Exhibit No.:	
Issue:	*Rate of Return*
Witness:	*Peter Chari*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Surrebuttal Testimony*
Case No.:	*ER-2019-0374*
Date Testimony Prepared:	*March 27, 2020*

MISSOURI PUBLIC SERVICE COMMISSION

FINANCIAL AND BUSINESS ANALYSIS DIVISION

FINANCIAL ANALYSIS DEPARTMENT

SURREBUTTAL TESTIMONY

OF

PETER CHARI

THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2019-0374

Jefferson City, Missouri
March 2020

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Q. Please state your name.

A. My name is Peter Chari.

Q. Are you the same Peter Chari who previously prepared the Rate of Return (“ROR”) Section of Staff’s Cost of Service Report (“Staff Report”) and rebuttal testimony in this case?

A. Yes.

Q. What is the purpose of your surrebuttal testimony?

A. The purpose of my surrebuttal testimony is to respond to the rebuttal testimonies of Robert B. Hevert (Mr. Hevert) and David Murray (Mr. Murray). Mr. Hevert sponsored testimony on behalf of The Empire District Electric Company (“Empire” or “Company”) and Mr. Murray sponsored testimony on behalf of Office of the Public Counsel (“OPC”). Mr. Hevert responded to the authorized return on equity (“ROE”) recommendation that Staff sponsored in the Staff Direct Report - Cost of Service. Mr. Murray responded to the authorized ROE and the capital structure that Staff sponsored in the Staff Direct Report - Cost of Service.

EXECUTIVE SUMMARY

Q. What are Mr. Hevert’s primary disagreements with Staff’s ROE recommendation?

A. Mr. Hevert states that Staff's "9.25 percent recommendation… falls considerably below a reasonable estimate of the Company's Cost of Equity."[1] Mr. Hevert does not agree that it is appropriate to compare the current COE results of an electric proxy group to the prior COE results of a natural gas proxy group to determine how the authorized ROE has changed over time. Mr. Hevert also does not agree with Staff's analysis estimating the cost of equity to have fallen during the time period referenced by Staff: June 30, 2017, to November 30, 2019.[2] Mr. Hevert believes that Staff's costs of equity ("COE") are unreliable, because Staff's COE estimates are below Staff's recommended authorized ROE. The following are the specific areas of Staff's analysis that Mr. Hevert disagrees with:

- The basis of Staff's ROE recommendation;
- Staff's interpretation of capital market conditions;
- Staff's constant growth DCF analyses;
- Staff's application of the CAPM, the reasonableness of those results, and their relevance in determining the Company's ROE; and
- The relevance of authorized returns.

Q. What is Mr. Murray's disagreement with Staff's Capital Structure Recommendation?

A. Mr. Murray pointed out Staff's unintentional use of Empire's deconsolidated capital structure. Staff relied on Empire's capital structure provided in response to Staff's data request ("DR") No. 0186. The capital structure excludes Empire's other operating affiliate – Empire District Gas. Staff assumed that the capital structure included all of Empire's affiliates. Before Empire merged with Algonquin Power and Utility Corp., Empire financed and operated itself and all its affiliates as one entity. Empire has, in the past, used a consolidated capital

[1] Hevert's Rebuttal, page 3.
[2] Ibid, page 3.

structure to set its ROR. Mr. Murray believes that Empire should continue to use a consolidated capital structure to set its ROR.

RESPONSE TO MR. HEVERT'S REBUTTAL TESTIMONY

Q. Where does Mr. Hevert go wrong in his interpretation of Staff's calculation of the COE change between the period of Spire Missouri's rate case and Empire's current rate case?

