Exhibit No. 108

Staff – Exhibit 108
Peter Chari
Rebuttal Testimony
File No. ER-2021-0312

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Issue(s):	*Rate of Return, Cost of Capital*
Witness:	*Peter Chari*
Sponsoring Party:	*MoPSC Staff*
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MISSOURI PUBLIC SERVICE COMMISSION

FINANCIAL & BUSINESS ANALYSIS DIVISION

FINANCIAL ANALYSIS DEPARTMENT

REBUTTAL TESTIMONY

OF

PETER CHARI

THE EMPIRE DISTRICT ELECTRIC COMPANY, d/b/a Liberty

CASE NO. ER-2021-0312

Jefferson City, Missouri
December 2021

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Q. Please state your name and business address.

A. My name is Peter Chari. My business address is P. O. Box 360, Suite 440, Jefferson City, MO 65102.

Q. Are you the same Peter Chari who prepared the Rate of Return Section of Staff's Cost of Service Report ("COS Report"), filed on October 29, 2021 in this case?

A. Yes, I am.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to respond to the direct testimonies of John J. Reed, Todd Mooney, and David Murray. Mr. Reed sponsored return on equity ("ROE") and rate of return ("ROR") testimony on behalf of the Empire District Electric Company, d/b/a Liberty ("Empire" or the "Company"). Mr. Mooney sponsored capital structure testimony on behalf of Empire. Mr. Murray sponsored ROE, capital structure, and ROR testimony on behalf of the Office of the Public Counsel ("OPC"). Staff will address issues related to a fair and reasonable ROR for Empire's electric utility rate base for ratemaking purposes in this proceeding.

EXECUTIVE SUMMARY

Q. What responses do you have to Mr. Reed, Mr. Mooney, and Mr. Murray?

A. Staff disagrees with Mr. Reed's authorized ROE recommendation. Staff will address Mr. Reed's cost of equity ("COE") and ROE analysis, with particular focus on inputs to

his models for estimating the COE. Staff does not have concerns with Mr. Mooney's recommended capital structure. Mr. Mooney's recommended capital structure is Empire's September 30, 2020, consolidated pro forma capital structure including the wind farm financing and common equity changes through March 31, 2021.[1] Staff will update its capital structure recommendation, if necessary, to include data in the update period. Staff disagrees with Mr. Murray's recommended authorized ROE and capital structure. Staff will address Mr. Murray's unreasonably low authorized ROE with particular focus on how his recommended authorized ROE is inconsistent with evidence indicating that COE has increased. Staff disagrees with Mr. Murray's recommendation of Liberty Utility Co.'s ("LUCo") capital structure for Empire's ratemaking in this proceeding. Staff will address why Mr. Murray's reason for recommending LUCo's capital structure for Empire's ratemaking is baseless.

COST OF EQUITY ESTIMATES

Q. What methodologies are commonly used to estimate COE and produce authorized ROE recommendations?

A. Financial analysts, in general, and rate of return analysts, in particular, commonly use the Discounted Cash Flow Models ("DCF") and Capital Asset Pricing Models ("CAPM") to estimate COE and recommend authorized ROE. Each methodology has certain inherent disadvantages that may bring in personal bias that may lead to unreasonable estimates. DCF's main disadvantage revolves around the appropriate estimation of growth rate (an input to the DCF model), and CAPM's main issue is appropriate estimation of market risk premiums ("MRP") (an important input to the CAPM). Because unreasonable inputs to the DCF and CAPM play a major role in producing unreasonable authorized ROEs, it is

[1] Todd Mooney's Direct Testimony, ER-2021-0312, pg. 18.

important that the Commission reject recommendations based upon unreasonable inputs that prejudice COE results.

Q. Please summarize Mr. Reed's estimated COE and resulting recommended authorized ROE.

A. Mr. Reed's COE estimates range from 8.32% to 12.53%.[2] He recommended an authorized ROE of 10.00%, from his estimated COEs.[3] Mr. Reed recommended a range of 9.50% to 10.40% for his authorized ROE.[4] Mr. Reed's COE estimation methodologies include the constant-growth DCF, the multi-stage growth DCF, the CAPM, the bond yield-plus risk premium ("BYPRP") model and the expected earnings analysis model.

