's comparative COE analysis. Staff will describe how Mr. Woodard overstated his ROE estimate of 10.50% by presenting detailed investigation results later in this testimony.

Mr. Woodard also presented a comparative approach analyzing the COE at the time of the development of the Report and Order in the 2017 Spire East and Spire West Cases and the COE as of February 28, 2022 without the aforementioned modifications.[22] That analysis produced a recommended range of 9.82% to 10.32% with a 10.07% midpoint based upon the calculated COE being 27 basis points higher today than it was in 2017.[23]

Q. What are Staff's concerns with Mr. Woodard's recommended ROE?

A. Staff's concern is that Mr. Woodard's proposed ROE of 10.50% is too high compared to the average authorized ROE of 9.33% in natural gas utility rate cases completed in in the first half of 2022.[24] In the past three Spire Missouri rate cases, the Commission has consistently found that an authorized ROE lower than the average authorized ROEs of all jurisdictions in the US at that time, was a fair and reasonable ROE for Spire Missouri. In the 2017 Spire East and Spire West Cases, the Commission found that 9.80% was a fair and reasonable ROE.[25] In the second half of 2017, the average fully litigated natural gas authorized ROE in the US was 10.32% making the Commission authorized ROE for Spire Missouri 52 basis points lower than the average authorized ROE.[26] In the 2021 Spire Case, the Commission found the appropriate ROE was

[22] On page 25, lines 5-7, Woodard's Direct Testimony.
[23] On page 25, lines 8-9, Woodard's Direct Testimony.
[24] S&P Capital IQ Pro, Retrieved on July 2, 2022.
[25] On page 35, *Amended Report and Order* issued March 17, 2018, in Case Nos. GR-2017-0215 and GR 2017-0216.
[26] RRA, S&P Capital IQ.

9.37%.[27] In the first half of 2021, the average fully litigated natural gas authorized ROE in the US was 9.68% making the Commission authorized ROE of Spire Missouri 31 basis points lower than the average authorized ROE.[28] The proposed ROE of 10.50% by Mr. Woodard is 117 basis points higher than the current average authorized ROE of 9.33%. Therefore, in this regard Mr. Woodard's proposed ROE of 10.50% is inconsistent with the past Commission decisions. As Mr. Woodard recognized, ** [redacted]. **[29]

Additionally, when considering the relatively lower living costs of Missouri in historical data, the Commission's past decisions on authorized ROE for Spire Missouri compared to national average authorized levels were reasonable and consistent with investors' expectations of the financial market. For example, Missouri had the seventh lowest cost of living in the US for the second quarter of 2022.[30]

2. Assumptions of Comparative COE Analysis

Q. Please provide an overview of Mr. Woodard's approach to estimating Spire Missouri's COE in this proceeding.

A. Mr. Woodard's approach to estimating Spire Missouri's COE in this proceeding is a mechanical imitation of Staff's comparative COE analysis in the 2021 Spire Case.[31] First, Mr. Woodard used the same seven natural gas utility companies from Staff's proxy group of the 2021 Spire Case in his proxy group for Spire Missouri's COE estimation.[32] The following is

[27] On page 97, *Amended Report and Order* issued November 12, 2021, in Case No. GR-2021-0108.
[28] RRA, S&P Capital IQ.
[29] On page 17, lines 18-19, Woodard's Direct Testimony.
[30] Missouri Economic Research and Information Center, retrieved in August 31, 2022, https://meric.mo.gov/data/cost-living-data-series.
[31] On page 24, lines 9-10, Woodard's Direct Testimony.
[32] Proxy Group, Woodard workpaper base plus model, Woodard's Direct Workpaper.

the list of utilities within Mr. Woodard's natural gas utility proxy group, associated ticker symbols and S&P credit ratings:

Table 1. Natural Gas Utility Proxy Group and Ticker

	Natural Gas Utility	Ticker	S&P Rating
1	Atmos Energy Corporation	ATO	A-
2	New Jersey Resources Corporation	NJR	BBB+
3	Northwest Natural Holding Company	NWN	A+
4	ONE Gas, Inc.	OGS	A-
5	South Jersey Industries, Inc.	SJI	A-
6	Southwest Gas Holdings, Inc.	SWX	BBB-
7	Spire Inc.	SR	A-
	Spire Missouri		A-

Second, Mr. Woodard compared COE estimates of two 3-month periods between Q2 2017 and December 2021 through February 2022.[33] To estimate COEs, Mr. Woodard employed the DCF model and CAPM as Staff did in 2021 Spire Case.[34] Third, Mr. Woodard made multiple modifications to Staff's comparative analysis to get his proposed ROE.[35]

Q. What is Staff's concern with Mr. Woodard's comparative COE analysis?

A. Mr. Woodard ignored some of the standard assumptions underlying Staff's comparative COE analysis and made inappropriate modifications. First, Mr. Woodard violated the assumptions of Staff's comparative COE analysis when he used the analysis from older rate cases (the 2017 Spire East and Spire West cases) as the starting point for estimating the ROE of Spire Missouri in this proceeding. There are two fundamental assumptions of Staff's comparative COE analysis:

[33] Sock Price-B, Woodard workpaper base plus model, Woodard's Direct Workpaper.
[34] Pages 23-25, Woodard's Direct Testimony.
[35] Pages 25-35, Woodard's Direct Testimony.

(1) The most recent authorized ROE determined by the Commission is just and reasonable; and

(2) The relationship between the authorized ROE and the market expected COE does not change in a short time period.

These two assumptions are essential to estimate a just and reasonable ROE properly. Any violations of these assumptions will produce a baseless ROE estimate. Mr. Woodard's violation of these assumptions result in an overstatement of his proposed ROE. Second, Mr. Woodard made three modifications to Staff's prior comparative COE analyses such as the elimination of geometric mean in the CAPM analysis,[36] the employment of prospective risk-free rates;[37] and the adjustment of a flotation cost.[38]

Q. How did Mr. Woodard violate the first assumption of Staff's comparative COE analysis?

A. In his comparative COE analysis, Mr. Woodard used the authorized ROE of 9.80% that the Commission ordered in the 2017 Spire East and Spire West Cases.[39] However, the most recent authorized ROE determined by the Commission for a natural gas utility in Missouri is the 2021 Spire Case. If Mr. Woodard used Staff's comparative COE analysis properly, he would have used the authorized ROE of 9.37% that the Commission ordered in the 2021 Spire Case as a starting point for his analysis.