A. Mr. Hevert's interpretation of Staff's calculation is summed up in the following formulae and explanation:

$$y = a - b + b - c \quad [1]$$

> Where:
> y = the adjustment to the authorized ROE in the Spire Missouri Rate Case.
> a = the average current results based on the electric proxy group.
> b = the average current results based on the natural gas proxy group.
> c = the average results based on the natural gas proxy group from the Spire Missouri Rate Case.
>
> Because it adds then subtracts *b*, Equation [1] can be simplified to:
>
> $$y = a - c \quad [2]$$
>
> The current results of the natural gas proxy group therefore have no effect on Mr. Chari's adjustment to the 9.80 percent authorized in the Spire Missouri rate case. Whether the current natural gas proxy group results average 6.21 percent as Mr. Chari estimates, zero percent, 100.00 percent, or any other value, the adjustment remains negative 57 basis points (*see* Schedule RBH-R8). That is, Mr. Chari's approach assumes it is appropriate to compare the current results of an *electric proxy group* to the prior results of a *natural gas proxy group* to determine how the ROE has changed over time."[3]

Staff estimated the relative change in COE (-57 basis points) between the periods of June 30, 2017, and November 30, 2019, and used the -57 basis points to adjust the Spire Missouri

[3] Ibid pages 7 and 8.

authorized ROE (9.80%) to 9.23%, rounded up to 9.25%. While Mr. Hevert's formulas are correct, his overall interpretation is premised on the wrong belief that COE and authorized ROE are the same. Mr. Hevert's concern, expressed in the statement, "Here, the results presented in Schedule PC-12 all are significantly below the lowest authorized return for a vertically integrated utility in at least 40 years"[4] is misplaced. The results presented in Schedule PC-12 are significantly lower than authorized ROEs because as Staff explained in Direct Testimony, there is evidence that COEs have been lower than authorized ROEs.

Mr. Hevert only expressed concern about the comparability of proxy groups, reasonableness of model inputs, and the meaningfulness of results.[5]

Q. Are the proxy groups (electric and gas proxy groups) comparable?

A. Yes, after Staff's risk differential adjustment. An important step in Staff's calculation of relative change in the authorized ROE is the estimation of risk differential between the gas proxy group and the electric proxy group. Through analyzing the difference in current COEs of the gas proxy group (6.21%) and electric proxy group (6.39%), Staff was able to determine that there is an 18-basis point risk differential between the gas proxy group and the electric proxy. As shown in the table below, the COE changed between the gas proxy groups over the period of June 30, 2017, and November 30, 2019, decreasing by 75-basis points. Consideration of Staff's calculated risk differential between the current gas and electric proxy groups led Staff to make an upward adjustment of 18 basis points to Staff's initial 75-basis point decreased COE adjustment. The sum of these adjustments to the COE led Staff to utilize a relative adjustment to apply to the Spire Missouri rate case's authorized ROE and arrive at

[4] Ibid., page 8, lines 12 to 13.
[5] Ibid., page 8, lines 10 to 12.

the recommended ROE for Empire. With the adjustments Staff made for risk differential, the proxy groups are comparable:

Summary of Staff's Cost of Equity Estimates

Current Cost of Equity Estimates for the Electric Proxy Group

DCF Range of Growth %	4.20%	5.00%	**Average**	
DCF	7.34%	8.14%	**7.74%**	
	Geometric	Arithmetic		
CAPM	4.63%	5.43%	**5.03%**	
		Average	**6.39%**	(1)

Current Cost of Equity Estimates for the Gas Proxy Group

DCF Range of Growth %	4.20%	5.00%	**Average**	
DCF	6.65%	7.45%	**7.05%**	
	Geometric	Arithmetic		
CAPM	4.91%	5.81%	**5.36%**	
		Average	**6.21%**	(2)

Past Cost of Equity Estimates for the Gas Proxy Group in the Spire Missouri Case

DCF Range of Growth %	4.20%	5.00%	**Average**	
DCF	6.91%	7.71%	**7.31%**	
	Geometric	Arithmetic		
CAPM	6.08%	7.14%	**6.61%**	
		Average	**6.96%**	(3)