Q. Please summarize Mr. Murray's estimated COE and resulting recommended authorized ROE.

A. Mr. Murray's COE estimates range from 6.50% to 7.25%.[5] He recommends an authorized ROE of 9.00%, in a range of 8.50% to 9.25%.[6] It appears that Mr. Murray recommended his authorized ROE based on change in COE from the 2014/2015 period to the 2020 period when the Commission authorized Empire an ROE of 9.25%.[7] Mr. Murray's COE estimation methodologies include the multi-stage DCF and CAPM.

Q. Please summarize Staff's COE estimates and the recommended authorized ROE.

A. Staff's COE estimates range from 6.83% to 9.37%, with a mean of 8.30%.[8] Staff recommended an authorized ROE of 9.50%, within a reasonable range of 9.25% to 9.80%. Staff

[2] John Reed's Direct Testimony, Case No. ER-2021-0312, page 5.
[3] Ibid, page 7.
[4] Ibid.
[5] David Murray's Direct Testimony, Case No. ER-2021-0312, 2.
[6] Ibid.
[7] David Murray's Direct Testimony, Case No. ER-2021-0312, pg. 17.
[8] Staff's Cost of Service Report, Case No. ER-2021-0312, Schedule PC-8-2.

determined its recommended authorized ROE based on change in COE since the Commission authorized Empire an ROE of 9.25%.[9] Staff relied on the constant-growth DCF model for COE estimation. Staff used the CAPM and Bond Yield-Plus Risk Premium model to check the reasonableness of its DCF COE estimates.

The following chart shows each witness' COE estimates and recommended authorized ROE:

Chart 1: COE and ROE Estimates

Witness	COE Range	Recommended Authorized ROE	
		Point Estimate	Range
David Murray	6.50% - 7.25%	9.00%	8.50% - 9.25%
Peter Chari	6.83% - 9.37%	9.50%	9.25% - 9.75%
John Reed	8.32% - 12.53%	10.00%	9.75% - 10.50%

REBUTTAL TO JOHN REED'S COE/ROE TESTIMONY

Q. What disagreements do you have with Mr. Reed?

A. Staff disagrees with Mr. Reed on the following issues:

(1) The use of excessively high inputs to the COE models;

(a) Growth rate used in the DCF model is too high;

(b) The MRP in the CAPM model is too high;

(2) The use of projected risk-free rate in the Bond Yield-Plus Risk Premium;

(3) The use of the expected earnings analysis model and;

(4) The effect of Empire's business risk on recommended ROE.

[9] Report and Order, Case No. ER-2019-0374, issued on July 1, 2020.

(5) The overall level of Mr. Reed's recommended authorized ROE.

Q. Explain your issue with Mr. Reed's use of excessively high inputs.

A. The use of excessively high inputs such as growth rates (in the DCF) and MRP (in the CAPM), has a direct effect of inflating COE estimates and consequently, recommended authorized ROE. As Staff will explain in the following paragraphs, Mr. Reed's use of unreasonable inputs to his COE models led to his unreasonably high recommended authorized ROE of 10.00%.

Q. Explain your disagreements with Mr. Reed's constant-growth DCF growth rates.

A. Mr. Reed used an unreasonably high growth rate in his constant-growth DCF model. Mr. Reed assumes, in his constant-growth DCF model, that his electric proxy group's dividends will grow perpetually, at an average growth rate of 5.71%,[10] a growth rate that is short-term in horizon, and is about 188[11] basis points ("bps") higher than the estimated long-term growth rate for the general economy. Assuming that businesses, much less the utility businesses included in Mr. Reed's electric proxy group, will grow perpetually at the analysts' estimated short-term and often high growth rates is unrealistic. Firstly, the constant-growth DCF assumes a perpetual investment horizon. Analysts' estimated growth rates are valid for growths of five years or less, making them unsuitable for use, exclusively, in the constant-growth DCF. Secondly, assuming that earnings/dividends will perpetually grow at a much higher rate than the general economy (i.e., GDP) runs counter to basic economic principles. "A firm cannot in the long term grow at a rate significantly greater than the growth rate in the economy in which it operates."[12] Dr. Roger A. Morin, in his book *New Regulatory Finance,* posits, "It is useful

