BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

In the Matter of the Application and Request of South Central Telephone Association, Inc. for Additional Kansas Universal Service Fund Support Pursuant to K.S.A. 66-2008	**)** **)** **)** **)** **)**	**Docket No. 24-SCNT-131-KSF**

DIRECT TESTIMONY

PREPARED BY

Adam H. Gatewood

UTILITIES DIVISION

KANSAS CORPORATION COMMISSION

December 14, 2023

Contents

Q. Please state your name and business address.

A. Adam H. Gatewood, 1500 Arrowhead Road, Topeka, Kansas 66604.

Q. Who is your employer, and what is your title?

A. I am a Senior Managing Financial Analyst for the Kansas Corporation Commission (Commission).

Q. What is your educational and professional background?

A. I graduated from Washburn University with a B.A. in Economics in 1987 and a Masters of Business Administration in 1996. I have filed testimony on cost of capital, capital structure, and related issues before the Commission in more than 150 proceedings. I have also filed cost of capital testimony before the Federal Energy Regulatory Commission in natural gas pipeline and electric transmission revenue requirement complaint dockets.

Q. What is the purpose of your testimony?

A. My testimony contains Staff's recommended rate of return (ROR) for South Central Telephone Association, Inc. (SCT or Applicant). The ROR is an input to Staff's revenue requirement recommendation that determines the Applicant's Kansas Universal Service Fund (KUSF) annual support.

Executive Summary

Q. Please summarize your recommendation.

A. I recommend that the Commission adopt an allowed ROR of 7.82% to set the Applicant's KUSF revenue requirement that incorporates a 9.75% return on equity and a 60% equity ratio, as opposed to its actual equity ratio of 93.53%.

Staff Cost of Capital Recommendation
South Central Telephone Association, Inc.
24-SCNT-131-KSF

	Weight	Cost	Weighted Avg Cost
Equity	60%	9.75%	5.85%
Debt	40%	4.93%	1.97%
		Rate of Return	7.82%

Q. How did you conclude that a 9.75% return on equity (ROE) is a just and reasonable return for rural local exchange carriers (RLEC)?

A. I performed an analysis to verify that a 9.75% ROE is just and reasonable compensation for the RLECs' equity investors in line with the legal principles espoused in several landmark court cases specific to this issue. My analysis is the same type of analysis performed by

investors evaluating returns available in the capital markets.

Q. Staff has recommended a 9.60% return on equity in the recent KUSF support dockets. Why has Staff raised its recommendation to 9.75% in this Docket?

A. Staff wants to balance accurately reflecting the prevailing cost of equity capital with the need to apply a return as uniformly as possible across the entire group of Kansas RLECs. However, Staff is only willing to recommend a uniform number across the KUSF dockets if it is appropriate and supported by rigorous analysis. Front and center in all recent capital cost analyses is the increase in market interest rates over the past year which indicate that a higher ROE is warranted. Staff believes that the higher market interest rates warrant an increase in the KUSF ROE from 9.60% to 9.75%. As shown later in tables, there has been only a small increase in allowed returns nationally in response to the higher interest rate environment. Based on the market data of the recent months, Staff finds that a 9.75% ROE is reasonable and provides Applicant's members/owners a return significantly above that available in fixed-income investments and the broad equity market. Staff demonstrates in each KUSF docket that its ROE recommendation provides the RLEC a just and reasonable return while being mindful that all Kansasns contribute to the KUSF.

Q. Please summarize the Applicant's rate of return request.

A. The Applicant requests the Commission grant it a ROR equal to the 9.75% ROR authorized by the Federal Communications Commission (FCC) to calculate federal high-cost support;[1]

[1] Connect America Fund, WC Docket No. 10-90, Rate of Return Order, March 23, 2016.

Section 7 of the Application does not state a specific ROE, just a 9.75% ROR.[2]

Rate of Return Requested By
South Central Telephone Association, Inc.
24-SCNT-131-KSF

		Balance	Weight	Cost	Weighted Avg Cost
Equity	$	28,005,245	93.53%		
Debt	$	1,937,707	6.47%	4.93%	
	$	29,942,952			
			So.Cent Tele Assoc. Requested RoR		**9.75%**

Source: Section 7; Schedule 1 of Application
Debt Balances at 12/31/2022;
Requested ROR based on FCC authorized ROR effective July 1, 2021

Applicant requested ROR of 9.75% effectively provides it with an ROE of 10.08% based on its actual capital structure and embedded cost of debt.

Effective Rate of Return Requested by
South Central Telephone Association, Inc.
24-SCNT-131-KSF

			Weight	Cost	Weighted Avg Cost
Equity	$	28,005,245	93.53%	**10.08%**	**9.431%**
Debt	$	1,937,707	6.47%	4.93%	0.319%
	$	29,942,952		Rate of Return	**9.75%**

Since the beginning of KUSF audits, Staff has contended that the FCC's generic ROR does not meet the cost-based standard set by Kansas law that this Commission must apply when setting revenue requirements for KUSF support. Because the FCC's ROR does not differentiate between the costs of debt and equity capital that a specific RLEC employs, it does not recognize the cost savings that can result from utilizing debt capital. Nor does the FCC's ROR reflect changes in the capital markets that have occurred since the FCC issued

[2] Application at Section 7 & Direct Testimony.

the Order in July of 2016. A review of the FCC's Order indicates that the 10.75% ROR set by the FCC for 2017, dropping to 10.00% in 2020 and 9.75% in 2021, incorporates an ROE greater than the cost of equity set by this Commission since the early 2000s. By some measures, the FCC's generic allowed ROR would result in an ROE over 14.00% mainly because it does not recognize an RLEC's actual cost of debt.[3] In the case of Applicant, it is an effective ROE of 10.08%. Based on the cost of capital studies I have prepared from 2016 to the present, even with the uptick in capital costs that began in late 2022 and has continued through 2023, the FCC's annual reduction is not reflective of the market reductions in the cost of capital.

Phase in of Authorized RoR Reduction From 11.25% to 9.75%

Effective Date of Rate of Return	Authorized Rate of Return	
2016	11.00%	*Authorized rate of return is set at
2017	10.75%	9.75% and phased in over time
2018	10.50%	
2019	10.25%	*9.75% WACC embodies a 5.87% cost of debt
2020	10.00%	14.37% ROE with a 54.34% debt ratio
2021	9.75%	

FCC Report and Order and Order on Reconsideration, and Further Notice of Proposed Rulemaking; March 30, 2016
FCC 16-33; para 319-326

[3] Report and Order, Order and Order on Reconsideration, and Further Notice of Proposed Rulemaking In the Matter of Connect America Fund ETC Annual Reports and Certifications Developing a Unified Intercarrier Compensation Regime (WC Docket No. 10-90; WC Docket No. 14-58; and CC Docket No. 01-92) Released March 30, 2016. See paragraph 322.

> 322. We note that the WACC is supposed to compensate equity holders and debtholders who provide the funds used to finance the firm's assets. Given a rate of return set equal to 9.75 percent, an average capital structure based on our estimates of 54.34 percent debt, and a cost of debt based on our estimates of 5.87 percent, the implied cost of equity is 14.37percent. We find that not only is the WACC of 9.75 percent high enough adequately to compensate the firm's debtholders, but the implied rate of return on equity also provides equity holders with the opportunity to earn a reasonable rate of return on their investment. As support for our finding that a 9.75 percent rate of return is reasonable, we examine some benchmarks.