Average COE Difference Between Updated Spire Case and Last Spire Case:	(2)-(3)	-0.75%
COE Differential Between Electric Proxy Group and Gas Proxy:	(1)-(2)	0.18%
Adjusted COE Difference Between Electric Proxy Group and Past Gas Proxy Group:	(1)-(3) ((2)-(3) –(1)-(2))	-0.57%
Commission Allowed ROE in Spire rate cases:		9.80%
		-0.57%
		9.23%
Staff Recommended Allowed ROE		**9.25%**

Q. Do you agree with Mr. Hevert's assessments of Staff's conclusion related to capital market environment?

A. No, Mr. Hevert's assessments that the large decrease in 30-year Treasury rates in 2019, "relates to something other than long-term fundamental market factors" and that "we should question the extent to which changes in bond yields reflect changes in investor return requirements" are unfounded.[6] Similarly, Mr. Hevert's concern that "greater variability in P/E ratios increases the risk of capital loss" is unfounded.[7] Mr. Hevert's concerns equate to a belief that lower long-term interest rates and higher P/E ratios are not normal or sustainable, that they are somehow anomalous.

Reviewing percentage changes in 30-year Treasury yields shows that volatility in 30-year Treasury rates has increased since the Financial Crisis; reviewing P/E ratios for Staff's electric proxy group shows that P/E ratios have been trending higher for an equally considerable period. The combination of cyclical and secular forces driving down interest rates has led to reduced opportunity costs, forcing investors to search for yields.[8] Mr. Hevert suggests that "the fall in yields does not reflect a reduction in required returns, it reflects an increase in risk aversion and, therefore, an increase in investor-required returns."[9] Utility stocks have long been referred to as bond substitutes – when yields are low, investors shift their funds into utility stocks in search for higher yields. Edward Jones, in its "Utilities Sector Report" on January 27, 2020, noted, "Utilities' perceived safe and steadily growing dividends continue to make utility stocks an attractive source of current income for investors." In reference to the role of low interest rates, Edward Jones noted, "[T]he marked decline in interest rates has led to the group [Utilities] achieving all-time high levels."[10] As indicated by the high valuations in utilities, the

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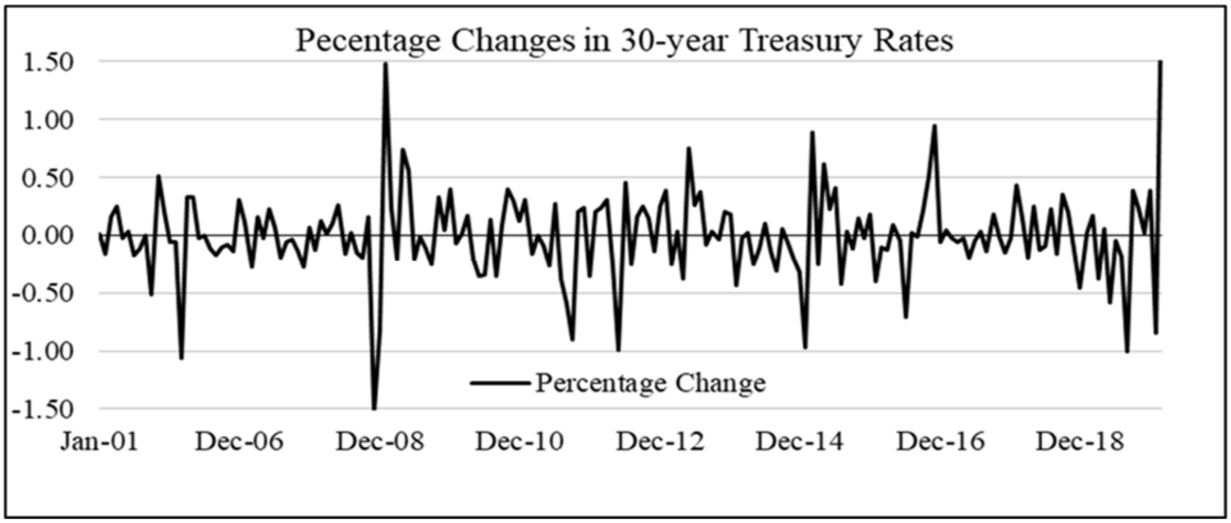
[6] Ibid., page 12.
[7] Ibid., page 15.
[8] Cyclical factors are factors that occur over the course of a business cycle; meanwhile, secular factors are factors occurring over multiple business cycles.
[9] Ibid., page 13, line 10.
[10] https://www.edwardjones.com/images/utilities-sector-outlook.pdf, page 3.