Q. Why should the authorized ROE determined by the Commission in the 2021 Spire Case be used in this comparative COE analysis?

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[36] On page 32, lines 8-22, Woodard's Direct Testimony.
[37] On page 33, lines 3-11, Woodard's Direct Testimony.
[38] On page 33, lines 12-23, Woodard's Direct Testimony.
[39] On page 26, lines 16-17, Woodard's Direct Testimony.

A. The current Spire Missouri rates are only meaningfully associated with the authorized ROE determined by the Commission in the 2021 Spire Case. The reasoning behind the first assumption listed above by Staff is that, for each rate case, the Commission determined an authorized ROE for a just and reasonable utility rate considering all relevant issues, not single-issues, based on updated information of the utility's investment in regulatory assets at the time of the Commission's determination of an authorized ROE. Therefore, only the most recent authorized ROE can properly convey the most relevant information for the purpose of just and reasonable ratemaking.

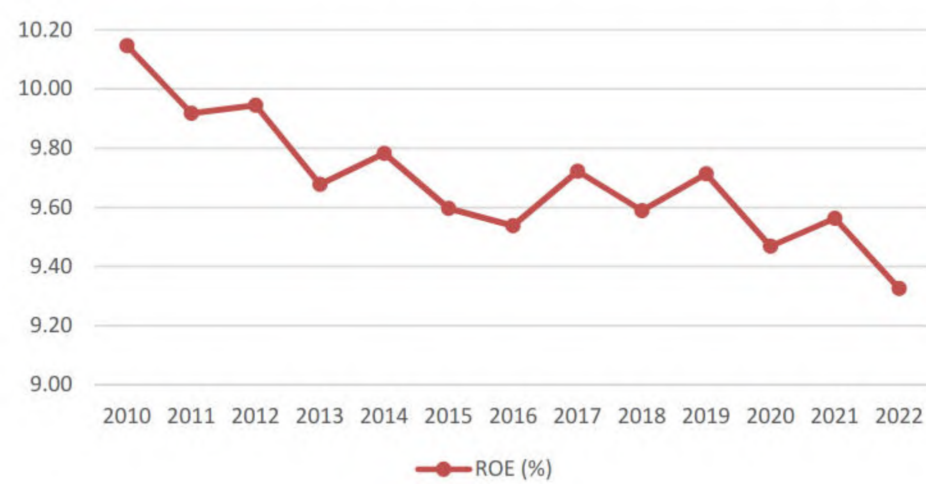
Mr. Woodard ignored the reason behind the first assumption of Staff's comparative COE analysis and used the 2017 Spire East and Spire West Cases' authorized ROE of 9.80% instead of the 9.37% authorized ROE from the most recent Commission's decision in the 2021 Spire Case. In the ratemaking procedure, the Commission determines the new rates in the context of how rates should change from the current existing rates while considering all relevant issues in the proceeding. However, if an authorized ROE in this proceeding is determined by a comparison to an older authorized ROE in older rate cases, instead of the most recent decision by the Commission, it will lose this context of how to change the current rate. Therefore, an authorized ROE estimated by using the 2017 Spire East and Spire West Cases' authorized ROE of 9.80% will not properly provide a just and reasonable rate in this proceeding.

Q. How did Mr. Woodard violate the second assumption listed above of Staff's comparative COE analysis?

A. Since the relationship between an authorized ROE and a market COE changes over time, the authorized ROE of 9.80% from the 2017 Spire East and Spire West Cases is too old to estimate a just and reasonable authorized ROE in this proceeding. During the past five years, the global economy and financial market experienced significant structural changes because of the COVID-19 pandemic. In 2022, to fight against the worst inflation in 40 years, the Federal Reserve ("Fed") has been increasing the target for the federal funds rate, and anticipates that ongoing increases in the target range will be appropriate.[40]

Staff's comparative COE analysis, DCF model, and CAPM estimate the COE using input values such as stock price, dividend yield, growth rate, risk-free-rate, Beta, and market risk premiums ("MRP") at the reference period. Therefore, COE estimates are dependent on economic and financial market conditions so that there are no reasons that market **COEs** have a trend in the 2010 to 2022. However, authorized **ROEs** of utility rate cases in the US show a clear trend. As shown in Figure 1, there is a downward trend in the average authorized ROE of natural gas utilities in the US from 2010 to 2022:

Figure 1. Average Authorized ROE of Natural Gas Utilities in the US, 2010-2022



In a short time period, such as the time between the 2021 Spire case and the current proceeding, the change of the relationship between the Commission authorized ROE and market

[40] Federal Reserve issues Federal Open Market Committee (FOMC) Statement, published July 27, 2022, and retrieved August 1, 2022, https://www.federalreserve.gov/newsevents/pressreleases/monetary20220727a.htm.

expected COE could be negligible. However, considering a downward trend of authorized ROE, the relationship will change significantly over a longer period. The period between the 2017 Spire East and Spire West cases and the current proceeding is long enough for such a trend to produce a significant impact. Therefore, Mr. Woodard's comparative COE analysis does not produce a reliable ROE estimate.

3. Modifications of CAPM

Q. What modifications does Mr. Woodard make to the Staff's normal CAPM analysis?

A. Mr. Woodard made a few unreasonable modifications along with market and rate updates.[41] Staff has concerns with Mr. Woodard's two modifications to the CAPM analysis. First, Mr. Woodard eliminated the averaging of both arithmetic and geometric means when calculating the MRP in the CAPM analysis.[42] Second, Mr. Woodard used the projected 30-year Treasury bond yield instead of a 3-month average of the 30-year Treasury bond yield for the risk-free-rate input to the CAPM analysis.[43]

3.1 1st Modification – Geometric Mean and MRP

Q. Please describe Mr. Woodard's first modification of eliminating the averaging of both arithmetic and geometric means when calculating the MRP in the CAPM analysis.