[10] Schedule JJR-4 of John Reed's Direct Testimony, Case No. ER-2021-0312.
[11] Average long-term GDP growth rate is 3.88%. 5.71% minus 3.88% = 1.88% (188 bps).
[12] Investment Valuation, by Aswath Damodaran, page 192.

to remember that eventually all company growth rates, especially utility service growth rates, converge to a level consistent with the growth rate of the aggregate economy [GDP growth rate]."[13] Analysts' estimated short-term growth rates are only suitable for use in the constant-growth DCF model when combined with an estimated long-term GDP growth rate. Short-term analysts' growth estimates can be combined with the long-term GDP growth rate forecast at two-thirds analysts' EPS growth rate estimates plus one-third long-term GDP growth rate estimate.[14] Had Mr. Reed combined his analysts' short-term growth rates with a long-term GDP growth rate estimate at, for example, two-thirds analysts' EPS growth rate estimates plus one-third long-term GDP growth rate estimate, his estimated growth rate would have been about 5.08%,[15] which is 63 bps lower than his recommended growth rate of 5.71%. High growth rate estimates in the DCF model have the effect of overestimating COE and, consequently, recommended authorized ROE. Substituting Mr. Reed's constant-growth DCF growth rate (5.71%) with the 5.08% that Staff recalculated, would drop Mr. Reed's constant-growth DCF COE estimate range to 7.69% to 9.91%, from his inflated COE estimate range of 8.32% to 10.54%.[16] Looking at it another way, the lower growth rate estimate can directly reduce Mr. Reed's recommended authorized ROE to 9.37%, from the 10.00% that Mr. Reed recommended.[17] Inflated growth rates in the DCF have a direct impact of producing unreasonably high authorized ROEs and should be rejected.

Q. Explain your disagreements with the growth rates used in Mr. Reed's multistage DCF model.

[13] Roger A. Morin, *New Regulatory Finance* (2006), page 302.
[14] The Federal Energy Regulatory Commission has in the past recommended different approaches to combining the analysts' short-term estimates with the long-term GDP growth estimates.
[15] 5.71%*(2/3)+3.83%*(1/3).
[16] Lower end: 8.32% minus 0.63%. Upper end: 10.54% minus 0.63%.
[17] 10.00% minus 0.63%.

A. The perpetual growth rate, the long-term GDP growth rate estimate, used in Mr. Reed's multistage DCF model is too high and unreasonable. Mr. Reed used a long-term GDP growth rate estimate of 5.49% for the third stage, the perpetual stage; an estimate that is 166 bps higher than normal estimates for long-term GDP growth rates. The Federal Reserve ("Fed") projects a long-term real GDP growth rate of 1.6% to 2.2%.[18] The U.S. Energy Information Administration ("EIA") projects a long-term real GDP growth rate of 2.1%.[19] The Congressional Budget Office ("CBO") projects a nominal GDP growth rate of 3.70%.[20] The average long-term GDP growth rate from these three credible sources is 3.83%, making Mr. Reed's 5.49% GDP long-term GDP growth rate estimate unreasonably too high. Mr. Reed's long-term GDP growth rate was calculated by adding a historical compounded annual real GDP growth rate between 1929 and 2020 of 3.14%, to a long-term annual inflation rate forecast of 2.28%. Mr. Reed's estimation assumes that the GDP will grow at the same rate as historical rate. Many analysts believe that sustained real long-term GDP growth rate will not exceed 2%.[21] An inflation rate of 2.28% estimated by Mr. Reed seems a bit high as well, although Staff is not too concerned about it. Adding 2% long-term GDP growth rate estimate to the 2.28% inflation rate that Mr. Reed estimated yields a long-term nominal GDP growth rate of 4.28%, an estimate that is 128 bps lower than Mr. Reed's estimate.

Q. What would Mr. Reed's multistage DCF COE estimates be if he had used the more reasonable perpetual growth rate of 4.28%?