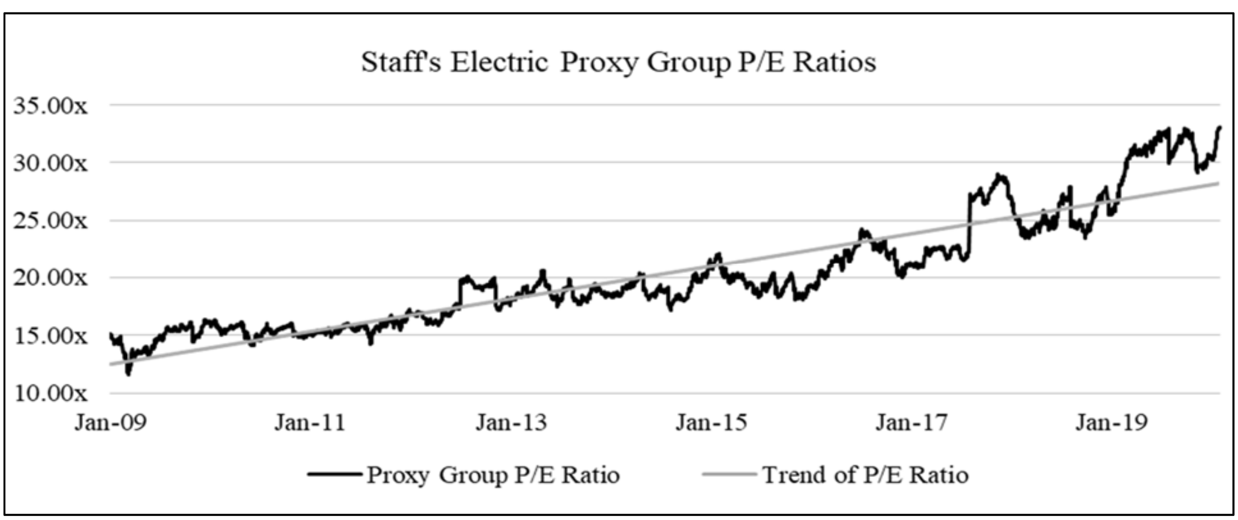
net effect of falling yields has been high stock prices for utilities and, with the generally accepted knowledge that stock prices are inversely related to investor-required returns (COE), it is indisputable that falling yields and high stock prices have led to lower investor-required returns (COE), not higher investor-required returns (COE) as Mr. Hevert argues.

Below are graphs of the percentage changes in 30-year Treasury yields, 30-year Treasury yields, and P/E ratios for Staff's proxy group.[11] Notice that the frequency of higher percentage rate changes in 30-year Treasury rates has increased since the Financial Crisis. Coincidentally, this corresponds to the time period Mr. Hevert references as when utility dividend yields generally began to exceed Treasury yields.[12] Notice that lower interest rates and higher P/E ratios are not singular events that the Commission should be wary of, as Mr. Hevert suggests. Instead, they are longstanding events that are likely to continue. The coincidence of the inflection point Mr. Hevert references combined with lower interest rates and utility stocks low risk profile, increases the attractiveness of utility stocks as substitutes for bonds because utilities are providing a safe haven at higher yields than bonds. Although, at times, increased volatility facilitates utility stock appreciation, the primary factor that continues to lead to increased utility stock prices is the consistent low interest rate environment forcing investors to search for yields in safe haven assets. As interest rates decline further, utility stocks will become even more attractive.

[11] The percentage Changes in 30 year Rates graph encompasses a longer time period to allow for comparison of volatility after the Financial Crisis.
[12] Hevert Rebuttal, page 14.