A. Mr. Woodard proposed to use only the arithmetic mean to calculate the MRP in the CAPM analysis instead of Staff's calculation of the averaging of both arithmetic and geometric

[41] On page 32, lines 1-2, Woodard's Direct Testimony.
[42] On page 32, lines 8-10, Woodard's Direct Testimony.
[43] On page 33, lines 3-7, Woodard's Direct Testimony.

means.[44] To justify his modification of using only arithmetic mean when calculating MRP, Mr. Woodard cited Roger A. Morin's statement:[45]

> The best estimate of expected returns over a given future holding period is the arithmetic average…only arithmetic means are correct for forecasting purposes and for estimating the cost of capital. There is no theoretical or empirical justification for the use of geometric mean rates of return as a measure of the appropriate **discount rate** in computing the cost of capital…[46] [Emphasis added.]

Q. Do you agree with Dr. Morin that there is no theoretical or empirical justification for the use of geometric mean rates of return as a measure of the appropriate **discount rate** in computing the cost of capital?

A. Yes. Staff agrees with Dr. Morin that the arithmetic means are more proper to calculate the discount rate compared to the geometric means because the geometric means are a significantly downward biased estimate of discount rates.[47] However, it is not true that Dr. Morin's statement supports Mr. Woodard's proposed modification of using only the arithmetic means to calculate MRP in the CAPM analysis. Dr. Morin's cited statement is about discount rates not MRP. Discount rate and MRP are very different concepts in financial analysis. Discount rate refers to the rate of interest used to discount all future cash flows of an investment to derive its Net Present Value ("NPV"). The MRP, market risk premium, is the difference between the expected return on a market portfolio and the risk-free rate. It is well-known fact that there are many theoretical and empirical studies to support the use of geometric means to calculate MRP.

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[44] On page 32, lines 8-10, Woodard's Direct Testimony.
[45] On page 32, lines 15-21, Woodard's Direct Testimony.
[46] Roger A. Morin, New Regulatory Finance, at p. 156. Dr. Morin includes an entire chapter on this topic in his treatise. Footnote No. 11, Woodard's Direct Testimony.
[47] Cooper, I. (1996). Arithmetic versus geometric mean estimators: Setting discount rates for capital budgeting. European Financial Management, 2(2), 157-167.

Q. What theoretical and empirical research supports the use of geometric means to calculate MRP?

A. A prominent MRP expert and the Kerschner Family chair professor of Finance at the Stern School of Business at New York University, Aswath Damodaran, stated that conventional wisdom argues for the use of the arithmetic average to calculate MRP, but, in reality, the argument for geometric average premiums becomes stronger.[48] Dr. Damodaran also stated that there are strong arguments that can be made for the use of geometric average in both empirical studies and the asset pricing model theory.[49] In addition, research sponsored by the Society of Actuaries' Pension Section Research Committee found that the geometric mean was superior to arithmetic in predicting long-term returns for calculating equity risk premium, and the arithmetic mean produces forecasts much higher than actual returns over most time-periods.[50] Moreover, many other theoretical and empirical studies support the use of geometric means to calculate MRP.[51]

Q. What is Staff's method to calculate the MRP in the CAPM analysis?

A. Staff calculated MRP by subtracting the risk-free rate from the expected market return. For the risk-free rate, Staff used the average yield on 30-year U.S. Treasury bonds for the second quarter of 2022, which was 3.04%. For the MRP estimate, Staff used average of long-term geometric mean and arithmetic mean from two data sets: (1) the long-term historical return differences between large company stocks and long-term government bonds from 1926-2021,[52]

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[48] Damodaran, A. (1999). Estimating Equity Risk Premiums.
[49] Ibid.
[50] Modugno, V. (2012). Estimating Equity Risk Premiums.
[51] Sadler, R. (2017). Estimation of the Market Risk Premium: A review of weighting of arithmetic and geometric means, Report to the ERA on Gas Rate of Return Guidelines.
[52] Duff & Phelps, the Stocks, Bonds, Bills, and Inflation (SBBI®) Monthly Dataset.

and (2) the long-term historical return differences between S&P 500 and long-term government bonds from 1928-2021.[53]

Q. Why do you use the averaging of both arithmetic and geometric means when calculating the MRP in the CAPM analysis instead of just using geometric means?

A. Whether to use "arithmetic" or "geometric" mean returns when calculating the average return for calculating the MRP in the CAPM analysis is one of many on-going controversial research topics in financial analysis.[54] Many theoretical and empirical studies and financial reports presented MRP estimates using both arithmetic means and geometric means.[55] The geometric mean return is a multi-period rate of return so it should be used in the CAPM together with the yield on a long-term government security. In contrast, the arithmetic mean return is a single period rate of return and therefore it should be used in association with a short-term risk-free rate in the CAPM.[56] For typical investment horizons, the proper compounding rate for forecasting returns is in between the arithmetic and geometric means.[57] Many financial analysts use a compromise of the two, a weighted average of arithmetic and geometric mean.[58] Therefore, Staff's method to consider both arithmetic and geometric means when calculating the MRP in the CAPM analysis is a widely accepted approach in financial analysis.[59]

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[53] Risk Premium, Damodaran Online, Stern School of Business, NYU.
[54] Sadler, R. (2017). Estimation of the Market Risk Premium: A review of weighting of arithmetic and geometric means, Report to the ERA on Gas Rate of Return Guidelines.
[55] Ibbotson, R. G. (2011). The equity risk premium. Rethinking the Equity Risk Premium, CFA Research Foundation Publications, 4, 18-26.
[56] Soenen, L., & Johnson, R. (2008). The equity market risk premium and the valuation of overseas investments. Journal of Applied Corporate Finance, 20(2), 113-121.
[57] Jacquier, E., Kane, A., & Marcus, A. J. (2003). Geometric or arithmetic mean: A reconsideration. Financial Analysts Journal, 59(6), 46-53.
[58] Blume, M. E. (1974). Unbiased estimators of long-run expected rates of return. Journal of the American Statistical Association, 69(347), 634-638.
[59] Hammond, B., & Leibowitz, M. (2011). Rethinking the equity risk premium: An overview and some new ideas. Rethinking the Equity Risk Premium, 1-17.

