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SPIRE MISSOURI INC.

GR-2025-0107

DIRECT TESTIMONY

OF

ADAM W. WOODARD

****Denotes Confidential Information****

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TABLE OF CONTENTS

DIRECT TESTIMONY OF ADAM W. WOODARD.....	1
I. INTRODUCTION.....	1
II. PURPOSE OF TESTIMONY	2
III. COST OF CAPITAL BACKGROUND.....	2
IV. THE STANDARD OF REVIEW.....	10
V. SETTING THE RATE OF RETURN.....	14
VI. COST OF EQUITY METHODOLOGIES AND RESULTS.....	17
A. DISCOUNTED CASH FLOW	17
B. CAPITAL ASSET PRICING MODEL.....	24
C. RISK PREMIUM ESTIMATE	29
VII. BALANCE & EMBEDDED COST OF DEBT	34
VIII. CAPITAL STRUCTURE.....	35
IX. SHORT-TERM DEBT	39
X. RATE OF RETURN.....	40
XI. CONCLUSION	41

SCHEDULES:

Schedule AWW-D-1 – Historical Financial Ratios

Schedule AWW-D-2 – Historical Earned ROEs

Schedule AWW-D-3 – Proxy Group

Schedule AWW-D-4 – Base Discounted Cash Flow Analysis

Schedule AWW-D-5 – Expanded Discounted Cash Flow Analysis

Schedule AWW-D-6 – Summary of DCF Estimates

Schedule AWW-D-7 – Flotation Costs

Schedule AWW-D-8 – Historical Market Risk Premium

Schedule AWW-D-9 – Base CAPM & ECAPM Analysis

Schedule AWW-D-10 – Expanded CAPM & ECAPM Analysis

Schedule AWW-D-11 – Summary of CAPM & ECAPM Estimates

Schedule AWW-D-12 – RRA Gas Utility Rate Case Outcomes Since 1980 (annual averages)

Schedule AWW-D-13 – RRA Gas Utility Rate Case Outcomes Since 1980 (quarterly averages)

Schedule AWW-D-14 – 30 Year Treasury Yields (by Month, Quarter and Year)

Schedule AWW-D-15 – Indicated Risk Premium

Schedule AWW-D-16 – Historical Risk Premium Implied ROE

Schedule AWW-D-17 – RRA Regression Output

Schedule AWW-D-18 – Annualized Cost of Debt at 9/30/24

Schedule AWW-D-19 – Historic Equity Layers

Schedule AWW-D-20 – ROE Plot

Schedule AWW-D-21 – Rate of Return

Schedule AWW-D-22 – Derivation of FFO to Debt

DIRECT TESTIMONY OF ADAM W. WOODARD

I. INTRODUCTION

1
2 **Q. WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS ADDRESS FOR**
3 **THE BENEFIT OF THE MISSOURI PUBLIC SERVICE COMMISSION**
4 **(“COMMISSION”)?**

5 A. My name is Adam W. Woodard, and my business address is 700 Market Street, St. Louis,
6 MO 63101.

7 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

8 A. I am the Chief Financial Officer of Spire Missouri Inc. (“Spire Missouri” or the
9 “Company”) and the Treasurer of Spire Inc.

10 **Q. HOW LONG HAVE YOU HELD THESE POSITIONS AND WHAT ARE YOUR**
11 **RESPONSIBILITIES?**

12 A. I joined Spire Inc. in 2018 as the Treasurer and was named Chief Financial Officer of Spire
13 Missouri in 2019. As Treasurer of Spire Inc., I am responsible for funding and investments
14 of Spire Inc. I also manage investor relations, credit, and strategic planning. As Chief
15 Financial Officer of Spire Missouri, I am integrally involved in budgeting and planning for
16 the utility.

17 **Q. WHERE DID YOU WORK BEFORE JOINING SPIRE MISSOURI?**

18 A. I was a Managing Director of Investment Banking at Wells Fargo Securities. I started my
19 career at A.G. Edwards & Sons, Inc (a predecessor company to Wells Fargo) in 1997. I
20 specifically managed a group dedicated to the provision of financial advisory services and
21 capital markets transactions to the Energy industry.

22 **Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?**

1 A. I have a Bachelor of Arts degree in English Literature from the University of Kansas and
2 a Juris Doctor from the Saint Louis University School of Law. I am an inactive member
3 of the Missouri Bar, and I was formerly a FINRA licensed Securities Principal (Series 23).

4 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE COMMISSION?**

5 A. Yes. I submitted testimony in GR-2021-0108 and GR-2022-0179.

6 **II. PURPOSE OF TESTIMONY**

7 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

8 A. The purpose of my direct testimony is to provide a recommendation on the rate of return
9 to be used in establishing gas service rates of Spire Missouri and the approach that should
10 be taken to assess its reasonableness. My testimony includes analysis and
11 recommendations on the various components of the rate of return: return on equity, cost of
12 debt, and capital structure.

13 **Q. ARE YOU SPONSORING ANY SCHEDULES OR EXHIBITS?**

14 A. Yes.

15 **III. COST OF CAPITAL BACKGROUND**

16 **Q. WHAT ARE YOUR INITIAL THOUGHTS ON THE ASSESSMENT OF THE
17 REASONABLENESS OF A RATE OF RETURN RECOMMENDATION?**

18 A. Most cost of capital testimony immediately launches into the divination of the cost of
19 equity. This typically transitions into relatively dense analyses of various theories used to
20 estimate this key variable in the overall rate of return. There is widespread agreement of
21 the various models to be used in this exercise but virtually no agreement in how to properly
22 populate or configure such models. It is easy to get lost in all of the variables and not think
23 about how all the components of rate of return come together to provide a basis for a return

1 on capital that also provides a consistently reasonable overall return. I say this as a means
2 of introducing some things to factor into this examination before the obligatory deeper dive
3 into cost of equity analysis. It is important to realize that all of the modeling offered to
4 ascertain the forward-looking cost of equity is wrong. They are all estimates. This is not
5 to say it is not a useful exercise that cannot provide valuable insight – just that there is no
6 perfectly right answer.

7 A few preliminary matters should be established before embarking into the cost of capital
8 determination:

9 1) What is the current financial condition of the Company?

10 2) Are there structural impediments that limit the Company from earning its
11 authorized rate of return?

12 3) How can rate of return adequacy be established?

13 **Q. HOW SHOULD A COMPANY’S FINANCIAL CONDITION BE CONSIDERED?**

14 A. Most rate proceedings (including this one) are premised on current rates not being
15 sufficient. Looking at the current financial state of a company will assist in setting
16 appropriate rates for that specific company. For instance, whether the cash flow provided
17 by authorized rates is sufficient to operate the business in a predictable, consistent, and
18 sustainable way, whether the company is earning its authorized return on equity (“ROE”),
19 whether the returns are sufficient to allow a dividend, and whether the credit ratings have
20 been impacted are all valid questions to analyze. Cost of capital analysis is theoretical and
21 is supposed to be forward-looking. The measurement of a company’s past is purely
22 empirical, but it is this evidence that can provide valuable background in assessing where
23 an authorized rate of return should be set. If the Company is significantly underearning its

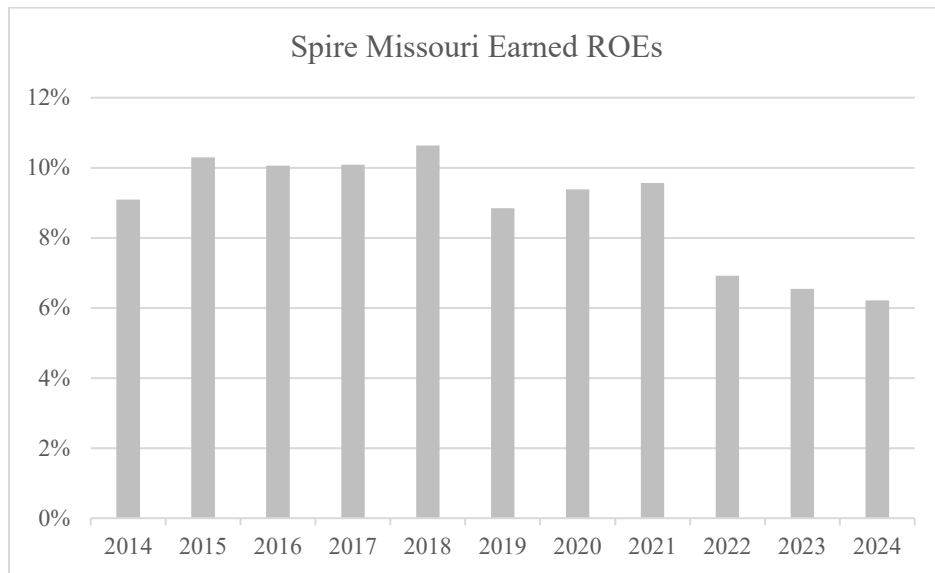
1 authorized return it could require a higher authorized rate of return than a theoretical
2 analysis would suggest, in order to repair its financial condition, which may have
3 negatively impacted capital structure. Moreover, sometimes an individual utility
4 experiences conditions different than its peers, and a return based upon an analysis of its
5 peer group may not be sufficient to overcome these negative conditions, as the peer groups
6 do not face similar obstacles. Most cost of capital models assume the individual company's
7 financial condition is stable. This assumption can result in an inadequate authorized return
8 because deterioration in the financial condition is not fully addressed in models, leaving
9 the company in a weakened state.