The Applicant's requested rate of return has no link to returns available in the capital markets, its actual cost of debt, or its capital structure. Therefore, it fails to conform to the Commission's established practice and the basic principles set out in the critical legal decisions rendered by the U.S. Supreme Court, commonly referred to as the "Hope and Bluefield" decisions that are the cornerstone to establishing a fair return.[4] For these reasons, the Commission should reject the FCC's ROR for the Applicant, as it has in all past KUSF Dockets. The Applicant cites to several states that adopted the FCC's ROR for state support calculation, but Kansas has not, and that is simply a difference in public policy decisions of state legislatures and public utility commissions.

Q. Does Staff have any additional concerns surrounding this issue?

A. The Kansas Legislature established a cap on aggregate annual KUSF support to RLECs. Applying the FCC's ROR to KUSF support calculations could cause a substantial shift in support dollars among the Kansas RLECs, transferring support dollars to those RLECs with the greatest leverage in their capital structures and away from RLECs with balanced,

[4] Bluefield Water Works & Improvement Company v. Public Service Commission of West Virginia, 262 U.S. 679, 692-3 (1923). (Bluefield)
Federal Power Commission v. Hope Natural Gas Company, 320 U.S. 591, 603 (1944). 603 [8] [9] The rate-making process under the Act, i.e., the fixing of 'just and reasonable' rates, involves a balancing of the investor and the consumer interests. Thus, we stated in the Natural Gas Pipeline Co. case that 'regulation does not insure that the business shall produce net revenues.' But such considerations aside, the investor interest has a legitimate concern with the financial integrity of the company whose rates are being regulated. From the investor or company point of view, it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. By that standard, the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital. The conditions under which more or less might be allowed are not important here. Nor is it important to this case to determine the various permissible ways in which any rate base on which the return is computed might be arrived at. For we are of the view that the end result in this case cannot be condemned under the Act as unjust and unreasonable from the investor or company viewpoint. (Hope)

conservative capital structures. Staff believes such an outcome is far from desirable for stakeholders to the KUSF support system. Staff urges the Commission not to deviate from its established practice of rejecting the FCC's ROR and basing its decisions on the RLECs' actual capital costs.

Q. How do KUSF Dockets in which the Commission sets the KUSF support level for an RLEC differ from a typical rate case?

A. A typical rate case collects the revenue requirement from a utility's customers. In determining an RLEC's KUSF support, the Commission is not setting a revenue requirement to determine rates *solely* paid by the RLEC customers; instead, the KUSF support is coming from *all* Kansans who pay into the KUSF, which transfers money from users of telecommunications services in Kansas to the ratepayers of an RLEC so that they do not have to pay the total cost of those RLEC telephony services. All Kansans, directly or indirectly, are paying a portion of the RLECs' revenue requirements. In setting revenue requirements for any rate-regulated industry, a regulatory agency must balance the interests of a regulated entity and the consumer. In this instance, "consumers' interests" encompass all who contribute to the KUSF support mechanism.

Q. When establishing a reasonable rate of return for RLECs in KUSF Dockets, are there unique issues that the Commission should be aware of that are not present in gas and electric rate cases?

A. Yes, in KUSF Dockets, we estimate the capital costs of providing a very narrow set of

telecommunications services.[5] The foremost challenging issue is a lack of publicly traded companies whose primary business is providing land-line telephony services in rural areas. Of the few companies that provide landline services to rural areas, that segment of their operations is a small percent of their total revenues and earnings. As a result of this limited exposure to RLEC services, investors do not evaluate those companies based on the risks associated with providing RLEC services but instead the risks and growth potential of other telecommunications services such as cellular, internet, and cable television. Despite these difficulties, it is possible to estimate the cost of equity for companies providing RLEC services, with the caveat that the stakeholders in this process have to accept a less precise estimate than we would otherwise have if we had access to a robust proxy group for the analysis. This data limitation creates a challenge, and it is a matter of fact that parties must accept. Despite these challenges, Staff can demonstrate that there is ample evidence that its recommended rate of return meets the legal requirements of a just and reasonable return to the Applicant's members/shareholders.

Q. How did you overcome those challenges?

A. Staff overcomes these challenges by relying on data that reflects long-run, forward-looking returns in capital markets measured by the capital asset pricing model (CAPM) and similar risk premium models. Seasoned financial industry experts and institutional investors universally rely on these and similar models to evaluate investment opportunities. Staff is

[5]In Kansas, Universal Service is defined by K.S.A. 66-1,187(p): "Universal service" means telecommunications services and facilities which include: single party, two-way voice grade calling; stored program controlled switching with vertical service capability; E911 capability; tone dialing; access to operator services; access to directory assistance; and equal access to long distance services."

not using a discounted cash flow (DCF) model as typically seen in gas and electric rate cases and previous KUSF dockets. There are specific data requirements for a DCF analysis, and, at this time, several of those requirements cannot be met by the small number of publicly traded telecommunications companies that provide landline services. The companies in that group currently exhibit volatile earning growth projections and several with negative earnings growth projections. Removing the DCF model is not a substantial change in Staff's cost of capital study as Staff has emphasized in recent KUSF dockets that it was putting little weight on the DCF model for the same reason.

Risk-Premium Provided by a 9.75% ROE

Q. How does your recommendation in this Docket compare to those in past KUSF Dockets?

A. A picture of this comparison is the risk premium that the allowed ROE provides the RLEC investors over bond yields that we observe in the capital markets and returns set for other regulated utilities. This table contains the KUSF Dockets of the last nine years beginning in 2012. In these Dockets, Staff's recommendations have been in the range of 10.50% decreasing to 9.60% as interest rates fell. As a clearer picture of the economy in the post-Global Financial Crisis (GFC) materialized, with slower economic growth rates and lower capital costs, Staff recommended an ROE of 9.60% to 9.75%. At this time, Staff believes the increase in capital costs is primarily situational, having to do with Federal Reserve policies targeted at reducing inflationary pressures. Staff has not found evidence that the economy is destined to return to capital costs experienced in the 1980s.

Staff Positions in Recent KUSF Dockets

Docket	Testimony Date	Company	Equity Ratio	Staff ROE	Baa/BBB Yields*	Resulting Rp**
12-GRHT-633-KSF	10/18/2012	Gorham Telephone Company	29.69%	10.50%	4.27%	6.23%
12-LHPT-875-AUD	12/19/2012	LaHarpe Telephone Company	90.00%	10.00%	4.33%	5.67%
13-CRKT-268-KSF	3/13/2013	Craw-Kan Telephone Cooperative, Inc.	60.00%	10.00%	4.48%	5.52%
13-ZENT-065-AUD	5/17/2013	Zenda Telephone Company, Inc.	Confidential	10.00%	4.42%	5.58%
13-JBNT-437-KSF	5/23/2013	J.B.N. Telephone Company, Inc.	46.50%	9.75%	4.52%	5.23%
13-PLTT-678-KSF	9/24/2013	Peoples Telecommunications, LLC	55.83%	9.75%	5.19%	4.56%
14-WTCT-142-KSF	2/5/2014	Wamego Telecommunications Co.	61.43%	9.60%	4.78%	4.82%
14-S&TT-525-KSF	9/25/2014	S&T Telephone Cooperative, Inc.	54.86%	9.75%	4.45%	5.30%
15-MRGT-097-KSF	1/20/2015	Moundridge Telephone Co.	Confidential	9.75%	3.91%	5.84%
15-TWVT-213-AUD	9/4/2015	Twin Valley Telephone Co.	47.81%	9.75%	4.56%	5.19%
17-RNBT-555-KSF	10/26/2017	Rainbow Telecomm Assoc. Coop	60.00%	9.75%	4.21%	5.54%
19-GNBT-505-KSF	10/11/2019	Golden Belt Telephone Assoc. Cooperative	60.00%	9.60%	3.67%	5.93%
20-UTAT-032-KSF	12/13/2019	United Telephone Association	60.00%	9.60%	3.84%	5.76%
20-BLVT-218-KSF	3/20/2020	Blue Valley Telecommunications, Inc.	60.00%	9.60%	3.78%	5.82%
22-CRKT-087-KSF	12/15/2021	Craw-Kan Telephone Cooperative, Inc.	60.00%	9.60%	3.20%	6.40%
22-COST-546-KSF	10/6/2022	Columbus Communications Services, LLC	60.00%	9.60%	6.45%	3.15%
		Average Risk Premium of Recent KUSF Dockets				**5.41%**