3.2 2nd Modification – Projected Risk Free Rate

Q. Please describe Mr. Woodard's second modification of using projected risk-free rate in the CAPM analysis.

A. One of the input variables for calculating CAPM COE estimates is a risk-free rate usually measured by the yield on 30-year Treasury bonds.[60] In the comparative COE analysis, Staff employed 3-month Treasury bond yields for risk-free rates in CAPM COE estimates for both reference periods: previous and current. However, Mr. Woodard proposed only current risk-free rates should be used with a projected 30-year Treasury bond yield. Mr. Woodard stated that:

> The risk-free rate input currently is a trailing 3-month average of the 30-year US Treasury. This is certainly not a prospective indication of the risk-free rate and does not properly capture the expected path of interest rates that will impact the Company in the future under newly ordered rates. This is hard to overlook in the current market with 40-year high inflation and near unanimity as to the where interest rates are going in the near future.[61]

This modification is not acceptable because it will violate the apples-to-apples comparison principle in the comparative COE analysis. Comparing two CAPM COE estimates, when using one as an actual value and the other as a projected value, will produce a biased ROE estimate. Currently, CAPM COE is already overestimated by rising interest rates as explained in Won's direct testimony.[62] If a higher projected risk-free rate is used in the CAPM analysis, CAPM COE estimates will be even more upward biased in that it will produce overstated ROE estimates in the comparative COE analysis.

[60] Morin, R. A. (2006). New Regulatory Finance. Public Utilities Reports, page 151.
[61] On page 33, lines 4-8, Woodard's Direct Testimony.
[62] On page 33, lines 11-16, Won's Direct Testimony.

4. Flotation Cost Adjustment

Q. What is Mr. Woodard's flotation cost adjustment?

A. Mr. Woodard proposed that the Commission should consider a flotation cost adjustment because the real COE is higher than the investor-required return.[63] Mr. Woodard's listed flotation costs include underwriting fees, legal fees, and registration fees. Mr. Woodard claimed the adjustment of Spire Missouri's flotation costs including underwriting fees, legal fees, and registration fees would be 13 basis points.[64] Mr. Woodard stated that:

> It is not being added specifically to the recommended midpoint return on equity of 10.49%, but is being offered for consideration and support of the recommended range. It is important for the Commission to take into account flotation costs because these costs are not being recovered elsewhere and reside permanently on the balance sheet as a negative adjustment. The permanent nature of this cost makes it irrelevant whether equity was recently raised, but in the case of Spire Missouri, equity was recently raised and these costs need to be recognized and accounted for properly in the return on equity.[65]

Q. Do you agree with Mr. Woodard that the commission should additionally take into account flotation costs in an authorized ROE for Spire Missouri ratemaking in this proceeding?[66]

A. No. First, as Mr. Woodard recognized, flotation costs are 'irrelevant whether equity was recently raised' making it unreasonable that flotation costs need to be recognized and accounted for in the ROE simply because Spire Missouri's equity was recently raised.[67] Second, flotation costs and other regulatory risks are already considered in Spire's authorized ROE. This is one of the reasons that the Commission authorized ROE is usually greater than market

[63] On page 33, lines 12-14, Woodard's Direct Testimony.
[64] Schedule AWW-D9 and page 33, lines 15-17, Woodard's Direct Testimony.
[65] On page 33, lines 17-23, Woodard's Direct Testimony.
[66] On page 33, lines 19-22, Woodard's Direct Testimony.
[67] On page 33, lines 22-23, Woodard's Direct Testimony.

expected COE. For example, when he calculated a reasonable range of ROEs using the comparative analysis,[68] Mr. Woodard estimated the 2017 market expected COEs of 7.99% and 6.89% using DCF and CAPM, respectively, and used an authorized ROE of 9.80% from the 2017 Spire East and Spire West Cases.[69] This means Mr. Woodard recognized an authorized ROE that is more than 180 basis points greater than COE estimates. Therefore, if the Commission would accept Mr. Woodard's use of a flotation cost adjustment, then an authorized ROE would be double-counting flotation costs since the consideration of flotation costs are already embedded in an authorized ROE using the comparative COE analysis.

5. Credit Rating Agency

Q. What was the impact of the Commission's 2021 rate case decision on Spire Missouri's credit rating?

A. There was no actual negative impact of the Commission's rate case decision on Spire Missouri's credit rating. According to S&P Global Ratings published June 2, 2022, Spire Missouri is a low-risk, regulated distribution utility under a generally constructive regulatory environment.[70] Spire Missouri's S&P Issuer Credit Rating is "A-" with a "Stable" outlook, and Moody's long-term rating of Spire Missouri's First Mortgage Bonds is "A1".[71] Spire Missouri's credit ratings did not change after the Commission's decision in the 2017 Spire East and Spire West Cases and the 2021 Spire Case.[72]

[68] On page 34, lines 6-7, Woodard's Direct Testimony.

[69] Woodard Workpaper Base Plus model, Woodard's Direct Workpaper.

[70] RatingDirect, S&P Capital IQ, Spire Missouri Inc., published June 2, 2022.

[71] Credit Ratings, S&P Capital IQ Pro.

[72] Corporate Issuance, S&P Capital IQ Pro.