10 This concept works the opposite way as well. If a company is substantially over-earning
11 relative to its authorized return, this should be taken into account when setting a new
12 authorized return. Factoring the current financial state of the company during the
13 ratemaking process, over time, will mitigate the need for larger adjustments, up or down.
14 This is the path to a consistent and predictable authorized rate of return.

15 **Q. WHAT IS SPIRE MISSOURI'S CURRENT FINANCIAL CONDITION?**

16 A. The Company's historical financial ratios are provided in **Schedule AWW-D-1**. Currently,
17 Spire Missouri is significantly underearning its authorized rate of return. Its earned ROE
18 for 2022, 2023 and 2024 was under 7%, while the 10-year average prior to 2022 was 9.54%.
19 This has resulted in Spire Missouri's credit metrics deteriorating significantly. The
20 Company's Funds from Operations to Debt ("FFO to Debt") hit a low point in 2023 at an
21 unsustainable 12%, after averaging above 19% for much of the last decade. This led to
22 Standard & Poor's downgrading Spire Missouri's bond rating in June of 2024. This
23 deterioration in the earned ROE is caused by the insufficient recovery of both cost of capital

1 and cost of service, as well as a tariff structure that is only partially mitigated for weather
2 volatility. The effects of the under recovery have negatively impacted cash flow, capital
3 structure, dividends, and earnings. Hopefully, much of Spire Missouri's underearning will
4 be mitigated through this proceeding as cost of service and cost of capital are adjusted.
5 **Schedule AWW-D-2** and the figure below summarize Spire Missouri's earned ROE's
6 since 2014.



7
8 **Q. WHAT KIND OF STRUCTURAL IMPEDIMENTS CAN LIMIT A COMPANY**
9 **FROM EARNING ITS AUTHORIZED RETURN AND WHY DOES IT MATTER?**

10 A. There are multiple structural impediments that can limit a company from earning its
11 authorized return, including, but not limited to:

- 12 1) necessary costs of service that are excluded from recovery;
- 13 2) mischaracterized cost of capital (particularly debt costs);
- 14 3) flotation costs of equity;
- 15 4) expenses that have been realized and amortized, but not yet recovered between
- 16 rate cases; and

1 5) structural lag in capital recovery.

2 As stated above, theoretical analyses presented in rate proceedings are estimates used to
3 calculate an authorized rate of return. Factoring in the aforementioned structural
4 impediments will assist in determining whether that authorized rate of return is attainable
5 or proper. If a company is prevented from fully recovering its cost of service or cost of
6 capital (particularly as it was known at the time of the rate proceeding) this needs to be
7 factored into the adequacy of the rate of return. If a company is authorized to earn a 9.50%
8 ROE but, due to one or more structural impediments, likely can only earn at most a 9.00%
9 ROE, it is this lower return that must pass adequacy judgment. Indeed, this “headline”
10 authorized ROE is misleading to utility stakeholders (particularly investors) if it is not
11 achievable. What a company will actually earn should be considered, and if it is lower
12 than the authorized ROE, an adjustment to the rate of return should be made or the
13 institutional barriers to earning the authorized return should be removed.

14 **Q. ARE THERE STRUCTURAL IMPEDIMENTS TO SPIRE MISSOURI EARNING**
15 **ITS AUTHORIZED RATE OF RETURN?**

16 **A.** Yes. The main structural impediment is regulatory lag of capital recovery. Regulatory lag
17 is relatively well understood and certainly exists in Missouri, but it has not historically
18 served as a stated basis for a positive adjustment to Spire Missouri’s authorized rate of
19 return. While capital riders can, and do, mute some of the impact of regulatory lag, a
20 company can expect at least 50 basis points of earned ROE deterioration in the first 12
21 months of new rates coming into effect under the current environment.

22 This inability to earn the authorized return should be accounted for in this proceeding. This
23 is not the result of inefficient operations – Spire Missouri’s O&M per customer has been,

1 and remains, very low relative to other gas utility companies. The issue is that known costs
2 are just not being recovered. If these structural limitations cannot be addressed, then Spire
3 Missouri should be allowed a higher authorized return to compensate for them. If this is
4 not addressed in this proceeding, it will continue to contribute to investor questions as to
5 the consistency, predictability, and sustainability of Spire Missouri's returns.

6 **Q. IS THERE AN EMPIRICAL (RATHER THAN THEORETICAL) APPROACH TO**
7 **ESTABLISHING AN ADEQUATE RATE OF RETURN WHICH WOULD**
8 **PROMOTE CONSISTENCY, PREDICTABILITY AND SUSTAINABILITY IN**
9 **UTILITY OPERATIONS AND RESULTS?**

10 A. Yes. The purpose of cost of capital testimony is to recommend an authorized rate of return
11 on rate base. ROE is a component of this, but none of the components should be arrived
12 at in isolation from each other. A lower ROE and higher equity layer yield the same rate
13 of return as a higher ROE and a lower equity layer. Taken together in conjunction with the
14 cost of debt (and depreciation rates), these components need to yield a rate of return that
15 adequately supports the sustainability of the utility's operations.

16 Rating agencies provide a well-established independent assessment of cash flow adequacy
17 for regulated utility companies. Other factors are involved in the establishment of a
18 particular credit rating, but cost recovery and cash flow generation are the major drivers
19 for both Moody's and Standard & Poor's ratings. Moody's cash flow metric is Cash Flow
20 from Operations pre-Working Capital to Debt ("CFO-preWC to Debt"). Standard &
21 Poor's cash flow metric is Funds from Operations to Debt ("FFO to Debt"). They are very
22 similar in their derivation. These metrics are of primary importance to the cost of a
23 company's debt, but they also provide important information to the equity markets.

1 **Q. IF RATING AGENCY PARAMETERS ARE TO BE USED AS A GUIDE TO THE**
2 **ADEQUACY OF AN AUTHORIZED RETURN WHAT RATING SHOULD BE**
3 **ASSUMED?**

4 There is not a one-size-fits-all answer to this question. A lower rating might be suitable
5 for some utility companies while a higher rating may be required for others. In determining
6 a suitable rating, the Company's capital expenditure program would need to be taken into
7 account. Regulatory recovery mechanisms and their track record are important
8 considerations as both rating agencies recognize the value these provide and could allow
9 for lower financial metric thresholds at the same rating.

10 Almost all local gas distribution (operating) companies have Moody's debt ratings between
11 'Baa1' on the low side and 'A1' on the high side. While other factors do play a role in
12 the credit rating, the cash flow to debt metric is one of the primary drivers. This rating
13 range translates to an approximate cash flow to debt metric of 16% to 20%. This long-
14 term credit rating area corresponds with a short-term rating of A2/P2. Short-term ratings
15 below this level would increase liquidity costs and availability substantially.

16 **Q. WHAT ARE SPIRE MISSOURI'S CURRENT CREDIT RATINGS? HAVE THEY**
17 **CHANGED SINCE THE LAST GENERAL RATE PROCEEDING?**

18 A. Spire Missouri's secured long-term debt rating was 'A' from S&P since 2013 and was
19 lowered in June of 2024 to 'A-' based upon significant cash flow weakness.

20 Spire Missouri's secured long-term debt rating has been 'A1' from Moody's since 2014.
21 The outlook shifted to negative following the outcome of the 2021 rate case but shifted
22 back to stable after the settlement of the following case in 2022. Moody's remains cautious
23 about regulatory outcomes in Missouri.

1 **Q. WHAT IS THE RELATIONSHIP BETWEEN THE CASH FLOW METRIC AND**
2 **THE COST OF CAPITAL?**

3 A. FFO to Debt is one of the primary credit metrics used to assess the financial health of a
4 utility primarily by Standard & Poor's. Moody's uses a comparable metric Cash Flow
5 from operations ("CFO") pre working capital to debt. The Moody's and S&P metrics have
6 a similar derivation so I will limit my testimony to explaining FFO to Debt.