* Yield on Baa/BBB Utility Bonds reported by Value-Line Investment Survey at date of Staff's testimony
**Risk premium of Staff's ROE Recommendation over the Baa/BBB Utility Bond Yield

In the right column is the resulting risk premium provided by the return on equity advocated by Staff in each docket. This is calculated as Staff's recommended ROE minus the average yield on Baa/BBB utility bonds. For those ten years after the GFC, the risk premium averaged 560 basis points. The downward trend of bond yields during 2019, 2020, and 2021 and ROE of 9.60% provided RLECs with a progressively higher risk premium, almost to the point of justifying a lower ROE than the 9.60% that Staff had been recommending. The higher interest rates in 2022 and 2023 produce a lower risk premium, providing the Applicant with a risk premium of approximately 350 basis points.[6] As a point of comparison, the following table contains the risk premium derived in gas and electric utility cases. The broad trends are the same as that observed in the KUSF dockets.

[6] Average of 315 bps observed in the 22-COST-546-KSF and 387 bps in this Docket.

Risk Premium of Recent Electric and Gas Dockets

Docket	Testimony Date	Company	Equity Ratio	Staff Recmmd	*BBB/Baa Utility Bond yld.	Resulting Rp
15-KCPE-116-RTS	5/11/2015	Kansas City Power & Light	50.48%	9.25%	4.62%	4.63%
15-WSEE-115-RTS	7/9/2015	Westar Energy	53.12%	9.25%	4.69%	4.56%
16-KGSG-491-RTS	9/7/2016	Kansas Gas Service	55.00%	8.75%	4.05%	4.70%
16-ATMG-079-RTS	12/21/2016	Atmos Energy	56.12%	9.10%	4.74%	4.36%
18-KCPE-095-MER	1/29/2018	Kansas City Power & Light	*	9.30%	4.18%	5.12%
18-WSEE-328-RTS	6/11/2018	Westar Energy	51.24%	9.30%	4.61%	4.69%
18-KCPE-480-RTS	9/12/2018	Kansas City Power & Light	49.09%	9.30%	4.66%	4.64%
18-KGSG-560-RTS	10/29/2018	Kansas Gas Service	55.00%	9.15%	4.96%	4.19%
19-EPDE-223-RTS	5/13/2019	Empire District Electric Co	51.65%	9.30%	4.37%	4.93%
19-ATMG-525-RTS	10/31/2019	Atmos Energy	56.32%	9.10%	3.78%	5.32%
21-BHCG-418-RTS	9/10/2021	Black Hills Energy	42.96%	9.20%	3.17%	6.03%
23-ATMG-359-RTS	1/17/2023	Atmos Energy	59.16%	9.40%	5.32%	4.08%
23-EKCE-775-RTS	8/29/2023	Evergy, Inc.	48.50%	9.30%	5.94%	3.36%
		Average Risk Premium from Recent Gas & Electric Dockets				**4.66%**

* Yield on Baa/BBB Utility Bonds reported by Value-Line Investment Survey at date of Staff's testimony

Providing investors a risk premium over less risky debt investments, as Staff has done, follows the principles espoused by the Supreme Court in its *Hope* and *Bluefield* decisions. These income-producing securities are considered alternatives to investments in utility stocks because, like utility stocks, bonds offer stable valuations and higher current income relative to the equity market. Risk premiums vary over time and across economic and capital market conditions; thus, no benchmark risk premium or formula sets a reasonable return on equity at a given interest rate. Risk premium calculations place the allowed return in context with prevailing interest rates that are market-determined and observable. The Court's decision makes it clear that a fair and reasonable return for a utility's equity investors must offer the opportunity for investors to earn a premium over less risky investment vehicles such as public utility bonds used in the previous tables. The following table demonstrates that Staff's proposed 9.75% ROE meets that standard in each instance; Staff's recommendation provides a premium ranging from 387 to 566 basis points over the

returns offered by less risky fixed-income investments.

KCC Staff's Risk Premium Over Fixed Income Yields
Based on a 9.75% Return on Equity
24-SCNT-131-KSF

Monthly Averages	10-Year T-Bond Yield[1]	30-Year T-Bond Yield[2]	Baa Corporate Bond Yield[3]	BBB/Baa Utility Bond Yield[4]
May, 2023	3.57%	3.85%	5.76%	5.54%
June, 2023	3.75%	3.87%	5.76%	5.70%
July, 2023	3.90%	3.96%	5.74%	5.67%
August, 2023	4.17%	4.28%	6.02%	5.90%
September, 2023	4.38%	4.43%	6.12%	6.02%
October, 2023	4.80%	4.93%	6.61%	6.47%
Average	**4.09%**	**4.22%**	**6.00%**	**5.88%**

Staff's Risk Premium Over the Average 10-Year Treasury Bond Yield	
Staff Recommended Allowed ROE	9.75%
Six Month Average 10-Year Treasury Bond Yield	4.09%
Premium Over Average 10-Year Treasury Bond Yield	**5.66%**
Staff's Risk Premium Over the Average 30-Year Treasury Bond Yield	
Staff Recommended Allowed ROE	9.75%
Six Month Average 30-Year Treasury Bond Yield	4.22%
Premium Over Average 30-Year Treasury Bond Yield	**5.53%**
Staff's Risk Premium Over the Average BBB/Baa Corporate Bond Yield	
Staff Recommended Allowed ROE	9.75%
Six-Month Average BBB/Baa Corporate Bond Yield	6.00%
Premium Over Average BBB/Baa Utility Bond Yield	**3.75%**
Staff's Risk Premium Over the Average BBB/Baa Utility Bond Yield	
Staff Recommended Allowed ROE	9.75%
Six-Month Average BBB/Baa Utiilty Bond Yield	5.88%
Premium Over Average BBB/Baa Utility Bond Yield	**3.87%**

Sources:
1) Yield on U.S. 10-Year Treasury Bond reported at https://fred.stlouisfed.org/
2) Yield on U.S. 30-Year Treasury Bond reported at https://fred.stlouisfed.org/
3) Yield on Baa Corporate Bonds reported at https://fred.stlouisfed.org/
4) Yield on BBB/Baa Publicy Utility Bonds; Value-Line Investment Survey, Selections and Opinions

Q. For comparison, could you please summarize ROE decisions across the country?

A. There is ample information on the allowed returns granted to gas distribution and electric utilities; unfortunately, there is no reporting of the returns granted to local exchange carriers across the nation as most telephony services are deemed competitive or operate under some price cap regulation. This comparison to other rate-of-return regulated industries is helpful

as allowed returns on other rate-of-return regulated industries have moved in parallel with broad measures of capital costs. Thus, regulatory commissions have had many opportunities to evaluate evidence on investors' required returns. This data shows that regulatory commissions concluded that capital costs of regulated utilities have trended downward over the past 23 years.