Q. Do you agree with Mr. Woodard that Spire Missouri's credit ratings would be downgraded if his requested ROE in this case would not be granted?[73]

A. No, I do not. Considering the credit agencies' response to the Commission's authorized decisions in the past Spire Missouri rate cases, Mr. Woodard's claim is baseless. There is no evidence that the current level of ROR is insufficient to support the current Spire Missouri credit rating level. As shown in Table 2, in both of the 2017 Spire East and Spire West Cases and the 2021 Spire Case, the Commission ordered authorized ROE was lower than the average authorized ROE in natural gas utility rate cases completed in the associated time-period, but no credit rating agency downgraded Spire Missouri's credit rating:

Table 2. Comparison of Authorized ROEs

The Commission (%) Spire Missouri Rate Cases		Average of the US (%) Fully Litigated Rate Cases	
2017	9.80	Q3-Q4 2017	10.32
2021	9.37	Q1-Q2 2021	9.68

In this proceeding, Mr. Woodard requested a ROE of 10.50%, and that is 117 basis points higher than the average authorized ROE of 9.33% in natural gas utility rate cases completed in the first half of 2022.[74] Therefore, if the Commission would grant Mr. Woodard's proposed ROE of 10.50%, the credit agencies will consider the Commission's decision to be inconsistent and unpredictable. By providing a consistent and predictable approach to regulatory recovery, the Commission can dispel credit agencies' concerns with the regulatory environment in Missouri.[75]

[73] On page 22, lines 21-22, Woodard's Direct Testimony.
[74] S&P Capital IQ Pro, Retrieved on July 2, 2022.
[75] Schedule AWW-D2, Woodard's Direct Testimony.

It could be true that Spire Missouri could be downgraded if a more negative outcome is reached in this rate proceeding. However, considering the average authorized ROE of 9.33% in natural gas utility rate cases completed during the first half of 2022 in the US, Mr. Woodard's proposed ROE of 10.50% is much too high. In addition, Staff did not find any credit agency reports that Spire Missouri is likely to be downgraded unless a more-supportive outcome is reached in this rate proceeding.[76] Therefore, Mr. Woodard's claim that Spire Missouri's credit ratings would be downgraded if his request in this case will not be not granted is unreasonable.

6. Regulatory and Business Risks

Q. What adjustments of COE did Mr. Woodard make to his recommendation of ROE regarding Spire Missouri's business and regulatory risks?

A. Mr. Woodard did not make specific adjustments to the COE in his recommendation of an authorized ROE when he estimated the effect of Spire Missouri's business and regulatory risks. Mr. Woodard considered regulatory and business risks to determine Spire Missouri's required ROE based on his analytic results.[77]

Q. What are your concerns with Mr. Woodard's consideration of Spire Missouri's business and regulatory risks for his recommendation of ROE in this proceeding?

A. Mr. Woodard's recommended ROE of 10.50% is too high considering Spire Missouri's business and regulatory risks. Spire Missouri is currently rated by Moody's and Standard & Poor's ("S&P") and is assigned corresponding ratings of 'A1' and 'A–'.[78] These ratings are higher than or equal to natural gas utilities' average bond ratings A3 and A–

[76] On page 19, lines 3-5, Woodard's Direct Testimony.
[77] On pages 34-36, Woodard's Direct Testimony.
[78] Rating Direct, S&P Capital IQ.

characterized by Moody's and S&P, respectively.[79] Spire Missouri's credit rating is determined by considering its risks including its business, regulatory, and financial risks.[80] For example, Moody's assigns regulatory risk a 50% weighting in the overall assessment of business and financial risk for regulated utilities.[81] All other things being equal, credit ratings higher than or equal to the average indicate lower or equal risks and therefore should require a lower or equal rate of return for investors. Mr. Woodard recommended an authorized ROE of 10.50%, but his recommended ROE is too high compared to the average authorized ROE of 9.33% in natural gas utility rate cases completed in the first half of 2022 in the US.[82]

7. Capital Structure

Q. What is Mr. Woodard's proposed ratemaking capital structure in this proceeding?

A. Mr. Woodard proposed a capital structure consisting of 55.0% common equity and 45.0% long-term debt.[83] Mr. Woodard claims that his proposed capital structure is based on Spire Missouri's actual capital structure.[84]

Q. Do you agree with Mr. Woodard that Spire Missouri's actual capital structure consists of 55% common equity and 45% long-term debt?

A. No, I do not. As of June 30, 2022, Spire Missouri's actual capital structure consists 51.87% common equity and 48.13% long-term debt.[85] When he reported Spire's capital structure and calculated the cost of long-term debt in his direct testimony, Mr. Woodard excluded

[79] S&P Capital IQ Pro.
[80] Corporate Rating Methodology, S&P.
[81] Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities, at 4 (June 23, 2017).
[82] S&P Capital IQ Pro, Retrieved on July 2, 2022.
[83] Table 1, Woodard's Direct Testimony.
[84] Staff's Data Request No. 0217.
[85] SEC 10-Q, reported August 4, 2022.

$300 million in first mortgage bonds.[86] According to Mr. Woodard, this $300 million of variable rate first mortgage bonds are due December 2024 and have been removed from Spire Missouri's capital structure beginning in December 2021.[87] Therefore, this issuance currently remains long-term debt of Spire Missouri, and should be classified in that manner in this rate case. Therefore, Mr. Woodard's proposed capital structure of 55% common equity and 45% long-term debt is not based on actual capital structure.

Q. What are your concerns with Mr. Woodard's proposed percentage of long-term debt in Spire Missouri's ratemaking capital structure?

A. Staff has concerns with Mr. Woodard's proposed percentage of long-term debt in Spire Missouri's ratemaking capital structure because that is not the actual amount of long-term debt Spire Missouri reported to the U.S. Securities and Exchange Commission ("SEC").[88] Staff agrees with Mr. Woodard that financial risk increases with additional leverage of a higher long-term debt level, leading to a higher cost of debt and equity.[89] However, when key financial metrics (particularly FFO/Debt) were calculated, major credit rating agencies did not use Mr. Woodard's adjusted long-term debt, which was reduced by $300 million in first mortgage bonds, but instead used the actual long-term debt, which was not reduced by $300 million in first mortgage bonds, as reported to the SEC.[90]

Q. Do you agree with Mr. Woodard that Spire Missouri's ratemaking structure should exclude $300 million in long-term debt in this proceeding?

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[86] Page 39, lines 13-14, and page 40, lines 1-2, Woodard's Direct Testimony.
[87] Staff's Data Request No. 0203.
[88] SEC 10-Q, reported August 4, 2022.
[89] On page 35, lines 16-17, Woodard's Direct Testimony.
[90] Financials, S&P Capital IQ Pro.