7 Both S&P's FFO to Debt and Moody's CFO pre-WC to Debt can be derived through an
8 assumption of key cost of capital inputs: equity layer, earned ROE and depreciation. S&P's
9 FFO is comprised of two parts. The first component is the return which can be expressed
10 as the earned ROE applied to the equity capitalization. The second component is
11 depreciation, which can be expressed as the depreciation rate multiplied by the total
12 capitalization (as a proxy for net plant).

13 The formula can be expressed as:

14
$$\text{Funds from operation} = \text{ROE} \times \text{Equity \%} + \text{Depreciation \%}$$

15 Where:

16
$$\text{ROE} = \text{actual earned return on equity}$$

17
$$\text{Equity \%} = \text{equity capitalization as a percentage of total capitalization}$$

18
$$\text{Depreciation \%} = \text{depreciation rate multiplied by total asset base}$$

19
$$(\text{capitalization})$$

20 The calculation of the credit metric is completed by then dividing FFO by the Debt %.

21
$$\text{ROE} \times \text{Equity \%} + \text{Depreciation \%} / \text{Debt \%}$$

1 This derivation is a valuable tool in judging the adequacy of authorized rates of return. It
2 also clearly demonstrates that each component of cost of capital should not be arrived at in
3 isolation (including the depreciation rate).

4 S&P has stated that it expects Spire Missouri's FFO to Debt to be 17-18% in 2026.
5 Moody's has established a stable range of values for Spire Missouri's current credit rating
6 of 18-22%. If Spire Missouri's FFO to Debt falls below this range for an extended period
7 of time, the Company will be at a substantial risk of being downgraded by both rating
8 agencies which will raise both its cost of debt and its cost of equity. It is important to note
9 that this metric degrades with any delays in recovery ("regulatory lag").

10 **Q. PLEASE SUMMARIZE YOUR COST OF CAPITAL RECOMMENDATION.**

11 A. I recommend a rate of return of 7.689% be applied to the total adjusted rate base on
12 September 30, 2024, of approximately \$4.4 billion. This is based on an equity layer of
13 **55%** and a cost of debt of **4.254%** and a ROE of **10.50%**.

14 **IV. THE STANDARD OF REVIEW**

15 **Q. WHAT FUNDAMENTAL PRINCIPLES GUIDE THE DETERMINATION OF A**
16 **FAIR AND REASONABLE RATE OF RETURN?**

17 A. The United States Supreme Court established the standards underlying the regulation of a
18 public utility's rate of return in *Bluefield Waterworks and Improvement Co. v. Pub. Serv.*
19 *Comm'n of W. Va.*, 262 U.S. 679 (1923) and *Fed. Power Comm'n v. Hope Nat'l Gas Co.*,
20 320 U.S. 591 (1944).

21 *Bluefield* introduces the foundation for what a fair and reasonable return is:

22 A public utility is entitled to such rates as will permit it to earn a return on
23 the value of the property which it employs for the convenience of the public
24 equal to that generally being made at the same time and in the same general
25 part of the country on investments in other business undertakings which are

1 attended by corresponding risks and uncertainties ... The return should be
2 reasonably sufficient to assure confidence in the financial soundness of the
3 utility and should be adequate, under efficient and economical management,
4 to maintain and support its credit and enable it to raise the money necessary
5 for the proper discharge of its public duties.
6

7 *Bluefield*, 262 U.S. at 692.

8 The Supreme Court encourages regulators to compare the potential returns made possible
9 by their decisions to investment opportunities available elsewhere. Indeed, if the risks and
10 return present in a given jurisdiction are not viewed favorably by investors, this raises the
11 cost of equity and debt, and creates spiraling downward pressure on the operations of the
12 utility. The return authorized by regulatory bodies must support the financial integrity of
13 the utility and provide for the sustainable operations of its essential services.

14 *Hope* expands upon the earlier precedent of *Bluefield*:

15 From the investor or company point of view it is important that there be
16 enough revenue not only for operating expenses but also for the capital costs
17 of the business. These include service on the debt and dividends on the stock
18 ... By that standard the return to the equity owner should be commensurate
19 with returns on investments in other enterprises having corresponding risks.
20 That return, moreover, should be sufficient to assure confidence in the
21 financial integrity of the enterprise, so as to maintain its credit and attract
22 capital.
23

24 *Hope Nat'l Gas*, 320 U.S. 591, 603

25 Most importantly, *Hope* clarifies that “[i]t is not the theory but **the impact** of the rate order
26 which counts” *Id.* at 602 (*emphasis added*).

27 The Supreme Court has reaffirmed the standards set out in *Hope* and *Bluefield* several times
28 over the years. These principles were most recently echoed in *Duquesne Light Co v.*
29 *Barasch*, 488 U.S. 299 (1989) where the Court again pointed to the impact created by the
30 rate order and added a cautionary warning:

1 The risks a utility faces are in large part defined by the rate methodology
2 because utilities are virtually always public monopolies dealing in an
3 essential service, and so relatively immune to the usual market risks.
4 Consequently, a State's decision to arbitrarily switch back and forth between
5 methodologies in a way which required investors to bear the risk of bad
6 investments at some times while denying them the benefit of good
7 investments at others would raise serious constitutional questions.

8
9 *Duquesne*, 488 U.S. at 315.

10 **Q. HOW SHOULD AUTHORIZED RETURNS BE EVALUATED FOR**
11 **REASONABLENESS?**

12 A. An examination of the authorized returns of other utility companies is often used to
13 compare returns. While this is certainly useful information, it does not provide a full
14 picture of comparable *earned* returns. It is merely a survey of *allowed* returns in various
15 jurisdictions and usually is further limited to recently litigated or settled and publicly
16 disclosed rate proceedings. This provides an incomplete picture of commensurate returns
17 and does not fully address whether the risks are truly comparable. For instance, Spire
18 Alabama's rates are set through an annual Rate Stabilization and Equalization ("RSE")
19 budgeted process, so its band of allowed returns (currently 9.50% to 9.90%) and equity
20 ratio (55.5%) is never included in the surveys. To further this example, while Spire
21 Alabama is also a gas utility, its corresponding risks are not similar to Spire Missouri. Spire
22 Alabama functions under a forward test year that includes an intra year adjustment for
23 inflation. Spire Alabama also has a weather normalization mechanism that meets the
24 expectations of its parent and investors. These are two material risk items that differ
25 significantly among operating gas utilities that are under common ownership. A simple
26 survey of recently authorized returns does not capture this necessary information. Earned

1 returns (rather than authorized) also need to be examined as authorized returns do not
2 necessarily correspond to actual returns in many jurisdictions.

3 **Q. WHY SHOULD COMMISSIONS EVALUATE RETURNS LIKE THIS?**

4 A. Investor confidence is easily shaken by unpredictable or inconsistent regulatory actions.
5 Utility investors may seek opportunities to invest in more certain jurisdictions.
6 Straightforward, transparent regulation with clearly stated rules and consistent orders goes
7 a long way to bolstering the financial integrity of regulated utilities. Even considering
8 arguments around outdated or discredited regulatory return theories can fluster perceptive
9 investors. Many read the testimony and orders and quickly move on to an investment in
10 another utility if they see something arbitrary or unreasonable presenting increased risk
11 relative to other investment options.

12 **Q. WHERE SHOULD COMMISSIONS LOOK TO EVALUATE CONFIDENCE IN**
13 **INVESTMENTS IN A UTILITY?**

14 A. While setting a rate of return sufficient to maintain creditworthiness is a relatively
15 straightforward mathematical exercise, it is often not taken into consideration in the
16 arguments around various components of cost of capital. The impact of regulation on
17 creditworthiness has been made abundantly clear in Missouri in recent years. As discussed
18 earlier, Moody's and Standard & Poor's are independent arbiters of creditworthiness which
19 have carried credit ratings on Spire Missouri for a long time. The Commission's 2021
20 Report and Order in GR-2021-0108 suspending overhead accounting and including short-
21 term debt in the capital structure generated a swift negative reaction from Moody's. More
22 recently, S&P downgraded Spire Missouri (and Spire Inc.) primarily for cash flow
23 weakness at the utility. Both rating agencies provide clear guidance to investors on their

1 expectation of cash flow generated from operations relative to total debt. Spire Missouri's
2 cash flow metrics have been weakened through the last two rate proceedings and the slow
3 recovery of high gas costs. A higher rate of return is required to repair this metric and
4 maintain creditworthiness. This will allow Spire Missouri to sustainably maintain access
5 to capital on reasonable terms, which benefits its customers.

6 **V. SETTING THE RATE OF RETURN**

7 **Q. HOW IS THE RATE OF RETURN TO BE DETERMINED?**

8 A. The cost of capital is the aggregate return required by a utility's investors. It consists of
9 the composite weighted cost of the various types of capital (primarily long-term debt and
10 equity) deployed by a utility to fund its rate base. This rate of return is multiplied into the
11 utility's rate base to calculate the revenue required to provide service in a particular
12 jurisdiction. The rate base is essentially the net utility plant in service and other assets used
13 to provide this service.