Median Allowed Return on Equity

Date	Natural Gas	Electric
2000	11.16	11.50
2001	11.00	11.00
2002	11.00	11.28
2003	11.00	10.75
2004	10.50	10.70
2005	10.40	10.35
2006	10.50	10.23
2007	10.20	10.20
2008	10.45	10.30
2009	10.26	10.50
2010	10.10	10.30
2011	10.03	10.17
2012	10.00	10.08
2013	9.72	9.95
2014	9.78	9.78
2015	9.68	9.65
2016	9.50	9.75
2017	9.60	9.60
2018	9.60	9.58
2019	9.70	9.65
2020	9.44	9.45
2021	9.60	9.38
2022	9.60	9.50
2023Q1	9.60	9.68
2023Q2	9.50	9.35
2023Q3	9.49	9.38

Source: S&P Market Intelligence; RRA

This table highlights that for rate-of-return regulated companies, public service commissions nationwide recognize the decline in capital costs over the past two decades. Decisions by this Commission have followed the same downward trend through 2020 & 2021, with the allowed returns of 2023 beginning to show the effects of the Federal Reserve's more restrictive monetary policies.

Macro-Economic Environment & Investor Expectations

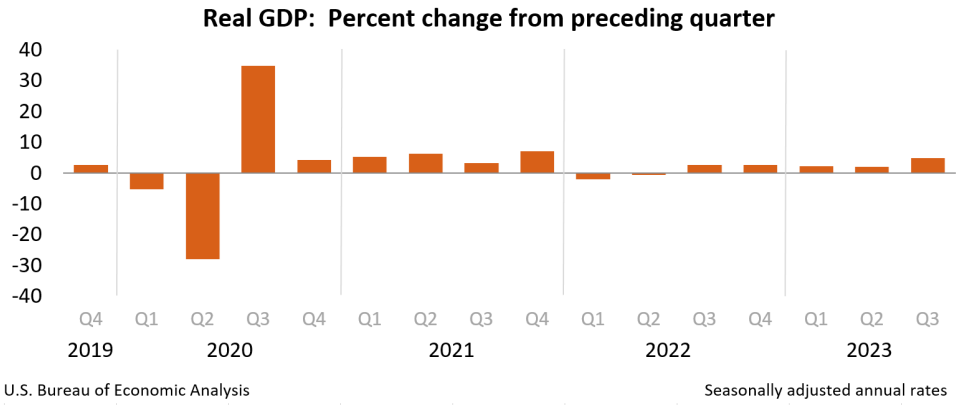
Q. Is it necessary for the Commission to create a forecast of the broad economy to determine a reasonable return?

A. I advise the Commission that determining a fair and reasonable allowed return does not require it to make an independent forecast of the economy's future or even adopt a specific perspective on the economy's direction. The focus of setting a fair and reasonable allowed return is on the *investors'* required return, which is a product of the *investors'* expectations for the economy (not the Commissioners'). Investors' expectations for the economy are captured within the Commission's cost of capital decision, provided the Commission's decision is based on market-derived data such as current stock prices, interest rates, and other market data that conveys investors' outlook for the economy. Staff's recommendation is based on current market-derived data. It is not necessary, and counterproductive, for regulators and cost of capital witnesses to second-guess the capital markets. It is a well-accepted premise that our capital markets are efficient, where investors factor all available information into their decisions to buy and sell debt and equity securities. Furthermore, rational, profit-maximizing investors are forward-looking. Accordingly, investors incorporate their forecasts of the economy into their decisions in their best attempt to maximize returns.

Q. Do you believe the Commission benefits from some discussion of economic forecast when setting allowed returns?

A. Yes, particularly with the global events of the past three years. Since then, the primary drivers of economic events were the Covid-19 pandemic followed by the Russian/Ukrainian war in February of 2022. The fiscal and monetary policy responses to the pandemic were unprecedented. In the first quarter of 2020, public health officials recognized the need to contain the virus's spread by issuing stay-at-home mandates and closures of businesses in the restaurant, hospitality, entertainment, and travel industries. The effects of these actions began to appear in the first quarter of 2020; U.S. real gross domestic product (GDP) experienced a -5.1% growth from the previous quarter, followed by a record -31.2% growth in the second quarter.[7] That decline in real GDP was historic, as was the 33.8% rebound in real GDP growth in the third quarter of 2020 as the economy began to reopen. On an annual basis, those wide quarter-to-quarter variations are smoothed out; real GDP grew at 2.30% in 2019, -2.80% in 2020, 5.90% in 2021, and 2.10% in 2022.[8]

[7] Bureau of Economic Analysis, https://www.bea.gov/sites/default/files/2021-07/gdp2q21_adv.pdf
[8] Bureau of Economic Analysis, https://apps.bea.gov/iTable/?reqid=19&step=2&isuri=1&categories=survey#eyJhcHBpZCI6MTksInN0ZXBzIjpbMSwyLDMsM10sImRhdGEiOltbImNhdGVnb3JpZXMiLCJTdXJ2ZXkiXSxbIk5JUEFfVGFibGVfTGlzdCIsIjEiXSxbIkZpcnN0X1llYXIiLCIyMDE3Il0sWyJMYXN0X1llYXIiLCIyMDIyIl0sWyJTY2FsZSIsIjAiXSxbIlNlcmllcyIsIkEiXV19



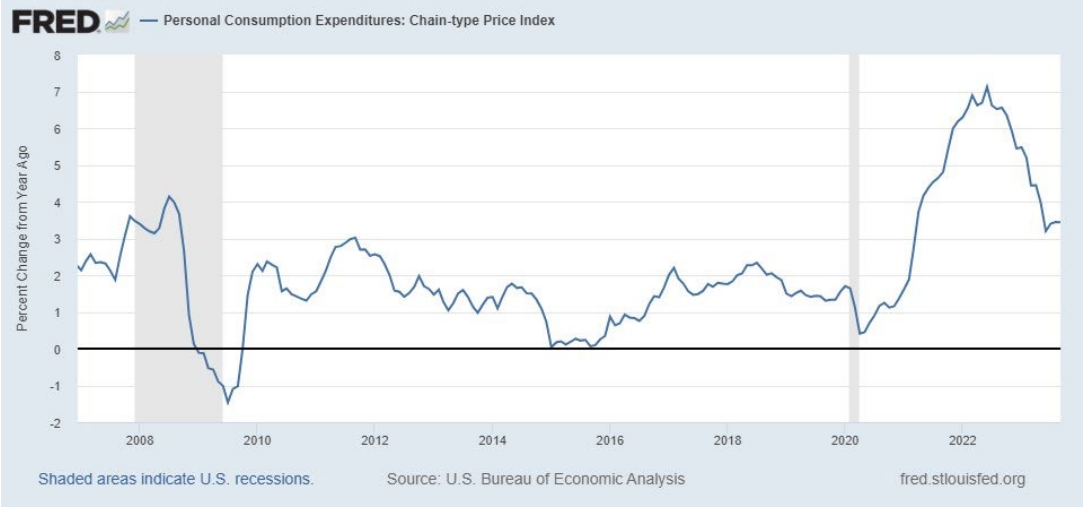
The Conference Board forecasts real GDP to grow at 2.40% in 2023 and 0.80% in 2024.[9] Within that 2024 forecast, the Conference Board forecasts two consecutive negative quarters in the first half of 2024, with growth rebounding in the second half of the year.

Despite this contraction in output in the first two quarters of 2022, unemployment returned to historically low levels, very near that level seen before the 2020 recession. As of October 2023, the rate is at 3.90%, equating to rates just before the pandemic and as low as any observations since the late 1960s.