Pecentage Changes in 30-year Treasury Rates
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
Jan-01
Dec-06
Dec-08
Dec-10
Dec-12
Dec-14
Dec-16
Dec-18
Percentage Change


30-year Treasury Yields
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17
Jan-19
30-year Treasury Yield
Trend of 30-year Treasury Yield


Staff's Electric Proxy Group P/E Ratios
35.00x
30.00x
25.00x
20.00x
15.00x
10.00x
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17
Jan-19
Proxy Group P/E Ratio
Trend of P/E Ratio

Q. Do you agree with Mr. Hevert's primary concern with Staff's inputs for the Constant Growth DCF model?

A. No. Mr. Hevert's primary concern relates to the growth rates Staff used in the constant growth DCF model. Mr. Hevert is concerned that Staff's current DCF growth rates did not change from those presented in the Spire Missouri rate cases. Mr. Hevert argues that because the Ten- and Five-year average growth rates, as well as the analyst projected long-term growth rates, Staff presented in the Spire Missouri rate cases increased in the current case, the growth rates in the current case should have increased too. Staff understands Mr. Hevert's concern and excludes historical growth rates when focusing on the relative change in growth rates between rate cases. However, excluding historical growth rates, as Mr. Hevert suggests does not change Staff's rate of return recommendation in any way because Mr.Hevert's observation of increased growth rate is not sufficient to conclude that Staff's growth rates should be higher. Staff maintains, as described in the Discount Dividend Valuation, "an earnings growth rate far above the nominal GDP growth rate is not sustainable in perpetuity."[13] Similarly, acknowledging an increase in projected growth rates between rate cases in not sufficient to conclude that the COE has increased because price earnings ratios ("P/E") have increased at a greater rate than projected growth rates. For example, projected growth rates for Staff's natural gas proxy group as presented by Mr. Hevert on page 17 of his rebuttal testimony shows that growth rates increased by about 11% between June 30, 2017, and November 30, 2019.[14] Contrast that with about 27% increase in P/E ratios for the same gas proxy group in the

[13] Henry, E., Pinto, J., Robinson, T., & Stowe, J., Discount Dividend Valuation, Reading 29, Level II Chartered Financial Analyst Curriculum, 2019.
[14] 5.77% - 5.19% = 0.58%, 0.58%/5.19% = 11%.

same period.[15] The higher growth in P/E ratios than growth in projected growth rates lends further support to Staff's position that COE declined during the period because the rate of increase in investors' willingness to pay more for each unit of earnings outpaced the rate of increase in growth for each unit of earnings.

Mr. Hevert also expressed concern with Staff's inclusion of negative earnings per share ("EPS") growth rates in the calculation of historical average growth rates for the electric proxy group. Staff understands Mr. Hevert's concern, however, Staff notes that Mr. Hevert's corrected growth rate range of 4.44% to 5.16%[16] is above the estimated long-term nominal GDP growth rate of about 4.00%.[17] Staff still maintains its view that "an earnings growth rate far above the nominal GDP growth rate is not sustainable in perpetuity." Therefore, Mr. Hevert's concern about inclusion of negative EPS changes neither Staff's choice of growth rate for the constant growth DCF model nor the overall rate of return recommendation.

Q. Do you agree with Mr. Hevert's concern about Staff's application of the capital asset pricing model ("CAPM"), the reasonableness of those results, and their relevance in determining the Company's ROE?

A. No. Mr. Hevert's concerns about Staffs' CAPM analysis revolve around Staff's market risk premium ("MRP") estimates and their effects on Staff's CAPM results. With regard to the relevance and reasonableness of Staff's CAPM results, Mr. Hevert states:

> Mr. Chari's CAPM results are so far removed from observable benchmarks that they provide little, if any, value in determining the company's ROE. For example, Mr. Chari's CAPM analysis suggests investors would be willing to receive an ROE ranging from 13 basis

[15] Gas P/E ratios from Staff's Direct Testimony, page 10, line 25. 32.10x – 25.26x = 6.84x, 6.84x/25.26x = 27%.
[16] Ibid., page 19, line 7.
[17] https://www.cnbc.com/2019/12/11/fed-decision-interest-rates.html. The Fed's estimated long-term real GDP growth of 1.80% to 2.00% plus projected inflation rate of 2.00% = about 4.00% nominal GDP growth rate.