14 These principles provide a guide to the Commission in setting a return that is:

- 15 1. commensurate with returns on investments in other firms having corresponding
16 risks;
- 17 2. sufficient to assure confidence in Spire Missouri's financial integrity; and
- 18 3. sufficient to maintain Spire Missouri's creditworthiness and ability to attract capital
19 on reasonable terms.

20 Most significantly, it is the impact of the return that matters more than any specifically
21 applied methodology, as dictated by *Hope*.

22 **Q. HOW DOES SPIRE MISSOURI OBTAIN ITS CAPITAL AND HOW IS ITS**
23 **OVERALL COST OF CAPITAL DETERMINED?**

1 A. Spire Missouri obtains its funds through debt and equity capital. The current cost of long-
2 term debt can be determined through an examination of its contractual interest payments.
3 Spire Missouri’s equity capital is generated through retained earnings or contributed by
4 Spire Inc., its publicly traded parent company. Its cost of equity will be estimated through
5 an examination of multiple corporate finance methodologies and then combined with the
6 cost of debt and capital structure to construct the overall cost of capital (rate of return).

7 **Q. WHAT IS THE MARKET REQUIRED RATE OF RETURN ON EQUITY**
8 **CAPITAL?**

9 A. It is the return required by equity investors established through buying and selling decisions
10 in the public marketplace. Investor return requirements are influenced by perceived risks
11 inherent in the investment, the lost opportunity cost of investment in other companies, and
12 the available returns from other investments with similar risks.

13 **Q. HOW DID YOU ESTIMATE A FAIR ROE FOR SPIRE MISSOURI?**

14 A. I utilized versions of three methodologies in the estimation of a fair ROE: Discounted Cash
15 Flow (“DCF”); the Capital Asset Pricing Model (“CAPM”), and Risk Premium. Each is a
16 market-based methodology designed to estimate the cost of equity capital committed to
17 Spire Missouri.

18 **Q. WHY DO YOU USE MORE THAN ONE APPROACH FOR ESTIMATING COST**
19 **OF EQUITY?**

20 A. The cost of equity cannot be directly ascertained as each methodology lacks sufficient
21 precision for the determination of a fair return. Therefore, reliance on a single method or
22 preset formula would not be appropriate in determining investor expectations. Indeed, the
23 Supreme Court in *Duquesne* held that rather than using a single methodology, multiple

1 methodologies should be applied to several comparable companies and used to develop a
2 useful estimate.

3 **Q. DO CURRENT ECONOMIC AND MARKET CONDITIONS PRESENT**
4 **DIFFICULTIES IN APPLYING COST OF CAPITAL METHODOLOGIES?**

5 A. Yes. The methodologies to calculate an appropriate cost of equity are sensitive to current
6 market conditions because volatility and uncertainty can skew results of the models.
7 Historical data may not always be representative of future long-term earnings power. This
8 makes the use of multiple methodologies and reliance on a large comparable group of
9 companies all the more important.

10 **Q. PLEASE EXPLAIN HOW MARKET CONDITIONS HAVE CHANGED**
11 **BETWEEN THE REVIEW PERIOD OF THE LAST RATE PROCEEDING (2022)**
12 **AND TODAY.**

13 A. The Federal Reserve aggressively raised the Fed funds range in 2022 from 0.00% to 4.25%
14 by year-end. The Fed funds rate was 5.25%- through most of 2024 until the Federal
15 Reserve cut the rate by 50 basis points in September and another 25 basis points in early
16 November. More cuts are anticipated, but the depth and timing of the expected interest
17 rate cutting cycle is still highly uncertain. Short-term interest rates have increased the cost
18 of utilities' working capital considerably and have amplified the impact of any lag in the
19 recovery of long-term capital.

20 Further, in 2022, longer-term interest rates (30-year treasury) began the year at 1.90% and
21 rose considerably, ending the year at 3.98%. In 2024, interest rates are now even higher,
22 with the current 30-year treasury yielding 4.62%. Higher interest rates have increased both
23 debt and equity cost for utilities: Long-term debt costs have increased, which raises a

1 utility's cost of debt, while higher risk-free rates make bonds more attractive relative to
2 utility dividend yields, thus requiring a higher equity risk premium to attract equity
3 investors. This has resulted in utility price to earnings ratios declining since 2022. This
4 decline shifts utility dividend yields higher. Utility dividend yields are a key input in
5 moving DCF values higher. The higher risk-free rate is a key input in raising CAPM
6 values.

7 CAPM values are also sensitive to beta inputs (measure of the sensitivity of a stock's return
8 to movements in the overall market). Utility betas have trended higher since 2022, which
9 has raised CAPM cost of equity estimates. The pandemic market movements captured in
10 this measurement have contributed to this phenomenon along with the interest rate cycle
11 and the continued rise in passive (index) investing.

12 **VI. COST OF EQUITY METHODOLOGIES AND RESULTS**

13 **Q. HOW IS YOUR TESTIMONY AROUND COST OF EQUITY STRUCTURED?**

14 A. I will first discuss each of the three cost of equity methodologies I utilized in determining
15 an adequate ROE and provide the results of each methodology. I will then discuss how
16 the Commission should use these results to set the ROE for the Company.

17 **A. DISCOUNTED CASH FLOW**

18 **Q. PLEASE DESCRIBE THE DCF APPROACH TO ESTIMATING THE COST OF**
19 **EQUITY CAPITAL.**

20 A. DCF theory suggests that the value of a security to an investor is the discounted value of
21 the expected future stream of dividends. One DCF approach well-suited to a regulated
22 utility examines the current dividend and the future increases in the distribution expected
23 by investors. The formula for this approach is:

$$24 \quad K_e = D_1 / P_0 + g$$

1 Where: K_e = investor's expected return on equity
2 D_1 = expected dividend at the end of the year
3 P_0 = current stock price
4 g = expected growth rate of dividends, earnings, and stock price

5 This standard DCF model requires certain basic assumptions:

- 6 1. a constant average growth trend for dividends and earnings;
- 7 2. a stable dividend payout policy;
- 8 3. a discount rate in excess of the expected growth rate; and
- 9 4. a constant price-earnings multiple, which implies that growth in price is
10 synonymous with growth in earnings and dividends.

11 It is further assumed that dividends are paid at the end of the period rather than the typical
12 quarterly payment. I will explain how I estimated or calculated the inputs in the DCF
13 formula.

14 **Q. HOW DID YOU ESTIMATE SPIRE MISSOURI'S COST OF EQUITY WITH THE**
15 **DCF MODEL?**

16 A. Discussed in detail further below, multiple iterations of the DCF model were used to
17 estimate Spire Missouri's cost of equity. I first applied the same standard constant growth
18 DCF model to a smaller, base group of peer gas utilities and then to a larger, expanded
19 group of electric, gas, and water utilities. Both groups were then examined using Value
20 Line earnings growth assumptions and analyst consensus earnings growth assumptions.

21 **Q. HOW DID YOU ESTIMATE THE DIVIDEND YIELD COMPONENT OF THE**
22 **DCF MODEL?**

1 A. I used the current price of each company's stock at the time of estimating the cost of equity
2 because only current stock prices would incorporate all publicly available information and
3 accurately capture market expectations. The DCF methodology assumes markets are
4 efficient, which in turn implies that stock prices will adjust swiftly upon the availability of
5 new information. Therefore, only current stock prices should be used when estimating
6 fundamental value using a DCF model.

7 **Q. HOW DID YOU ARRIVE AT THE EXPECTED DIVIDEND YIELD?**

8 A. The full prospective dividend expected to be received over the next year was applied to the
9 current share price of each modeled company. Some model the expected dividend yield
10 by multiplying the spot dividend yield by half of the expected growth, but this alternative
11 calculation understates the investor's expected return.

12 **Q. HOW DID YOU ESTIMATE THE GROWTH COMPONENT OF THE DCF**
13 **MODEL?**

14 A. DCF methodology requires a growth rate to be applied to the expected dividend yield.
15 However, expected growth is not directly observable, so various forecasts are typically
16 used. In these DCF iterations, both consensus equity research analyst growth forecasts and
17 Value Line growth forecasts were applied to the proxy groups. Equity research analysts
18 influence both institutional investment management and individual investment decisions
19 and provide a solid foundation for estimating the cost of equity within the DCF framework.
20 These analysts are representatives of large financial institutions, and their opinions are
21 widely disseminated and representative of the consensus view of the market and relatively
22 consistent with current share prices. Value Line is a widely available, singular forecasting
23 service. However, Value Line analysts are disengaged from dialogue with the investment

1 community and the utilities they research, which creates questions as to their usefulness
2 for this type of valuation exercise. I am including these scenarios in my analysis because
3 they are often cited by stakeholder testimony in Missouri. I manage the investor relations
4 function for Spire Inc., and we have never had any contact with Value Line analysts.