The current and prospective picture of the economy is that of a more restrictive monetary policy in an effort by the Federal Reserve to reduce the inflation rate. That policy includes market action to raise short-term interest rates and reduce the quantity of bonds the Federal Reserve holds on its balance sheet. Both actions raise the market cost of borrowing to slow economic activity and reduce inflation. Those actions appear successful as inflation has

[9] The Conference Board Economic Forecast for the US Economy, November 15, 2023; https://www.conference-board.org/research/us-forecast

declined 3.4% since its peak of 7.1% in June 2022. The Federal Reserve forecasts inflation of 2.5% in 2024 and 2.2% in 2025.[10]



Corporate Structure

Q. Please describe Applicant.

A. The Applicant is structured as a cooperative, and as such, the customers it serves provide equity capital to finance the underlying assets; the customers are also stockholders. This is different from traditional investor-owned utilities where the wants of the equity investors do not always align with those of the utilities' customers. In the case of a cooperative like the Applicant, customers and stockholders are one in the same.

Q. Is the Applicant's cooperative structure a factor in determining an appropriate

[10] Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assumptions of projected appropriate monetary policy, September 2023. https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20230920.pdf

allowed return?

A. To set a revenue requirement for KUSF support, it is not a factor because the support comes from Kansas consumers or telephony services who are not members/owners of the Applicant.

Standards for a Just & Reasonable Rate of Return

Q. What standards should public utility commissions consider when authorizing a rate of return?

A. The standards for setting a just and reasonable rate of return require that, to be reasonable, the allowed return must reflect the risks associated with an equity investment in the utility. For the allowed return to be in that reasonable range, it must compensate for risks while capturing a fair proportion of benefits for consumers. The allowed ROE is best described as the forward-looking discount rate necessary to induce equity investors to commit their capital to the enterprise. Standards used to gauge the fairness and reasonableness of an allowed ROE have been stated by courts as the result of appeals of decisions issued by regulatory agencies. Financial analysts and policymakers rely on the courts' decisions to estimate the appropriate cost of capital. The opinions do not articulate precisely how to calculate or model a reasonable cost of capital. Instead, the decisions provide critical questions for policymakers and analysts to consider in determining a reasonable return for a regulated utility. There are several court cases that, as a group, are viewed as the keystone to measuring the adequacy of a utility's allowed return. The earliest of these decisions go

back to an era when it was not only the "rate of return" at issue but also the fundamental measurement of the investment in the utility enterprise, commonly referred to as rate base. This is less of an issue today as regulators, utility management, and investors readily accept historic depreciated value as the measure of investment to estimate the value of a utility's rate base (as opposed to reproduction cost or market value). The Court's decision in *Bluefield* addressed both rate base and ROR.[11]

United States Supreme Court decisions state that returns granted to regulated public utilities should: 1) be commensurate with returns on investments of similar risk; 2) be sufficient to assure the financial integrity of the utility under efficient economic management; and 3) change over time with changes in the money market and business conditions.[12] An important takeaway from these decisions is that the United States Supreme Court has afforded regulatory agencies a significant amount of latitude in establishing an appropriate ROR and ROE for a utility. The Kansas Supreme Court has recognized and follows this body of law.[13] This Commission has noted this fact in Orders issued in previous dockets.[14]

Q. How do financial analysts apply the standards established by the Court?

A. For an allowed ROE to meet the legal standards, the return should be as specific as possible to the utility in question. Financial analysts achieve this goal by analyzing not only the

[11] *Bluefield Water Works & Improvement Co. v. Pub. Svc. Comm'n of West Virginia*, 262 U.S. 679, 692-3 (1923).
[12] *Smyth v. Ames*, 169 U.S. 466 (1898); *Wilcox v. Consolidated Gas Co*., 212 U.S. 19, 48-49 (1909); *Bluefield Water Works & Improvement Company v. Public Service Commission of West Virginia*, 262 U.S. 679, 692-3 (1923); *Federal Power Commission v. Hope Natural Gas Company*, 320 U.S. 591, 603 (1944).
[13] *Kansas Gas & Elec. Co. v. State Corp. Comm'n*, 239 Kan. 483, 491, 720 P. 2d 1063, 1072 (1986).
[14] Order: 1) Addressing Prudence; 2) Approving Application, in Part; & 3) Ruling on Pending Requests, Docket No. 10-KCPE-415-RTS, November 22, 2010, 37-38.

utility in question, when it is possible to do so, but also a proxy group of similarly situated utilities. Treatises on rate of return for public utilities, such as The Cost of Capital – A Practitioner's Guide, agree that *Bluefield* lays out the four standards for a fair return.

1) *Comparable Earnings* – a utility is entitled to a return similar to that being earned by other enterprises with similar risks, but not as high as those earned by highly profitable or speculative ventures;
2) *Financial Integrity* – a utility is entitled to a return level reasonably sufficient to assure financial soundness;
3) *Capital Attraction* – a utility is entitled to a return sufficient to support its credit and raise capital; and
4) *Changing Level of Returns* – a fair return can change along with economic conditions and capital markets.[15]

As a financial analyst formulating rate of return analyses for our state commission, I take from *Bluefield* that the Court requires a rate Order that allows a utility an opportunity to earn a return consistent with the utility's risk profile and consistent with observations in the capital markets. The Court's decision in *Hope,*[16] like that in *Bluefield,* dealt with both valuation of rate base, as well as rate of return on that rate base. With respect to the rate of

[15] The Cost of Capital – A Practitioner's Guide by David C. Parcell, Prepared for the Society of Utility and Regulatory Financial Analysts, 1997, pp. 3-13 to 3-14.

[16] *Federal Power Comm'n. v. Hope Natural Gas Co.*, 320 U.S. 591, 603 (1944). "The rate-making process under the Act, i.e., the fixing of 'just and reasonable' rates, involves a balancing of the investor and the consumer interests. Thus, we stated in the Natural Gas Pipeline Co. case that 'regulation does not insure that the business shall produce net revenues.' But such considerations aside, the investor interest has a legitimate concern with the financial integrity of the company whose rates are being regulated. From the investor or company point of view, it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. By that standard, the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital. The conditions under which more or less might be allowed are not important here. Nor is it important to this case to determine the various permissible ways in which any rate base on which the return is computed might be arrived at. For we are of the view that the end result in this case cannot be condemned under the Act as unjust and unreasonable from the investor or company viewpoint."

return, the Court in *Hope* affirmed the four standards set out in *Bluefield.*

Capital Structure

Q. Please describe Applicant's capital structure presented in Section 7 of its Application.

A. Applicant reports a capital structure with 93.53% equity 6.47% long-term debt.[17] I verified that its equity ratio in Section 7 accurately depicts Applicant's actual capitalization.

Q. Did you use Applicant's actual capital structure to calculate the ROR?

A. No, I did not. Throughout the KUSF investigations, Staff has used an upper limit of 60% in capital structure calculations; Applicant's actual equity ratio exceeds Staff's threshold. Most important is that Applicant does not provide any evidence that its capital structure is reasonable and cost-efficient. Without convincing evidence, costs associated with the excessive equity layer should not be passed on to consumers who fund the KUSF.

Staff's capital structure provides the Commission with a means to balance the interests of the RLEC with the competing interests of the public generally. Establishing a subsidy payment out of the KUSF should balance the interests of the RLECs that receive the subsidy and Kansas telephony consumers who fund the subsidy, an act that requires that the revenue requirement be estimated using reasonable and cost-effective inputs. There is no evidence that a high-equity ratio capital structure is cost-effective for an RLEC. Applicants, like most Kansas RLECs, have access to relatively low-cost debt capital; the KUSF subsidy

[17] Application, Section 7; Docket 24-SCNT-131-KSF and Confidential audited financial statements attached to the Application.

should recognize that RLECs have access to low-cost debt capital.