A. No, I do not. Mr. Woodard's arguments that the $300 million first mortgage bonds issued in December 2021 should be excluded from the calculation of the cost of long-term debt is unreasonable. Staff acknowledges Mr. Woodard's claim that:

> This $300 million first mortgage bond issue was structured as a three-year index-linked offering with a call option to allow for the debt to be retired as Spire Missouri recovers gas costs pursuant to the amended Purchase Gas Adjustment Rider as approved by the Commission on October 14, 2021.[91]

However, Staff recognized multiple flawed and inconsistent arguments from Mr. Woodard to remove the $300 million from Spire Missouri's ratemaking capital structure. When he argued that his $300 million adjustment is proper, Mr. Woodard insisted that securitized debt is generally not included in capital structure and cost of capital calculation.[92] This is a misleading statement because a $300 million first mortgage bond is not a securitized debt to begin with. Mr. Woodard proposed a similar treatment of the $300 million first mortgage bond and securitized debt based on the reason that the $300 million long-term debt issue is structured as a temporary debt, which will be retired upon full recovery of the gas costs.[93] However, this reason uncovered Mr. Woodard's inconsistent approaches to debts in remaking capital structure. When he claimed there is no short-term debt in excess of short-term assets, Mr. Woodard excluded any debts related to Winter Storm Uri including $300 million in long-term debt.[94] In summary, when he determined the amount of long-term debt and short-term debt in the rate making capital structure, to boost Spire Missouri's ROR, Mr. Woodard did not include $300 million debt as either long-term debt or short-term debt. If Mr. Woodard did not include the $300 million debt in the calculation

[91] On page 39, lines 13-16, Woodard's Direct Testimony.
[92] On page 39, lines 22-23, Woodard's Direct Testimony.
[93] On page 40, lines 8-13, Woodard's Direct Testimony.
[94] Staff's Data Request No. 0221.

of short-term debt because it is used for Winter Storm Uri as the Commission ordered in 2021 Spire Case, he should include the $300 million debt as long-term debt in Spire Missouri's ratemaking capital structure.

Q. Do you agree with Mr. Woodard that short-term debt should not be included in Spire Missouri's ratemaking capital structure?

A. No, I do not. Mr. Woodard claimed that short-term debt should not be included in Spire Missouri's ratemaking capital structure because its short-term debt is not used to finance its rate-based assets.[95] However, Staff found Mr. Woodard's claim is not true. As the Commission ordered in the 2021 Spire Case, the amount of short-term debt included in Spire Missouri's ratemaking capital structure should be determined by the average short-term debt in excess of short-term assets over a 13-month period, excluding both short-term assets and short-term debt related to Winter Storm Uri.[96] This excess should then be considered for inclusion in the ratemaking capital structure. As of June 30, 2022, the 13-month average of short-term debt exceeds the 13-month average balance of short-term assets by $25,597,355.[97] However, since December 2021, the monthly balance of short-term debt is less than the monthly balance of short-term assets.

Q. Does Staff recommend that the amount of short-term debt that exceeds short-term assets should be included in Spire Missouri's ratemaking capital structure as of June 30, 2022?

A. No. At this time, Staff does not recommend including short-term debt in Spire Missouri's ratemaking capital structure, as explained in the direct testimony of Staff witness Kimberly K. Bolin. Ms. Bolin will continue to examine the amount of short-term assets and

[95] On page 42, lines 1-2, Woodard's Direct Testimony.
[96] On page 96, Amended Report and Order issued November 12, 2021, in Case No. GR-2021-0108.
[97] Schedule KKB-r1, Kimberly K. Bolin's Rebuttal Testimony.

short-term debt through the true-up period ending September 30, 2022. Based upon the result of the true-up analysis, Staff may revise its position on the inclusion of short-term debt in Spire Missouri's ratemaking capital structure.

III. RESPONSE TO TESTIMONY OF OPC WITNESS

Q. What are the specific areas in which Staff is responding to OPC's witness, Mr. Murray?

A. The areas in which Staff addresses issues of Mr. Murray's direct testimony include:

- Recommended ROE, and
- Capital Structure.

Staff will discuss each in turn, below.

1. Recommended ROE

Q. What is Mr. Murray's recommended ROE for use in this proceeding?

A. Mr. Murray recommended that the Commission set Spire Missouri's authorized ROE at 9.25% within a range of 9.00% to 9.25%.[98] Mr. Murray asserted that his recommended ROE is based on his analysis of capital market conditions.[99] Using a multi-stage DCF approach, a CAPM analysis and a straightforward bond-yield-plus-risk-premium ("BYPRP") method, Mr. Murray estimated current COE for Spire Missouri of 7.25% to 7.50% compared to 6.5% to 7.50% in the 2021 Spire Case.[100] Mr. Murray insisted on an authorized ROE of no higher than 9.25% to be consistent with market conditions for the natural gas local distribution companies ("LDC").[101]

[98] On page 6, lines 6-12, and Schedule DM-D-2, Murray's Direct Testimony.
[99] On page 3, lines 7-9, Murray's Direct Testimony.
[100] On page 5, lines 15-18, Murray's Direct Testimony.
[101] On page 6, lines 9-13, Murray's Direct Testimony.

Q. What are Staff's concerns with Mr. Murray's recommended ROE?

A. Staff's concern is that, considering the current trend of interest rates, Mr. Murray's recommended ROE of 9.25% would be too low compared to the authorized ROE of 9.37% in the 2021 Spire Case.[102] Specifically, Mr. Murray's recommended ROE of 9.25% is inconsistent with his COE analysis. Most of the evidence including data and analysis employed by Mr. Murray does not support his recommended ROE of 9.25%. Mr. Murray insisted that current authorized ROEs have not changed compared to 2021, but his research revealed that is not true. In other words, Mr. Murray's conclusion does not match his findings and analysis. Staff will explain using some examples of the inconsistency between Mr. Murray's analysis and his conclusion.

Q. What market analyses in Mr. Murray's direct testimony are indicating a current inclined trend of COE for natural gas utilities?