5 **Q. DID YOU CONSIDER DIVIDEND GROWTH EXPECTATIONS IN APPLYING**
6 **THE DCF METHODOLOGY?**

7 A. No. There is an abundance of earnings growth forecasts but a relative scarcity of dividend
8 growth forecasts. Moreover, the limited number of dividend forecasts are not widely
9 disseminated and tend to be very short-term in nature. While dividend yields are still an
10 important attribute, utility investors are increasingly focused on earnings growth, which
11 supports future dividends and share prices. Earnings forecasts are abundantly more
12 available and short-term and long-term earnings growth is a frequent topic in meetings with
13 equity research analysts and investors. Earnings growth drives dividend growth, making
14 earnings growth forecasts an appropriate input when estimating growth in a DCF model.

15 **Q. HOW DID YOU APPROACH THE COMPOSITION OF THE PROXY GROUPS**
16 **IN YOUR DCF MODELING?**

17 A. The DCF model cannot be applied to Spire Missouri directly as it is not publicly traded, so
18 proxy groups must be used to estimate the cost of equity in DCF models. Two approaches
19 were taken in the construction of proxy groups. The first proxy group, the “base” group,
20 consisted of utilities primarily focused on gas distribution. This proxy group is similar to
21 the one used in the most recent Spire Missouri rate proceedings by the Company and
22 intervenors. However, there are two concerns with this proxy group: (i) it is a relatively
23 small group and not ideal for the purposes of estimating cost of equity, and (ii) some of the

1 utilities in the proxy group have experienced quite a bit of recent volatility. The second
2 proxy group, the “expanded” group, is larger and consists of gas, electric, and water
3 utilities. Each company found in the base group is also in the expanded group. **Schedule**
4 **AWW-D-3** provides these proxy groups.

5 **Q. DESCRIBE THE PROXY GROUPS AND THEIR RELATIVE COMPARABILITY**
6 **TO SPIRE MISSOURI.**

7 A. Again, the base group consists of companies that, like Spire Missouri, have natural gas
8 distribution at the core of their operations. This group includes: Atmos Energy, New Jersey
9 Resources, NiSource, Northwest Natural, ONE Gas, Southwest Gas, Chesapeake Utilities,
10 and UGI. While some of these companies are more diversified than others, this group is
11 recognized by investors as having similar operations centered around the local distribution
12 of natural gas. The operating utilities within each company are investment grade and each
13 company pays a dividend. However, it is important to note that Chesapeake is currently
14 acquiring an additional gas utility, while Southwest Gas has been the subject of a well-
15 publicized investor activist campaign and is spinning off its utility construction business.
16 These events may skew some of the financial inputs used in the different valuation
17 methodologies. That being said, the Chesapeake acquisition increases the size of its gas
18 utility operations, and the Southwest spin-off of its construction business, leaving it as a
19 “pure-play” gas utility, solidify the inclusion of both in this core gas utility proxy group.
20 The expanded proxy group allows the examination of the cost of equity through a wider
21 lens and is more statistically reliable than a smaller proxy group. While this expanded
22 group consists of gas, electric, water, and combination utilities, it does include the utilities
23 from the base, gas-focused proxy group. Further, regardless of the type of utility service

1 provided, Spire Missouri and these utilities in the expanded group have similar risk
2 profiles: all are oriented to the distribution of a utility service, are capital intensive, and are
3 subject to rate of return regulation and bear similar rates of return. In fact, the companies
4 in this proxy group are often included in similar utility indices in the financial markets, are
5 followed by the same group of equity research analysts, and also meet with the same group
6 of investors at financial conferences.

7 While the ideal proxy group would be a large group of predominantly natural gas
8 distribution utilities, there is not a sufficient number of comparable gas utilities to create a
9 statistically reliable group. It is therefore more appropriate to utilize the data of other types
10 of utilities, sharing similarities with Spire Missouri, to estimate cost of equity in DCF
11 modeling.

12 **Q. WHAT WERE THE RESULTS OF YOUR DCF ANALYSIS USING VALUE LINE**
13 **GROWTH PROJECTIONS?**

14 A. Using Value Line growth forecasts, the base proxy set of close peers yielded an average
15 cost of equity of 10.65% with a median of 10.57%. The expanded proxy group yielded an
16 average cost of equity of 9.71% with a median of 9.37%. Spire Inc. is excluded from both
17 modeled groups to avoid circular references. Spire Inc.'s cost of equity is estimated at
18 9.59% using Value Line growth projections. The results of the DCF analysis for the base
19 proxy group are found in **Schedule AWW-D-4**. The results of the DCF analysis for the
20 expanded proxy group are found in **Schedule AWW-D-5**.

21 **Q. WHAT DCF RESULTS DID YOU OBTAIN USING ANALYSTS' CONSENSUS**
22 **GROWTH PROJECTIONS?**

1 A. Using analysts' consensus growth forecasts, the base proxy set of close peers yielded an
 2 average cost of equity of 11.29% with a median of 10.36%. The expanded proxy group
 3 yielded an average cost of equity of 10.50% with a median of 10.16%. Again, Spire Inc.
 4 is excluded from both modeled groups. Spire Inc.'s cost of equity is estimated at 11.13%
 5 using consensus growth projections. The consensus growth forecast of analysts actively
 6 following Spire Inc. is significantly higher than Value Line's forecast (5.97% vs 4.50%)
 7 which leads to a higher estimation.

8 **Q. PLEASE SUMMARIZE THE DCF ESTIMATES FOR SPIRE MISSOURI.**

9 A. The table below, found in **Schedule AWW-D-6**, summarizes the cost of equity estimates
 10 for Spire Missouri:

	BASE	EXPANDED
Value Line Growth		
Average	10.65%	9.71%
Median	10.57%	9.37%
Consensus Growth		
Average	11.29%	10.50%
Median	10.36%	10.16%

11

12 **Q. SHOULD A FLOTATION COST ADJUSTMENT BE MADE?**

13 A. Yes. Spire Missouri's cost of debt is adjusted by approximately 11 basis points due to
 14 costs of issuance, which are amortized over the life of the bonds. Common equity is also
 15 not issued for free. Spire Missouri receives financing authorization from the Missouri
 16 Public Service Commission not only for new debt issues but also for contributions of equity
 17 by its parent company, Spire Inc. Over the last several years these equity contributions

1 were simultaneously raised by Spire Inc. in the public markets and then downstreamed to
2 Spire Missouri upon settlement. Cost of issuance information has been provided pursuant
3 to the terms of the Company's finance authorizations, including the Company's most recent
4 authorization in Case No. GF-2025-0053, but these costs have not been recovered by Spire
5 Missouri.

6 **Q. HOW SHOULD A FLOTATION COST ADJUSTMENT BE MADE?**

7 A. Common equity has no finite life, so costs of issuance cannot be amortized for the life of a
8 specific issuance. However, flotation costs can be added to recommended ROE or added
9 to the capital structure by grossing up the equity layer. This would be a permanent
10 adjustment given the perpetual nature of common equity. These costs amount to 3.50% of
11 equity issued. This would require grossing up the equity layer by \$70.2 million (or 3.50%
12 of the book value of common equity) or an additional 13 basis points of the authorized
13 ROE. My analysis of the appropriate flotation cost adjustment can be found in **Schedule**
14 **AWW-D-7**.

15 **B. CAPITAL ASSET PRICING MODEL**

16 **Q. PLEASE DESCRIBE YOUR APPLICATION OF THE CAPITAL ASSET PRICING**
17 **MODEL.**

18 A. The Capital Asset Pricing Model ("CAPM") theory considers that investors require higher
19 returns for assuming higher risk and that higher risk stocks are priced to yield higher
20 expected returns than lower risk stocks. The additional return from the higher risk stocks,
21 or risk premium, is required for bearing incremental risk. Therefore, the required investor
22 return is made up of a risk-free component plus a risk premium component, which is
23 determined by multiplying a stock's beta, or risk, by a market risk premium (market return
24 less the risk-free rate). The CAPM theory can be reduced to the following equation:

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$$K = R_F + \beta \times (R_M - R_F)$$

Where: $K =$ the expected return on equity

$R_F =$ risk-free rate

$R_M =$ return on the market as a whole

$\beta =$ systematic risk

Q. HOW DID YOU ARRIVE AT YOUR RISK-FREE RATE ESTIMATE IN YOUR CAPM ANALYSES?

A. In a risk premium model, like CAPM, the ideal estimate for the risk-free rate should have a term equal to the security that is being analyzed. The yield on the current 30-year U.S. Treasury represents the most up-to-date expression of investors' future expectations of the risk-free rate. Stocks are considered very long-term securities, making the U.S. Treasury bond with the longest term the appropriate comparison. This current spot rate is the most appropriate as it is easily observable and available and provides a relatively non-controversial and accurate input to the CAPM.