Q. Is Staff recommending that Applicant's management change its equity ratio?

A. No, Staff's recommendation pertains only to the capital structure used to calculate the KUSF revenue requirement. Staff is not requesting that Applicant change its capitalization; Staff leaves capitalization decisions to company management.

Q. How did you conclude that a hypothetical capital structure with 60% equity is reasonable?

A. Over the course of performing KUSF audits during the past two decades, I have found that an equity ratio of 60% has been the high-end of the range observed for financially sound publicly traded telecommunications companies, RLECs, and utilities operating in Kansas. Staff believes the 60% equity ratio provides RLECs with a reasonable return and a reasonable cost structure for the KUSF subsidy while balancing the competing interests of consumers.

Q Have parties challenged the Commission's authority to rely on a capital structure different than the actual capital structure?

A. Yes, that has occurred in filings at the Kansas Court of Appeals. The Court has upheld the Commission's authority to determine a reasonable capital structure for the purpose of

setting a revenue requirement.[18]

Cost of Debt

Q. What cost of debt do you use in Applicant's ROR?

A. I recommend using the embedded cost of debt of 4.93% for the Applicant's cost of debt.[19] It is also a cost of debt consistent with debt costs experienced by other RLECs in Kansas and the Applicant's latest loan.

Summary of Cost of Equity Models

Q. Please provide an overview of the methods you relied on to arrive at 9.60% ROE.

A. To estimate the RLEC's cost of equity, I applied the same financial models as I do for regulated natural gas distribution and electric utilities. I applied a CAPM analysis and reviewed the options of applying DCF models to a group of telecommunications companies.

Q. Which models do you believe are the most informative to estimate an RLEC's cost of equity capital?

A. I consider the CAPM is the most informative for estimating an ROE for Applicant and similar RLECs. At this point in time it is simply not possible to apply a DCF analysis to

[18] Moundridge Tele. Co. v Kan. Corp. Comm'n, No. 114,064, 2015 WL 7693784 at 16 (Kan Ct. App. Nov. 25, 2015); Aquila, Inc. v. Kan. Corp. Comm'n, No. 94,326, 2005 WL 1719705, at 2-3 (Kan. Ct App. July 22, 2005); Wheat State Tel. Co. v. Kan. Corp. Comm'n No. 91,640 2004 WL 895534, at 2 (Kan. Ct. App. Apr. 23, 2004).

[19] Application, Section 7 of Docket 24-SCNT-131-KSF and the Independent Accountant's Review Report and Consolidated Financial Statements with Supplementary Information, Notes to Consolidated Financial Statements December 31, 2021 & 2020; Note 5 attached to Confidential Application.

the publicly traded companies that could serve as the proxy group for Kansas RLECs and expect it to produce meaningful information. The DCF model requires stable, positive growth in earnings and divide, either at a singular, constant rate or occurring in several distinct, predictable phases. All the members of the proxy group fail this requirement, exhibiting growth forecasts that are far too high or low to expect them to continue beyond the analysts' three-to-five-year horizon. The DCF model is merely an equation, with negative or highly volatile growth forecasts the DCF equation falls apart and cannot produce reasonable, realistic, and informative results. The CAPM is informative because it can provide a look at investors' required return in the current capital markets without the need for analysts' forecasted earnings growth rates.

Discussion of Staff's Cost of Equity Analysis

Q. Please describe the CAPM?

A. The CAPM is a valuable tool of finance because it offers a tested explanation of the positive relationship between risk and equity returns required by investors.[20] It is one of the cornerstone financial models. For example, every merger and acquisition analysis performed by an investment banker involving a Kansas utility has incorporated a CAPM analysis as a critical component of the valuation process. It is appealing to regulators because it meets the legal standards I discussed above, as it incorporates current data from

[20] The theoretical support for the CAPM is the work done by Harry Markowitz ("Portfolio Selection," Journal of Finance, March, 1952). W.F. Sharpe added the concept of a risk-free rate of return to the Markowitz model ("A Simplified Model of Portfolio Analysis," Management Science, January, 1963).

the financial markets and the unique risks of the utility in question.

Ke = Rf + Beta (Rm - Rf) or
Ke = Rf + Beta (Rp)

Where:

Ke = required return on equity
Rf = return on a risk-free security
Rm = an expected return from the market as a whole
Rp = risk premium available to investors through purchasing common stocks instead of risk-free securities often calculated as Rm - Rf
Beta = volatility of the security's or portfolio's return relative to the volatility of the market's return with the market beta equal to 1.0

Rf

The Rf estimate is the interest rate investors believe represents a riskless return. Although it is a simple concept, the answer is not universally agreed upon. It is widely accepted that a debt instrument issued by the U.S. Government is a risk-free instrument as there is no default risk even though the market price does vary over time. An investment in U.S. Treasury Bonds is a risk-free investment if the investor plans to hold it until maturity. It is from this base risk-free return that is universally available to investors that investors add a premium to justify taking on additional risks of an investment in equity securities, namely accepting the volatility of stock prices as opposed to stable periodic interest payments from U.S. Treasury Bonds.

Beta

The beta coefficient measures the volatility of the return earned by the utility's stock relative to the volatility of the returns earned by the broader equity market. The broad equity market is frequently measured using the S&P 500 Index. This measure provides a look at the risk

and volatility of a stock relative to other investments. A stock with a beta of 1 is equally as volatile as the market as a whole. A stock with a beta of 0.5 is half as volatile as the market. Most regulated utilities and telecommunications services companies exhibit beta coefficients in the range of 0.60 to 0.90 meaning their returns are less volatile than the broad market indexes; therefore, less risky.

Rm

Rm is the expected return on the stock market as measured by a broad market index such as the S&P 500. This represents the total return consisting of the price change of the index plus dividends earned for the year.

Rp

The risk premium is the difference between investors' expected return from the stock market and their expected return from the risk-free investment over the same time period. The risk premium is written as Rm-Rf. The market return and the risk-free return should be taken from the same period to accurately measure the additional return required by investors to take on the risk of common stocks over the risk-free investment over that forecasted or historic time period. The risk premium itself is an important topic in financial research as it signals the additional return investors demand when taking the added risks of investing in equity capital instead of a U.S. Treasury Bond.

Q. Does the CAPM meet the *Hope-Bluefield* legal standards discussed earlier in your testimony?

A. Yes, a cost of equity estimate derived from the CAPM meets those legal standards if the model incorporates current information from the capital markets that investors rely on to evaluate investment options. This market-based information ensures the cost of equity estimates evaluate investors' required rate of return or discount rate that reflects the current economic environment. In the CAPM analysis, such information is the expected returns in the broad equity market and the return available on risk free investment vehicles.

Q. Please discuss your CAPM analysis.

A. I took two distinct approaches to the CAPM analysis that are commonly found in both cost of capital studies in regulatory and asset-valuation arenas. The approaches are distinct perspectives of the securities market and analysts use both approaches to make investment decisions. One approach incorporates forecasted returns on the broad equity market indexes and government fixed income securities published by institutional investment services. The second offers a perspective of capital costs using purely historic measures of returns from the stock and bond markets.

The difference in the two approaches highlights the difference in returns earned in the past relative to the returns institutional investors expect going forward. The average based on historic returns on equity capital are higher, 8.16% to 11.41%, compared to forecasted returns of 6.94% to 10.75%.

Both forms of my CAPM analysis incorporate the high and low beta coefficients observed in the proxy group. The betas of the proxy group range from 0.64 to 0.88 thus, lower than

that exhibited by the broad equity market, indicating that the industry is less volatile (and less risky) than the broad stock market.