> points below the Company's embedded Cost of Debt (as recommended by Staff, 4.76 percent) to only 67 basis points above.

The basis of Mr. Hevert's contention is that Staff's MRP results in such a low COE estimate that it is unreasonable because it is only slightly above Staff's recommended embedded cost of debt. Mr. Hevert states that because "[d]ebt and equity are fundamentally different securities with different risk/return characteristics, different lives, and different investors… no rational equity investor would have a required ROE equal to the Cost of Debt, as Mr. Chari's CAPM analysis suggests."[18] Mr. Hevert's contention ignores the fact that the embedded cost of debt recommendation presented by Staff contains the costs of debt for 30-year debt instruments that were issued as far back as November 2003, when interest rates and risk premiums were high. Empire's coupon rate for the November 2003 debt instrument was 6.70%. From 2005 to 2010, Empire issued debt instruments with coupon rates ranging from 5.20% to 5.88%. Those coupon rates inevitably led to the higher embedded cost of debt Mr. Hevert references.

Currently, debt instrument rated Baa, corresponding to Empires credit rating, have a yield of 3.60%, approximately 103 basis points below the low-end of Staff's CAPM estimate of 4.63%. Empire also has debts with coupon rates ranging from 3.58% to 3.73%, all at least 90 basis points below the low-end of Staff's CAPM estimate. Given current utility debt costs and the increasing attractiveness of utility stocks as bond substitutes, the low-end of Staff's estimated COE appears reasonable, especially when considering that valuation experts estimate utilities' cost of equity to be as low as 3.40%.[19]

Q. Mr. Hevert expressed concern that Staff relied exclusively on historical data in estimating the MRP. Is Mr. Hevert's concern valid?

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[18] Ibid., pages 27 to 28.
[19] http://pages.stern.nyu.edu/~adamodar/.

A. No, it is not. Exclusive use of historical data is common among many rate of return analysts, taxing authorities and other regulatory bodies.[20] Exclusive use of historical data is supported by the theory "that the past provides a reasonable indicator of how the market will behave in the future and investors' expectations are influenced by the historical performance of the market."[21]

Mr. Hevert uses forecasted MRPs, which, as I previously showed in my rebuttal testimony, are highly flawed.[22] Studies have indicated that forecasted MRPs are biased high.[23]

<u>RESPONSE TO MR. DAVID MURRAY'S REBUTTAL TESTIMONY</u>

Q. Do you agree with Mr. Murray that Empire should use a consolidated capital structure?

A. Yes. As Staff already explained in the executive summary, Staff unintentionally used a deconsolidated capital structure submitted by Empire in response to Staff's DR No. 0186 in its direct filing. Therefore, in light of this new discovery, Staff will change its recommended capital structure, as of September 30, 2019, from 52.93% common equity ratio and 47.07% long-term debt ratio, to 52.49% common equity ratio and 47.51% long-term debt ratio.[24] Staff's position is that a consolidated capital structure is the appropriate capital structure for setting Empire's ROR.

However, these changes do not change Staff's recommendation to use Empire's book capital structure in lieu of Liberty Utilities Company's ("LUCo") book capital structure

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[20] *Cost of Capital*, 4th edition, Shannon P. Pratt and Roger J. Grabowski, page 121.
[21] *Cost of Capital*, 4th edition, Shannon P. Pratt and Roger J. Grabowski, page 121.
[22] Mr. Hevert's MRPs, calculated using the constant growth DCF method, included non-dividend paying companies of the S&P 500 which led to unreasonably high MRPs. Mr. Hevert's MRPs ranged from 12.15% to 12.25%, as compared to financial industry consensus of 4.50% to 8.00%.
[23] Ibid., page 134.
[24] Staff's capital structure excludes obligations under capital leases.

because, per condition 5[25] of the Stipulation and Agreement of merger case EM-2016-0213, Empire's book capital structure remains more economical than LUCo's book capital structure. Therefore, although Staff accepts that a consolidated capital structure is the appropriate capital structure for setting Empire's ROR, Staff still maintains that Empire's capital structure is more economical than LUCo's capital structure.