Q. HOW DID YOU SELECT THE BETA (SYSTEMIC RISK) FOR YOUR CAPM ANALYSIS?

The beta coefficient measures change in a security's return relative to that of the market. When the beta coefficient of a security equals 1.00, the security shares the same risk of the market and therefore the same expected return. A beta coefficient greater than 1.00 suggests the security has a higher risk and volatility but a higher expected return than that of the market. Conversely, a beta coefficient less than 1.00 suggests the security has a lower

1 risk and volatility but a lower expected return than that of the market. The beta can then be
2 used to determine the expected change in the rate of return on a stock associated with a one
3 percentage point change in the rate of return on the market, thus providing a measure to
4 which a particular stock shares the risk of the market as a whole.

5 As Spire Missouri is not publicly traded, proxies must be used. The same proxy groups
6 utilized in the DCF analysis were used to estimate the beta for the CAPM approach. The
7 average beta for the base proxy group is 0.93 while the average beta for the expanded proxy
8 group is 0.96. The betas for each utility were obtained from Value Line. They are a relative
9 measure of the historical sensitivity of a stock's price to overall fluctuations in the New
10 York Stock Exchange ("NYSE") Composite Index. The "beta coefficient" is derived from
11 a regression analysis of the relationship between weekly percentage changes in the price
12 of a stock and weekly percentage changes in the NYSE Composite Index over a period of
13 five years. The betas are also adjusted for their long-term tendency to converge toward
14 1.00.

15 **Q. WHAT MARKET RISK PREMIUM DID YOU USE IN YOUR CAPM ANALYSIS?**

16 A. A market risk premium of 6.80% was used. This market risk premium estimate is based on
17 an examination of historical returns of the S&P 500 from 1928 to 2023. The average return
18 of the S&P 500 during this time period was 11.66%. The average return of 10-year U.S.
19 Treasury bonds over this time period was 4.86%. The S&P 500 outperformed long-term
20 U.S. government bonds by 6.80%. This is a widely accepted empirical method for
21 establishing a market risk premium. My full analysis in calculating the market risk
22 premium can be found in **Schedule AWW-D-8**.

1 **Q. WHY USE SUCH A LONG TIME PERIOD IN CONSTRUCTING YOUR**
2 **HISTORICAL MARKET RISK PREMIUM?**

3 A. A risk premium study should utilize the longest time period possible when attempting to
4 capture the convergence of investor expectations and realized returns. In shorter analyzed
5 periods, investors can earn more or less than expected, but this tends to even out over longer
6 periods of time. The 95-year time period used here also captures several business and
7 interest rate cycles. The actual returns over this time are averaged to develop the historical
8 risk premium.

9 **Q. SHOULD STUDIES OF HISTORICAL RISK PREMIUMS RELY ON**
10 **ARITHMETIC AVERAGE RETURNS OR GEOMETRIC AVERAGE RETURNS?**

11 A. When utilizing historical risk premiums, only arithmetic average returns should be used
12 for estimating cost of capital. The arithmetic average is the simple mean of annual returns
13 and better represents the expected value of future returns as they account for uncertainty
14 and variability. The geometric average is a compound average growth rate more properly
15 describes historical performance. Because it is a simple mean of the historic returns, the
16 arithmetic mean will always be higher when there is volatility in returns with the difference
17 being greater as volatility increases. Academics and practitioners of corporate finance
18 overwhelmingly use arithmetic averages in calculating market risk premiums for forward-
19 looking analysis. There is an entire section on this topic in *New Regulatory Finance* by
20 Roger A. Morin (Appendix 4-A, 133-143, 2006). Morin does not recognize any argument
21 to the contrary: “Only arithmetic means are correct for forecasting purposes and for
22 estimating the cost of capital” (Morin at 117).

1 **Q. WHAT IS YOUR ESTIMATE OF SPIRE MISSOURI'S COST OF EQUITY USING**
2 **THE CAPM APPROACH?**

3 A. The CAPM approach yielded estimates of 10.91% and 11.15%. The former estimate is
4 lower due to applying the average beta of the base peer set, 0.93, while the latter is higher
5 due to applying the average beta of the expanded peer set, 0.96, which is closer to the
6 neutral, or market, beta of 1.0. The results of my CAPM analyses for the base proxy group
7 and the expanded proxy group are found in **Schedule AWW-D-9** and **Schedule AWW-D-**
8 **10**, respectively.

9 **Q. DID YOU PERFORM ANY OTHER CAPM ANALYSES?**

10 A. Yes, I also prepared empirical versions of the CAPM for both the base and expanded proxy
11 groups. These may also be found in **Schedule AWW-D-9** and **Schedule AWW-D-10**.

12 **Q. CAN YOU DESCRIBE YOUR APPLICATION OF THE EMPIRICAL VERSION**
13 **OF THE CAPM?**

14 A. Empirical research has shown that lower beta stocks earn returns somewhat higher than
15 predicted by the CAPM and higher beta stocks earn somewhat lower returns. This is well
16 established and thoroughly explored in academic literature. The risk-return trade-off has
17 been found to be less steeply sloped than predicted by CAPM. This should be considered
18 in the estimation of the authorized ROE.

19 Empirical CAPM ("ECAPM") adjusts for this. The adjustment is expressed in the
20 following formula:

21
$$K = R_F + 0.25(R_M - R_F) + (0.75 \times \beta) \times (R_M - R_F)$$

22 Where: K = the expected return on equity

23 R_F = risk-free rate

1 $R_M =$ return on the market as a whole

2 $\beta =$ systematic risk

3 **Q. WHAT DOES THIS MEAN FOR UTILITIES?**

4 A. As utility stocks have lower betas, the ECAPM will predict and the market will expect,
5 based on historical observations, that a higher return should be earned, resulting in a higher
6 estimated ROE. ECAPM takes into account actual market expectations.

7 **Q. PLEASE SUMMARIZE YOUR CAPM ESTIMATES.**

8 A. The table below, found in **Schedule AWW-D-11**, summarizes the cost of equity estimates
9 from the described CAPM methodologies.

	BASE	EXPANDED	Spire Inc.
CAPM			
Average	10.91%	11.15%	10.74%
Median	10.74%	10.91%	
ECAPM			
Average	11.04%	11.22%	10.91%
Median	10.91%	11.04%	

10

11 **Q. SHOULD A FLOTATION COST ADJUSTMENT BE MADE FOR THE CAPM**
12 **AND ECAPM ESTIMATES?**

13 A. Yes. The same flotation cost adjustment provided in **Schedule AWW-D-7** should be made.

14 **C. RISK PREMIUM ESTIMATE**

15 **Q. PLEASE DESCRIBE YOUR HISTORICAL RISK PREMIUM ANALYSIS OF THE**
16 **UTILITY INDUSTRY.**

17 A. To provide another estimate of Spire Missouri's cost of equity, I examined historical risk
18 premiums implied by ROEs authorized by regulatory commissions since 1980. The general
19 approach of this methodology is to add a risk premium for a given security, developed by

1 examining historically authorized ROEs, to the risk-free rate. This is because equity
2 securities inherently carry a greater risk over bonds, such as the 30-year treasury bond, and
3 thus investors in equity securities should receive a benefit for taking on this risk. There is
4 substantial evidence that risk premiums are inversely related to the interest rate
5 environment, specifically that as the 30-year bond yield increases, risk premiums decrease.
6 This also works in the other direction. For utilities in a regulated industry, this methodology
7 provides valuable insight into the historic actions of regulators over time relative to interest
8 rate environment. A similar technique was offered by Staff in the recent Evergy Missouri
9 West Inc. general rate case, Case No. ER-2024-0189. This method is a reasonable approach
10 to estimate ROE because the authorized ROEs used to examine historic risk premiums are
11 based on market-based methodologies such as DCF and CAPM. This analysis is regularly
12 presented in rate hearings and is based on data represented by the actions of unbiased
13 independent investors in a competitive marketplace.

14 **Q. DO INVESTORS TAKE INTO ACCOUNT HISTORICAL AUTHORIZED**
15 **RETURNS IN FORMULATING THEIR EXPECTATIONS?**

16 A. Yes. Authorized returns are an incredibly important aspect of the risk and return
17 expectations of equity research analysts, rating agencies and investors. They provide a
18 baseline for a utility's potential earnings. This information is generally available through
19 a number of publications, including S&P Global Intelligence, formerly Regulatory
20 Research Associates. Authorized returns drive cash flow and growth expectations. The
21 predictability and stability of regulatory authorized returns are a significant differentiator
22 for financial stakeholders as they compare and contrast different companies for investment.
23 For this risk premium analysis, I obtained the ROE outcomes for gas utility rate cases since

1 1980. The annual average ROEs are provided in **Schedule AWW-D-12** and the quarterly
2 averages are provided in **Schedule AWW-D-13**.