Q. How did you determine a beta coefficient that is representative of the KUSF services?

A. I use a range of beta coefficients in my analyses. One observation is the beta coefficient of the KUSF proxy group selected in recent KUSF dockets; the current beta coefficients of those five telecommunications companies is 0.94. Another observation is that reported for the telecommunications services, with is similar with a beta coefficient of 0.88. In many respects the KUSF services resemble traditional, rate of return regulated utility services more so than those of competitive telecommunications services that make up a bulk of the telecommunications industry's earnings. For that reason, I believe it is reasonable to include the average beta coefficient of those regulated industries which is 0.64.[21] Thus, I believe it is reasonable to consider a range of 0.64 to 0.88 as representative of the industry. I include, as a point of comparison, a beta of 1.00 as a reasonable high-end as that is the beta coefficient of the broad market such as the S&P 500 Index or New York Stock Exchange Index.

Q. Please describe your forecasted CAPM analyses.

A. For the forecasted CAPM analyses, I obtained forecasts of long-run returns for common equity and U.S. Treasury Bonds from three distinct sources: J.P. Morgan Asset Management

[21] Beta coefficients for the telecommunications services industry of 0.88 and utility services (not water) of 0.64 reported https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/Betas.html

(JPMAM); BlackRock Investments (BlackRock); and Kroll Corporation (formerly, Duff & Phelps). Combined, BlackRock and JPMAM have more than $11 trillion dollars of assets under management with individual and institutional clients worldwide. Other asset managers like Vanguard Group that has over $8 trillion in assets under management, have similar expectations for long-term returns. Thus, it is reasonable to assume their published forecasts are not only the expectations of sophisticated money managers, but they also influence the expectations of investors beyond just their own client base, which in itself has a large base of influence. JPMAM and BlackRock each annually publish their views of long-run (more than 15 years) returns available of numerous asset classes. Their respective forecasts are similar though not identical; but taken together, they provide a range for long-run returns on asset classes by the largest asset management companies. As a third input of projected returns, I looked to Kroll, which is a global provider of advisory and asset valuation services to the financial industry and corporations. The table below summarizes the cost of equity estimates derived from the CAPM application using data from these four sources.

Summary of Staff's Cost of Equity Estimates
Capital Asset Pricing Models
24-SCNT-131-KSF

	Low Beta	High Beta	Market Average Beta
Based on Historical Return Data, gathered from 1928 to 2022, Reported by Damodaran Online			
Geometric Returns	8.16%	9.43%	10.07%
Arithmetic Returns	9.02%	10.61%	11.41%
Based on Forecasted Return Data, gathered from J.P. Morgan Asset Management Long-Term Capital Market Assumptions (2023 edition)	6.94%	8.34%	9.04%
Based on Forecasted Return Data, gathered from BlackRock Investments Projected Long-run Returns Market Assumptions - Geometric Returns (2023 edition)	7.58%	8.81%	9.42%
Based on Forecasted Return Data, gathered from Kroll Projected Market Risk Premium & Risk Free Return	8.27%	9.59%	10.75%

Q. How is JPMAM data applied to the CAPM analysis?

A. For this CAPM analysis, we are interested in their forecasted returns on common stock in the U.S. and U.S. Treasury Bonds published by JPMAM to establish the expected return for the market. JPMAM publishes 10 to 15-year forecasts of expected returns on dozens of investment asset classes in its annual publication, the Long Term Capital Market Return Assumptions (LTCMRA).[22] JPMAM forecasts an annual return on common stocks of 9.49%. JPMAM's forecasted returns on common stocks has declined for several years until this 2023 forecast. That trend was a product of the increase in stock prices over time; the current higher expectations follow from the bear market seen in 2022. Following the

[22] J.P. Morgan Asset Management, Long-term Capital Market Return Assumptions, 2023 Edition, J.P. Morgan Asset Management (published October of 2022)
www.jpmorganinstitutional.com/pages/jpmorgan/am/ia/research_and_publications/long-term_capital_market

calculations and inputs through the CAPM equation in line 2 of the following table, the forecasted return on a risk-free investment, 10-Year U.S. Treasury Bonds, is subtracted from the expected return on common stocks resulting in a risk premium of 5.84%. This risk premium is the additional return necessary to induce investors to take on the added risk associated with common stocks over the risk-free investment in a U.S. Treasury Bond. The beta coefficient is applied to the risk premium to ascertain how much of a risk premium is necessary for investors to take on risks of investing in utility stocks as opposed to the risk-free U.S. Treasury Bond.

Capital Asset Pricing Model -- Forecasted Risk Premium
Using Forecasted Market Returns & Treasury Bond Yields
24-SCNT-131-KSF

		Low Beta	High Beta	Market Avg Beta
1) Forecasted Returns on Common Stocks		9.49%	9.49%	9.49%
2) Forecasted Total Return on 10-Year T-Bonds	-	3.65%	3.65%	3.65%
3) Equity Risk Premium		5.84%	5.84%	5.84%
4) Beta Coefficient	X	0.64	0.88	1.00
5) Beta Adjusted Risk Premium		3.74%	5.14%	5.84%
6) Forecasted Yield on 10-Year T-Bonds	+	3.20%	3.20%	3.20%
7) For Cost of Equity		6.94%	8.34%	9.04%

1) Forecasted 10 to 15-year annual arithmetic return on stocks
J.P. Morgan Asset Management, 2023 Edition.
2) Forecasted 10 to 15-year annual arithmetic return on intermediate term
U.S. Government bonds by J.P. Morgan Asset Management 2023 Edition.
3) Resulting risk premium (1-2).
4) Beta coefficient range discussed at page 28 of AHG Direct Testimony
5) Row 3 x Row 4 = asset specific risk premium.
6) Forecasted yield on 10-Year U.S. Treasury bonds forecasted by
J.P. Morgan Asset Management, 2023 Edition (page 11).
7) Forecasted cost of equity capital row 5 + row 6.

Sources:
J.P. Morgan Asset Management, Long-term Capital Market Return Assumptions,
2023 Edition, J.P. Morgan Asset Management

The expected risk-free yield of 3.20% forecasted by JPMAM is added to the beta specific risk premium to arrive at the cost of equity for the given beta coefficients.

As you can see in the next table, a CAPM analysis that incorporates BlackRock's long-term return projections are modestly higher than those published by JPMAM.

Capital Asset Pricing Model -- Forecasted Risk Premium
Forecasted Market Returns & Treasury Bond Yields
by BlackRock Investments
24-SCNT-131-KSF

		Low Beta	High Beta	Market Avg Beta
1) Forecasted Returns on Common Stocks		8.50%	8.50%	8.50%
2) Forecasted Total Return on 10+ Year U.S. T-Bonds	-	3.38%	3.38%	3.38%
3) Equity Risk Premium		5.12%	5.12%	5.12%
4) Beta Coefficients of Proxy Group	x	0.64	0.88	1.00
5) Beta Adjusted Risk Premium		3.28%	4.51%	5.12%
6) Forecasted Yield on 10-Year T-Bonds	+	4.30%	4.30%	4.30%
7) Cost of Equity		7.58%	8.81%	9.42%

1) Forecasted 25-year annual geometeric returns on U.S. common stocks; November 2022
2) Forecasted 25-year annual geometeric return on intermediate term Treasury bonds
3) Resulting risk premium (1-2)
4) Beta coefficient range discussed at page 28 of AHG Direct Testimony
5) Proxy Group risks premium
6) Forecasted yield on 10-Year U.S. Treasury bonds published in Survey of Professional Forecasters (Federal Reserve Bank of Philadelphia)
7) Forecasted cost of equity capital row 5 + row 6.