Q. Is there any other concern that Mr. Murray raised?

A. Yes. Mr. Murray also raised concern about the embedded cost of debt Staff used to set Empire's rate of return. Of particular concern to Mr. Murray is the coupon rate, 4.53%, assigned to a debt, "Related Party Note ($90 million note)", listed in the Cost of Debt Summary provided to Staff by Empire in response to DR No. 0186. This debt is an affiliate note.[26] Affiliate notes are regulated under the "Commission's Affiliate Transaction Rules,"[27] which prohibit Algonquin Power and Utility Company ("APUC") from charging "more than the fully distributed cost or fair market value, whichever is less." Mr. Murray pointed out that because LUCo funded this loan through short-term debt, which had an average cost of 2.43% through the 12-months ended September 30, 2019, 2.43% is the correct debt cost for the note, not 4.53%.[28] After a closer analysis of the issue, Staff agrees the $90 million note should be assigned a lower debt cost, not 4.53%. Please refer to the surrebuttal testimony of Staff witness Kimberly K. Bolin for more discussion of this issue, and for support for Staff's assumed 2.15%

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[25] Condition 5 of the Stipulation and Agreement of the Merger Case No. EM-2016-0213 states: If Empire's per books capital structure is different from that of the entity or entities in which Empire relies for its financing needs, Empire shall be required to provide evidence in subsequent rate cases as to why Empire's per book capital structure is the most economical for purposes of determining a fair and reasonable allowed rate of return for purposes of determining Empire's revenue requirement.

[26] An Affiliate Note is a loan lend between two or more entities that are in a business relationship. For example, APUC raises funds through its subsidiary, Liberty Utilities Financing, GP ("LUF"), and in turn, lends to other subsidiaries of APUC, which include Empire.

[27] 20 CSR 4240-20.015.

[28] Murray Rebuttal Testimony, page 9, lines 16 to 19.

debt cost for this transaction. Based upon this adjustment, Staff changes its embedded cost of debt recommendation from 4.84% to 4.57%.

SUMMARY AND CONCLUSIONS

Q. Please summarize the conclusions of your surrebuttal testimony.

A. Mr. Hevert and Staff disagree over the appropriate ROE for Empire. Mr. Hevert recommends an authorized ROE of 9.95%. Staff recommends an authorized ROE of 9.25%. Mr. Hevert's belief that the COE and the authorized ROE are equivalent defies basic financial logic and, more importantly, market evidence. Mr. Hevert's claim that Staff's ROE recommendation approach is inappropriate is baseless.

Mr. Murray raised concern about Staff's use of a deconsolidated capital structure for Empire. While Staff accepts Mr. Murray's concern, the changes that Mr. Murray suggest do not change Staff's overall capital structure recommendation. Staff still maintains that Empire's capital structure is more economical than LUCo's and consequently, the appropriate capital structure for setting Empire's ROR.

Q. Does this complete your surrebuttal testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of The Empire District Electric	)	
Company's Request for Authority to File	)	Case No. ER-2019-0374
Tariffs Increasing Rates for Electric Service	)	
Provided to Customers in its Missouri	)	
Service Area	)	

AFFIDAVIT OF PETER CHARI

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW PETER CHARI and on their oath declares that they are of sound mind and lawful age; that they contributed to the foregoing Surrebuttal Testimony; and that the same is true and correct according to their best knowledge and belief, under penalty of perjury.

Further the Affiant sayeth not.

/s/Peter Chari____________________
PETER CHARI