3 **Q. PLEASE EXPLAIN THE RISK PREMIUM CALCULATION.**

4 A. First, it is necessary to obtain the risk premium implied by these ROEs. Comparing the 30-
5 year treasury yields, found in **Schedule AWW-D-14**, and the ROE outcomes discussed
6 above, the indicated risk premium may be obtained. **Schedule AWW-D-15** provides the
7 analysis of historical risk premiums implied in the ROEs allowed by regulatory
8 commissions in natural gas rate proceedings from 1980 to today. These risk premiums have
9 historically been increasing, as shown in **Schedule AWW-D-16**.

10 The historical risk premium approach can be expressed as:

11
12
$$\text{Cost of Equity} = \text{Bond Yield} + \text{Risk Premium}$$

13
14 The bond yield typically represents a “risk-free” rate from long-term government bonds,
15 and the risk premium compensates equity investors for additional risk. The forward-
16 looking risk premium may then be estimated using regression in the form of:

17
18
$$\text{Historical Authorized Equity Returns} = \alpha + \beta (\text{Bond Yield}) + \varepsilon$$

19
20 Where:

21 Historical Authorized Equity Returns is the dependent variable

22 Bond Yield is the independent variable

23 α (alpha) = the intercept

1 β (beta) = the coefficient on the bond yield

2 ε = the error term

3

4 An Ordinary Least Squares (OLS) regression is performed on the data inputs to develop
5 the estimates for α and β :

6

7 α (intercept) represents the base risk premium

8 β (coefficient) represents how authorized equity returns change with bond yields

9

10 Finally, with the above variables determined, a forward-looking risk premium equation can
11 be developed, typically calculated as:

12

13
$$\text{Risk Premium} = \alpha + (\beta - 1) \times \text{Current Bond Yield}$$

14 **Q. PLEASE EXPLAIN THE REGRESSION ANALYSIS.**

15 A. The regression analysis compares the trend of risk premiums, which in this case are the
16 implied risk premiums in gas utility ROEs, and the trend of 30-year bond yields, and
17 observes the relationship between the two.

18 **Q. WHAT IS THE RELATIONSHIP BETWEEN GAS UTILITY RISK PREMIUMS
19 AND 30-YEAR BOND YIELD?**

20 A. There is a negative relationship between risk premiums and 30-year treasury yields, or
21 interest rates. For example, as 30-year treasury yields decrease, risk premiums increase.
22 Utilizing a statistical analysis, we may quantify how significant this relationship is.

23 **Q. WHAT IS THE IMPORTANCE OF THIS STATISTICAL ANALYSIS?**

1 A. This analysis allows us to see how accurate the forward-looking risk premium equation is,
2 based on the relationship between historic gas utility ROEs and interest rates. The annual
3 average risk premium relative to the annual treasury bond yield, from 1980 to 2023, can be
4 seen in **Schedule AWW-D-16**. The statistical relationship between risk premium (“RP”)
5 and interest rates (“IR”) can then be expressed as:

$$6 \quad RP = 7.86017 - 0.42335 (IR)$$

$$7 \quad R^2 = 0.91$$

8
9
10 This relationship is highly statistically significant as indicated by the very high R^2 . The R^2
11 calculation is provided in **Schedule AWW-D-17**.

12 **Q. COULD YOU EXPLAIN WHAT AN R^2 VALUE IS?**

13 A. Yes. The coefficient of determination R^2 , sometimes referred to as the “goodness of fit
14 measure,” is a measure of the degree of explanatory power of a statistical relationship. It
15 is simply the ratio of the explained portion to the total sum of squares. The higher R^2 the
16 higher the degree of the overall fit of the estimated regression equation to the sample data.

17 **Q. WHAT DOES THE R^2 VALUE REPRESENT IN YOUR ANALYSIS?**

18 A. There is clearly an inverse relationship between the risk premium implied by authorized
19 returns on equity and interest rates. If the current 30-year U.S. Treasury yield (4.62%) is
20 applied to the forward-looking risk premium equation, a risk premium of 5.90% is
21 suggested, which implies a cost of equity of 10.53%. The average of risk premiums for
22 the same time period examined (1980- today) is 6.07%, which is very close to the result of
23 the regression analysis.

1 **Q. ARE THERE ANY CONCERNS WHEN UTILIZING THIS ANALYSIS ALONE?**

2 A. Yes. This approach dynamically adjusts the risk premium based on current market
3 conditions, is grounded in a significant amount of historical data, and captures the
4 relationship between bond yields and equity returns. However, it assumes a linear
5 relationship between bond yields and equity returns. Historical relationships may not
6 persist in the future. There is sensitivity to the choice of time period and data frequency.
7 This approach may not capture all risk factors affecting equity returns.

8 **Q. IS A FLOTATION COST ADJUSTMENT NECESSARY FOR THIS**
9 **METHODOLOGY?**

10 A. No. This methodology does not require a flotation cost adjustment since the data are based
11 on allowed returns.

12 **Q. PLEASE SUMMARIZE YOUR RISK PREMIUM ESTIMATES.**

13 A. A risk premium derived through the described analysis of 5.90% applied to the current 30-
14 year U.S. Treasury bond yield of 4.62% suggests a ROE of 10.53%.

15 **VII. BALANCE & EMBEDDED COST OF DEBT**

16 **Q. WHAT IS THE BALANCE OF SPIRE MISSOURI'S LONG-TERM DEBT AND**
17 **HOW WAS IT DETERMINED?**

18 A. The long-term debt balance of \$1,796,982,505 reflected in the proposed capital structure
19 of Spire Missouri represents the actual carrying value of the Company's long-term debt as
20 of September 30, 2024. As detailed in **Schedule AWW-D-18**, the carrying value of long-
21 term debt was computed using the net proceeds method which adjusts the face amount of
22 long-term debt to account for unamortized discounts or premiums, long-term debt issuance
23 expenses, and any gains or losses incurred in connection with long-term debt redemptions.

1 **Q. WHAT IS SPIRE MISSOURI’S EMBEDDED COST OF LONG-TERM DEBT AND**
2 **HOW WAS IT DETERMINED?**

3 A. Spire Missouri’s embedded cost of long-term debt is 4.254% and was calculated by
4 dividing the annualized interest expense adjusted for costs of issuance and the settlement
5 of interest rate hedges as of September 30, 2024, by the long-term debt carrying value as
6 of the same date.

7 **Q. DO YOU EXPECT SPIRE MISSOURI’S BALANCE AND COST OF LONG-TERM**
8 **DEBT TO CHANGE BETWEEN SEPTEMBER 30, 2024, AND THE END OF THE**
9 **TRUE-UP PERIOD?**

10 A. Yes. We expect the balance and cost of long-term debt to change over the next six months
11 and will update this testimony accordingly.

12 **VIII. CAPITAL STRUCTURE**

13 **Q. DOES SPIRE MISSOURI SEEK TO MAINTAIN A CERTAIN CAPITAL**
14 **STRUCTURE?**

15 A Yes. Spire Missouri maintains the balance of debt and equity in its capital structure to
16 optimize its overall cost of capital and preserve its financial resiliency. This requires the
17 support of strong credit metrics and the maintenance of investment grade credit ratings,
18 which allows the Company to secure liquidity and raise new capital on reasonable terms
19 under a variety of economic conditions. As a utility that provides an essential service to
20 its customers, the financial requirements of the business must be met in almost any
21 imaginable scenario. This resilience requires consistent predictable cash flow and an
22 equity layer sufficient to withstand financial shocks.

1 **Q. WHY IS IT IMPORTANT FOR SPIRE MISSOURI TO BE ABLE TO ATTRACT**
2 **NEW CAPITAL?**

3 A. It is important for Spire Missouri to be able to attract new capital because the local
4 distribution of gas is a very capital-intensive business, and the utility has an obligation to
5 serve regardless of economic conditions. As is the case with most utility companies, Spire
6 Missouri employs leverage through long-term debt, to finance the expansion and
7 replacement of its net plant. This is supplemented at times with contributions of equity
8 from its parent company. Spire Missouri also needs to be appropriately positioned to
9 absorb large deferred gas balances on behalf of its customers through short-term debt. The
10 liquidity required to provide this kind of capacity can be triggered at inopportune times.
11 One recent example of this is the large deferred balances incurred by Spire Missouri in
12 2021 and 2022, triggered by winter storms and the beginning of the Ukrainian conflict,
13 while at the same time short-term interest rates were rapidly rising.