Sources:
https://www.blackrockblog.com/blackrock-capital-markets-assumptions/
https://www.philadelphiafed.org/research-and-data/real-time-center/survey-of-professional-forecasters/

Q. What is the third source of data used in the forward looking CAPM analyses?

A. I relied on data published by Kroll, a global financial services company. Specific to cost of capital estimation, Kroll provides forward-looking estimates of an equity risk premium (ERP) and a risk-free return. Just as in the previous CAPM equations, the ERP plus the risk-free return equate to the expected return on common stocks. Kroll develops its own forecast of the risk-free return. The beta coefficient of the particular asset (in this case the

proxy group) is to the ERP and the product is added to the risk-free rate of return. As capital markets change, Kroll adjusts its ERP and risk-free return estimates.

Capital Asset Pricing Model -- Kroll Forecasted Risk Premium
Using Forecasted Market Returns & Treasury Bond Yields
24-SCNT-131-KSF

		Low Beta	High Beta	Market Avg Beta
1) Kroll U.S. ERP		5.50%	5.50%	6.00%
2) Beta Coefficient	x	0.64	0.88	1.00
3) Proxy Group Risk Premium		3.52%	4.84%	6.00%
4) Kroll U.S. Risk-Free Rate of Return*	+	4.75%	4.75%	4.75%
5) Proxy Group Cost of Equity		8.27%	9.59%	10.75%

1) Kroll U.S. Equity Risk Premium as of June 13, 2023
2) Beta coefficient range discussed at page 28 of AHG Direct Testimony
3) Resulting risk premium for proxy group (1-2).
4) Kroll U.S. Risk-Free Rate of Return as of June 13, 2023
5) Forecasted Cost of Equity Range for Proxy Group

Kroll recommends a risk-free rate of the higher of 3.50% OR spot market yield on 20-Year U.S. Treasury Bond. At the end of November, 2023, spot yield was 4.75% (Federal Reserve H.15)At Sources:
https://www.kroll.com/-/media/kroll-images/pdfs/kroll-increases-us-risk-free-rate.pdf
https://www.federalreserve.gov/releases/h15/

These capital asset pricing models vary with respect to the precise return demanded by investors going forward. What is very apparent is that the models project required returns on equity capital in the future will be lower than the historic returns. JPMAM's, BlackRock's, and Kroll's views of lower returns are universally accepted across the investment banking and asset management industry.

Q. Does the historic CAPM corroborate the findings of your forecasted CAPM analyses?

A. Only to a degree, the cost of equity or expected returns calculated using purely historical data are greater than those found with the three scenarios using forecasted return. The comparison is closer in this analysis than I have seen for the past decade due to the decline

in stock prices experienced in 2022. With that decline, the institutional money managers have raised their expected returns. It is clear they continue to forecast lower economic growth expected in the future than witnessed in the past decades. For the historical CAPM, I relied on data of returns earned from 1928 through 2022. I prepared the historical perspective in two unique views of historic average returns: arithmetic and geometric. The arithmetic average returns are the mean or average of the returns occurring each year; it is what is common in any given year; it is what people refer to an average. The geometric average is the compound return earned over the time span in question; in this instance, 1928 through 2022. These two measures of returns differ because of the volatility in annual returns on each of the asset classes (common stocks and U.S. Treasury bonds). The greater the volatility in annual growth, the greater the difference between arithmetic and geometric averages for those observations. In applying the CAPM, neither measure of returns reigns supreme as countless academic papers argue each side of the issue. Both methods offer an accurate perspective of historic returns; the arithmetic average is representative in a year, and the geometric average is the average change over a time span. Both averages are widely reported or easily calculated from published publicly available data.

Capital Asset Pricing Model -- Historic Risk Premium
Based on Historic Arithmetic Risk Premiums
from 1928 to 2022
24-SCNT-131-KSF

		Low Beta	High Beta	Market Average Beta
1) Total Returns on Common Stocks		11.51%	11.51%	11.51%
2) Total Return on Government Bonds	-	4.87%	4.87%	4.87%
3) Resulting Risk Premium		6.64%	6.64%	6.64%
4) Beta Coefficient	x	0.64	0.88	1.00
5) Risk Premium		4.25%	5.84%	6.64%
6) Historic Yield on Government Bonds	+	4.77%	4.77%	4.77%
7) Forecasted Cost of Equity Based on Historic Returns		9.02%	10.61%	11.41%

1) Historic returns on common stocks 1928-2022
2) Historic returns on intermediate-term government bonds 1928-2022
3) Resulting risk premium (1-2)
4) Beta coefficient range discussed at page 28 of AHG Direct Testimony
5) Row 3 x Row 4 = Asset Specific Risk Premium
6) Historic year-end yield on intermediate-term government bonds 1928-2022
7) Forecasted cost of equity capital, row 5 + row 6

Sources: Damodaran Online
http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html
& Value-Line Investment Survey.

1

Capital Asset Pricing Model -- Historic Risk Premium
Based on Historic Geometric Risk Premiums
from 1928 to 2022
24-SCNT-131-KSF

		Low Beta	High Beta	Market Average Beta
1) Total Returns on Common Stocks		9.64%	9.64%	9.64%
2) Total Return on Government Bonds	-	4.34%	4.34%	4.34%
3) Resulting Risk Premium		5.30%	5.30%	5.30%
4) Beta Coefficient	x	0.64	0.88	1.00
5) Risk Premium		3.39%	4.66%	5.30%
6) Historic Yield on Government Bonds	+	4.77%	4.77%	4.77%
7) Forecasted Cost of Equity Based on Historic Returns		8.16%	9.43%	10.07%

1) Historic returns on common stocks 1928-2022
2) Historic returns on intermediate-term government bonds 1928-2022
3) Resulting risk premium (1-2)
4) Beta coefficient range discussed at page 28 of AHG Direct Testimony
5) Row 3 x Row 4 = Asset Specific Risk Premium
6) Historic year-end yield on intermediate-term government bonds 1928-2022
7) Forecasted cost of equity capital, row 5 + row 6

Sources: Damodaran Online
http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html
& Value-Line Investment Survey.

If we rely on purely historical data, regardless of whether it is based on arithmetic or geometric returns, we assume that specific trends, particularly economic growth, observed in the past 90 years will continue. It is well established that the U.S. economy is projected to grow slower than that experienced in the past. The projected growth rate is 4.09% over the next 30 years compared to the historic growth rate of 6.09% over the past 90 years.[23]

Historic
Nominal GDP (Billion $'s)

1929	$	104.60
2022	$	25,462.70
Annual Growth Rate		**6.09%**

Source: Bureau of Economic Analysis
www.bea.gov

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Beyond the change in economic growth, there is some issue with measuring those historical returns. There is evidence that these frequently quoted historical returns do not present a complete picture in part due to the beginning period that is often used in the calculation.[24] The simple step of beginning the measurement period in the 1920's raises questions about whether the period is representative of all of the modern-era securities trading. Regardless of whether the 1920s is an appropriate point for measuring historical returns, historical returns are widely reported and frequently referred to in discussions of capital markets and potential returns. Some well-regarded financial publications focus solely on this era of recorded data and how to apply it in cost of capital studies. Thus, measurements from this period influence expectations despite warnings surrounding historic economic growth rates and market returns. I agree that historical data is often cited and is part of the cost of the capital universe. Still, it has significant limitations, and policymakers should be aware of them in their final decision.

Q. Does that conclude your testimony?

A. Yes, thank you.

[24] McQuarrie, Edward F, "The Myth of 1926: How Much Do We Know Long-Term Returns on U.S. Stocks?" The Journal of Investing; Winter 2009, p. 96.

CERTIFICATE OF SERVICE

24-SCNT-131-KSF

I, the undersigned, certify that a true and correct copy of the above and foregoing Testimony was served via electronic service this 12th day of December, 2023, to the following:

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