A. Mr. Murray presented several examples of an inclined trend of COE for natural gas utilities since the benchmark time-period, 2021, when the authorized ROE of 9.37% was determined in the Commission's most recent fully litigated natural gas rate case, the 2021 Spire Case.[103]

First, Mr. Murray recognized that current investment grade utility bond yields are higher than yields over the last two years.[104] Mr. Murray stated that bond yields have increased rapidly since early 2022 after reaching historic lows in 2020 and 2021.[105] Bond yields are one of the most important indicators of investors' required COE for utility companies. All other things

[102] *Amended Report and Order* issued November 12, 2021, in Case No. GR-2021-0108.
[103] *Amended Report and Order* issued November 12, 2021, in Case No. GR-2021-0108.
[104] On pages 8-9, Murray's Direct Testimony.
[105] On page 8, lines 15-16, Murray's Direct Testimony.

being equal, a higher bond yield indicates a higher required COE.[106] For instance, Moody's Baa corporate bond yield of 3.16% in December of 2020 has risen more than 211 basis points to 5.27% in June of 2022.[107]

Second, Mr. Murray recognized that at the beginning of early 2020 and through most of 2021, LDC's started trading at a discount to electric utilities.[108] Mr. Murray stated that in the last couple of months LDC's have been trading at a P/E ratio of around 19x compared to around 21x for electric utilities.[109] Even Mr. Murray stated that:

> As I will explain in more detail when I describe my COE analysis, it is my opinion that Spire Missouri's allowed ROE **should not be lower** than that which is considered reasonable for an electric utility.[110] [Emphasis added.]

The average authorized ROE was 9.43% in fully litigated electric rate cases completed during the first half of 2022 in the US.[111] Mr. Murray contradicts his previous statement by recommending an ROE of 9.25% for Spire Missouri because his recommended ROE is lower than the average authorized ROE of 9.43% in electric utilities.

Third, Mr. Murray indicated that equity analysts' current consensus 2022 earnings per share ("EPS") estimate for Spire Inc. is $3.89 but it was $4.38 before the Commission's decision in the 2021 Spire Case.[112] All other things being equal, it is reasonable that Spire Missouri requests a higher authorized ROE because of a lower EPS.

[106] Brigham, E. F., Shome, D. K., & Vinson, S. R. (1985). The risk premium approach to measuring a utility's cost of equity. Financial Management, 33-45.
[107] FRED, Economic Data, St. Louis Federal Reserve, https://fred.stlouisfed.org/series/DBAA.
[108] On page 13, lines 4-5, Murray's Direct Testimony.
[109] On page 13, lines 5-7, Murray's Direct Testimony.
[110] On page 16, lines 15-17, Murray's Direct Testimony.
[111] S&P Capital IQ Pro, Retrieved on July 2, 2022.
[112] On page 18, lines 17-20, Murray's Direct Testimony.

The examples listed in Mr. Murray's direct testimony show that his market analyses indicate a current inclined COE trend. While Staff agrees with Mr. Murray's fact-findings and market analysis that indicated a higher ROE for Spire Missouri than was authorized in the 2021 Spire case, his conclusion is clearly contradictory to the evidence he provides. Therefore, Staff disagrees with his recommended ROE of 9.25% because it is lower than the 9.37% ordered by the Commission in the 2021 Spire Case.

Q. What are Mr. Murray's COE estimate methods and results for Spire Missouri?

A. Mr. Murray performed a company-specific COE analysis on Spire Inc. as well as a proxy group COE analysis.[113] Mr. Murray used a multi-stage DCF approach and a CAPM approach and then tested the reasonableness of his COE estimates by using a straightforward BYPRP method.[114] Mr. Murray calculated the implied COE for Spire Inc. to be approximately 7.26% to 7.54%, but he estimated a higher COE range of 7.37% to 7.68% in 2021 Spire Case.[115] For his LDC proxy group, Mr. Murray used seven natural gas utility companies: Atmos Energy Corporation, New Jersey Resources Corporation, NiSource Inc., Northwest Natural Holding Company, ONE Gas Inc., Southwest Gas Holdings Inc. and Spire.[116] Using his LDC proxy group, Mr. Murray's COE estimate is around 6.05% to 6.15%, which is lower than his COE estimation range of 6.35% to 6.65% in the 2021 Spire Case.[117]

Q. What are your concerns with Mr. Murray's COE estimation for Spire Missouri?

A. Staff does not have any major concerns with Mr. Murray's COE estimation for Spire Missouri. However, because his conclusion of ROE does not match his COE analysis, Staff

[113] On page 20, lines 26-27, Murray's Direct Testimony.
[114] On page 21, lines 1-3, Murray's Direct Testimony.
[115] On page 26, lines 10-12, Murray's Direct Testimony.
[116] On page 27, lines 17-20, Murray's Direct Testimony.
[117] On page 29, lines 17-18, Murray's Direct Testimony.

has concerns with his recommended ROE of 9.25% based on a range of 9.0% to 9.25%.[118] As explained above, all of his COE analysis results in this proceeding indicate a higher COE compared to the 2021 Spire Case, but he recommended a lower ROE of 9.25% than the Commission's previous authorized ROE of 9.37% in the 2021 Spire Case.

2. Capital Structure

Q. What is Mr. Murray's recommended capital structure for use in this proceeding?

A. Mr. Murray recommends a hypothetical capital structure that consists of 45.0% common equity, 48.0% long-term debt and 7.0% short-term debt based on his consideration of Spire Inc.'s consolidated capital structure.[119] Mr. Murray made a clarification that he is not recommending Spire Inc.'s consolidated capital structure because his recommended ratemaking capital structure does not include Spire Inc.'s preferred stock and convertible equity units.[120]

Q. What is Staff's concern with Mr. Murray's capital structure recommendation?

A. Staff has multiple concerns with Mr. Murray's recommendation. First, Mr. Murray's recommended capital structure is the same as his recommended capital structure in the 2021 Spire Case.[121] After the decision of the 2021 Spire Case, there have been many changes in Spire Inc. and Spire Missouri's capital structures, particularly regarding Spire Missouri's short-term debt.[122] Second, Mr. Murray's recommended equity ratio of 45.0% is too low compared to the average equity ratio of 50.21% for natural gas utility rate cases determined in the