14 **Q. HOW DOES A UTILITY'S CAPITAL STRUCTURE INFLUENCE ITS ACCESS**
15 **TO CAPITAL?**

16 A. Capital structure is a component of the rate of return calculation thus directly influencing
17 the amount of cash flow generated by the utility. The stability and adequacy of cash flow
18 is the most significant driver of credit ratings and is important to equity investors as well.
19 The capital structure I am recommending strikes an appropriate and reasonable balance
20 between affordability, financial strength, and stability. The authorized capital structure
21 should not be adjusted constantly. Significant shifts in the allowed equity layer undercut
22 the consistency and predictability that investors are looking for and degrades a utility's
23 access to capital.

1 **Q. WHAT WAS SPIRE MISSOURI'S CAPITAL STRUCTURE AS OF SEPTEMBER**
2 **30, 2024?**

3 A. Spire Missouri's total long-term capitalization, equity plus long-term debt, was \$3.767
4 billion as of September 30, 2024. Equity to total long-term capitalization as of September
5 30, 2024, was 52.13%. This is influenced primarily by cash flow from operations and the
6 pacing and financing of capital expenditures.

7 **Q. WHAT CAPITAL STRUCTURE ARE YOU RECOMMENDING IN THIS RATE**
8 **PROCEEDING?**

9 A. 55% equity. Spire Missouri's equity layer each year since 2014 is summarized in **Schedule**
10 **AWW-D-19**. Spire Missouri's average equity layer over the last ten years is 56.0%, over
11 the last five years is 53.9%, and over the last three years is 52.9%. The average equity for
12 2024 was 52.1%. Spire Missouri's equity as a percentage of total long-term capitalization
13 has declined since 2022. This not only coincided with the Company incurring significant
14 deferred gas costs and facing a rapid rise in inflation and interest rates, but also immediately
15 follows the resulting order in GR-2021-0108 in which the Commission suspended
16 overhead capitalization and imputed zero-cost short-term debt into the capital structure.
17 Spire Missouri's credit metrics deteriorated rapidly. Standard and Poor's calculated Spire
18 Missouri's FFO to Debt at 12% at year-end 2023, and we estimate it to stand at 13.2% at
19 year-end 2024. This key credit metric averaged 19.3% in the five years before 2022.
20 Standard and Poor's downgraded Spire Missouri in June of 2024.

21 **Q. WHAT ARE SPIRE MISSOURI'S CURRENT CREDIT RATINGS AND WHY DO**
22 **THEY MATTER?**

1 A. Spire Missouri’s first mortgage bonds are rated “A1” by Moody’s (8.22.24). The current
2 four factor methodology used by Moody’s would suggest a “Baa1” rating based primarily
3 lower credit metrics. Moody’s expects improvement over the next 12-18 months as
4 evidenced in their forward view, stating:

5 **
6
7
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9
10 **

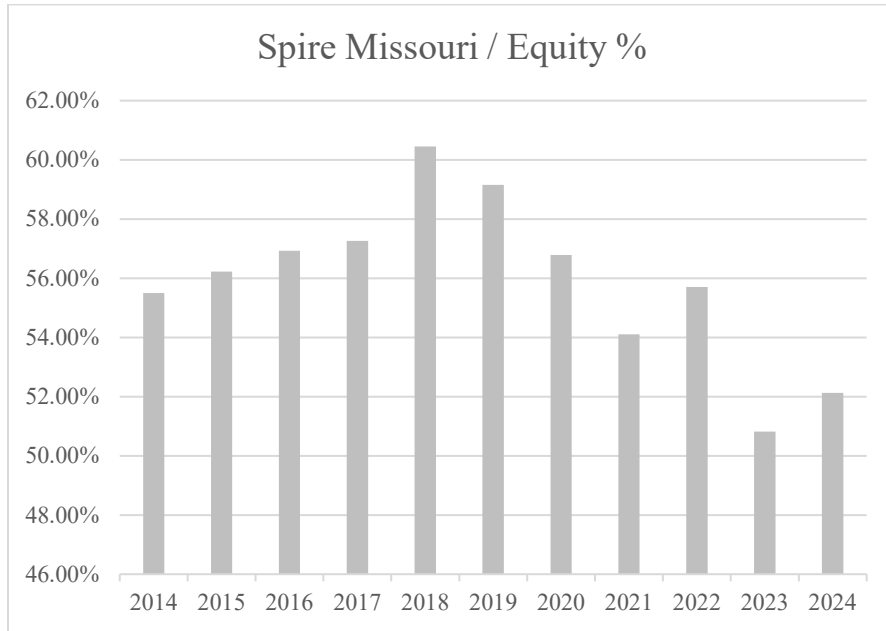
11 This expectation is premised off of improving regulatory outcomes. Spire Missouri’s first
12 mortgage bonds are rated “A” by Standard & Poor’s (6.3.24). The stand-alone credit
13 profile was recently revised down to “a-“ from “a+” and the financial risk assessment was
14 revised down from “Intermediate” to “Significant.”

15 Credit ratings are important because they provide fixed income investors with an
16 independent assessment of a company’s risk and a relative grade or rating. Rating agency
17 opinions are also used by equity investors as a gauge of financial health. Negative rating
18 actions are often interpreted as a signal that a company needs to raise equity.

19 The actual equity layer at the filing of this review is below 55% but this is the level that
20 has been maintained by the Company for a long period of time and where it intends to build
21 back up to in the future. The Commission can assist in the recovery of Spire Missouri’s
22 capital structure by authorizing 55% equity to total long-term capitalization in this
23 proceeding.

24 **Q. DO YOU EXPECT SPIRE MISSOURI’S CAPITAL STRUCTURE TO CHANGE**
25 **BETWEEN SEPTEMBER 30, 2024, AND THE END OF THE TRUE-UP PERIOD?**

1 A. Yes, we expect to update the capital structure. The actual equity layer at the filing of this
2 review is below 55%, but this is the level that has been maintained by the Company for a
3 long period of time, and where it intends to build back up to in the future. The figure below
4 shows Spire Missouri's equity layer each year since 2014.



5

6 **IX. SHORT-TERM DEBT**

6

7 **Q. HOW WAS THE BALANCE OF SHORT-TERM DEBT DETERMINED?**

7

8 A. ** [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

8

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2



3

X. RATE OF RETURN

4

Q. WHAT IS YOUR RECOMMENDATION OF A FAIR OVERALL RATE OF RETURN FOR SPIRE MISSOURI?

5

6

A. The ROE estimates from the above analyses, found in **Schedule AWW-D-20**, are listed in the table below:

7

	Proxy Groups	Spire Inc.
Base DCF Value Line	10.65%	9.59%
Base DCF Consensus	11.29%	11.13%
Expanded DCF Value Line	9.71%	9.59%
Expanded DCF Consensus	10.50%	11.13%
Base CAPM	10.91%	10.74%
Expanded CAPM	11.15%	10.74%
Base ECAPM	11.04%	10.91%
Expanded ECAPM	11.22%	10.91%
Historical Risk Premium	10.53%	NA
Total Average	10.78%	10.60%
RECOMMENDED ROE	10.50%	

8

9

My recommendation of a fair rate of return, found in **Schedule AWW-21**, for Spire Missouri is 7.689% based upon a 55% equity capitalization and a 10.50% authorized return on equity and a 45% debt capitalization and a 4.254% cost of debt. This recommendation is summarized below:

10

11

12

EQUITY	55%	10.50%	5.775%
DEBT	45%	4.254%	1.914%
RATE OF RETURN			7.689%

13

1 **XI. CONCLUSION**

2 **Q. COULD YOU PLEASE SUMMARIZE YOUR TESTIMONY?**

3 A. Yes. The most important factor in the assessment of cost of capital is impact. No single
4 methodology should drive the recommendation as they are all estimates. The result must
5 be the same, however, which is a stable, consistent return to the utility while balancing the
6 impacts to customers and investors. The recommended rate of return of 7.689% would
7 yield just above a 20% FFO to Debt, as shown in **Schedule AWW-D-22**, in the first year
8 and degrade to 18-19% thereafter due to the lag inherent in the Missouri regulatory
9 framework. This would provide a sustainable base for Spire Missouri to continue to deploy
10 significant capital into the State of Missouri and safely operate and maintain our system.
11 My recommended rate of return is based on cost of equity estimates indicating a range
12 between 10 and 11%. Recent authorized ROEs for gas utilities across the United States
13 have been trending higher and average in the high 9% range through the time of filing
14 (although these examples from other jurisdictions are based on conditions from over a year
15 ago). While slightly below this level currently, the equity component of the long-term
16 capital structure of Spire Missouri is observable above 55% over the last ten years. For
17 these reasons, a rate of return of 7.689% based on a 55% equity layer and 10.50% return
18 on equity is fair and reasonable.

19 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

20 A. Yes.