[118] On page 32, lines 23-26, Murray's Direct Testimony.
[119] Schedule DM-D-2, Murray's Direct Testimony.
[120] On page 33, lines 17-23, Murray's Direct Testimony.
[121] On page 44, lines 17-18, Murray's Direct Testimony.
[122] On page 3, lines 24-28, Kimberly K. Bolin's Direct Testimony.

first half of 2022 in the US. In his direct testimony, Mr. Murray also stated, "a common equity ratio of around 50% is entirely reasonable."[123]

Q. What equity ratios were used in natural gas utility rate cases on a national basis?

A. In the first half of 2022, the average equity ratios from fully litigated and settled rate cases are 54.50% and 49.60%, respectively. The total average equity ratio of all nine natural gas rate cases in the first half of 2022 is 50.21%. Considering the historical average equity ratio of approximately 50% used for calculating the allowed ROR for natural gas utility rate cases, Mr. Murray's recommended equity ratio of 45.0% appears to be low. Table 4 presents information compiled and published by RRA, which details the average equity ratios from Commissions around the US in the years 2012 to the second quarter of 2022, along with the number of cases considered:

Table 4. Equity Ratios of Natural gas Utility Rate Cases (2012-2022)[124]

			Natural gas Utility			
	Fully Litigated		Settled		Natural gas Total	
Year	Equity (%)	Case (No.)	Equity (%)	Case (No.)	Equity (%)	Case (No.)
2012	51.06	21	50.97	14	51.03	35
2013	51.98	12	48.53	9	50.60	21
2014	52.86	15	48.61	11	51.06	26
2015	51.17	5	49.32	11	49.94	16
2016	52.11	10	48.60	16	50.01	26
2017	50.39	7	50.63	17	50.55	24
2018	50.56	17	50.27	23	50.39	40
2019	52.00	12	52.30	20	52.18	32
2020	52.38	12	52.66	23	52.56	35
2021	50.50	13	51.02	30	50.86	43
2022	54.50	1	49.60	8	50.21	9

[123] On page 49, lines 18-19, Murray's Direct Testimony.
[124] S&P Capital IQ Pro, Retrieved on July 2, 2022.

Q. Does Mr. Murray's recommendation to use the parent company's capital structure meet the standard of generally accepted utility ratemaking procedures?

A. No. Mr. Murray's recommendation is not compatible with typical regulatory practices on when to use a hypothetical capital structure considering its parent company's capital structure instead of a subsidiary's own capital structure for the subsidiary's ratemaking. The Society of Utility and Regulatory Financial Analysts ("SURFA") lists the following two guidelines for determining when to use a hypothetical capital structure in its guidebook, The Cost of Capital – A Practitioner's Guide ("CRRA Guide"):

> 1. The utility's capital structure is deemed to be substantially different from the typical or "proper" utility capital structure; and
>
> 2. The utility is funded as part of a diversified organization whose overall capital structure reflects its diversified nature rather than its utility operations only.[125]

There is nothing in these guidelines that suggests that it is appropriate to use a hypothetical capital structure to set Spire Missouri's ROR. For the first guideline, there is no evidence Spire Missouri's actual capital structure is substantially different from the typical or "proper" utility capital structure. As explained above, the average equity ratio of all nine natural gas rate cases in the first half of 2022 is 50.21%.[126] For the second guideline, Spire Missouri is wholly owned by Spire Inc., and Spire Inc.'s non-regulated contribution to earnings is only approximately 5%.[127] In other words, Spire Missouri is not materially funded as part of a diversified organization. In addition, a hypothetical capital structure can be considered if the actual per books capital

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[125] David C. Parcell in The Cost of Capital – A Practitioner's Guide prepared for SURFA.
[126] S&P Capital IQ Pro, Retrieved on July 2, 2022.
[127] Staff's Data Request No. 0212.

structure is not reflective of the optimal capital structure for the utility company. Staff has not found that Spire Missouri's standalone capital structure is not reflective of the optimal capital structure.

Q. Do you agree with Mr. Murray that a 7% short-term debt should be included in Spire Missouri's ratemaking capital structure?[128]

A. No, I do not. The 7% short-term debt recommended by Mr. Murray is based on his analysis in the 2021 Spire Case.[129] As the Commission ordered in the 2021 Spire Case, the amount of short-term debt included in Spire Missouri's ratemaking capital structure should be determined by the average short-term debt in excess of short-term assets over a 13-month period ended September 30, 2022, the true-up date of in this proceeding.[130]

IV. SUMMARY AND CONCLUSIONS

Q. What is your summary of the conclusions of your rebuttal testimony?

A. Mr. Woodard's proposed ROE of 10.50% for Spire Missouri is not just and reasonable considering his misuse of Staff's comparative COE analysis and inappropriate adjustments. Staff has concerns with OPC witness Mr. Murray's recommended ROE of 9.25% because it does not properly consider the Fed's current fight to reduce the inflation rate. Considering the current interest rate hike, Staff recommends that the reasonable authorized ROE to use in this proceeding is 9.58%, in a reasonable range of 9.33% to 9.83%.

For Spire Missouri's ratemaking capital structure, Mr. Woodard and Mr. Murray did not propose actual capital structures. Mr. Woodard proposed a non-actual capital structure consisting

[128] On page 44, lines 17-18, Murray's Direct Testimony.
[129] Pages 44-45, Murray's Direct Testimony.
[130] On page 96, Amended Report and Order issued November 12, 2021, in Case No. GR-2021-0108.

of 55% common equity and 45% long-term debt based on his unreasonable $300 million adjustment. Mr. Murray proposed a hypothetical capital structure that consists of 45.0% common equity, 48.0% long-term debt and 7.0% short-term debt based on his consideration of Spire Inc.'s consolidated capital structure.

Currently, Staff is monitoring the changes of Spire Inc. and Spire Missouri's actual capital structure and cost of debt. Staff will make its final recommendation of ROR in its true-up testimony in this proceeding after investigating the reason for any material changes in Spire Missouri's actual capital structure over the duration of this case.

Q. Does this conclude your rebuttal testimony?

A. Yes.

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-2022-0179

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 of Seoung Joun Won, PhD*; 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 3rd day of October 2022.

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

Notary Public