A. Staff replaced Mr. Reed's perpetual GDP growth rate of 5.49% with Staff's recalculated long-term GDP growth rate estimate of 4.28% and the result is a dramatic decline in

[18] https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20210616.pdf.
[19] https://www.eia.gov/outlooks/aeo/data/browser/#/?id=18-AEO2021&sourcekey=0.
[20] https://www.cbo.gov/system/files/2021-07/57218-Outlook.pdf.
[21] https://www.crfb.org/papers/how-fast-can-america-grow.

Mr. Reed's multistage DCF COE estimates. Mr. Reed's new multistage DCF COE estimates range from 8.30% to 8.72%, instead of 9.30% to 9.91% estimated with unreasonably high growth rate estimates.[22] It is important to note that the 4.28% long-term GDP growth rate estimate is still too high as compared to the more reasonable long-term GDP growth rate estimate of 3.83% that Staff used.

Q. Explain your disagreements with Mr. Reed's MRP values.

A. Mr. Reed's projected (implied) MRP estimates of 10.91% and 11.40%[23] are too high compared to some reputable industry estimates. Aswath Damodaran, a professor of finance at Stern School of Business at New York University and a respected authority on equity valuation,[24] estimates an implied MRP of about 4.61%, as of September 1, 2021.[25] Professor Damodaran also estimates an implied MRP, adjusted for the effects of the coronavirus ("COVID-19"), of 4.70%.[26] Duff and Phelps, a respected financial consultancy firm, currently recommends an MRP of 5.50%, as of December 2020. Staff used an MRP of 5.35%, which is an average of arithmetic and geometric market risk premiums (4.60% to 6.10%) calculated as the difference between long-term total returns (10.3% and 12.2%, for geometric and arithmetic, respectively) on large company stocks and total returns (5.7% and 6.1%, for geometric and arithmetic, respectively) on long-term government bonds.[27] Given that the reasonable MRPs, according to the foregoing evidence, range from 4.60% to 6.10%, Mr. Reed's implied MRPs ranging from 10.91% to 11.40% are too high, inconsistent with industry averages

[22] Please see the workpaper (AdjJJR-5.1 Multi-Stage DCF Mean and AdjJJR-5.2 Multi-Stage DCF Mean).
[23] John Reed's Direct Testimony, Case No. ER-2021-0312, pg. 49.
[24] https://www.bloomberg.com/news/videos/2021-07-16/markets-dangerously-high-given-inflation-aswath-damodaran-video.
[25] https://pages.stern.nyu.edu/~adamodar/.
[26] Ibid.
[27] Duff & Phelps, Cost of Capital Navigator: U.S Cost of Capital Module, page 1.

and, therefore, unreasonable. MRPs that are too high have a direct result of inflating COE/ROE estimates, and it is no wonder why Mr. Reed's authorized ROE recommendations are too high.

Replacing Mr. Reed's unreasonably high MRPs ranging from 10.91% to 11.40% with the upper end, 6.10%, of the reasonable MRP range of 4.60% to 6.10% shows a dramatic decline in the CAPM COE estimates from 12.35% to 12.55%, to 7.68% to 8.17%.

Staff took a closer look at how Mr. Reed calculated his estimated MRP using the constant-growth DFC model and discovered three significant flaws that led to his unreasonably high MRPs. Mr. Reed calculated his MRP as the difference between estimated market return on the S&P 500 index and the risk-free rate.[28] He used three risk free rates, 2.31%% (current 30-day average of 30-year U.S. Treasury bond as of March 31, 2021), 2.60% (near-term projected 30-year U.S. Treasury bond yield for years 2021 to 2022) and 2.80% (another projected 30-year U.S. Treasury bond yield for years 2022 to 2026). Mr. Reed included some companies from the S&P 500 Index that do not pay dividends or did not have dividend yield information in his constant-growth DCF model. The constant-growth DCF model assumes dividend payment, which means that companies that do not pay dividends or do not have dividend information cannot be used in the constant-growth DCF model.[29] Staff found 115 companies, including Alphabet, Inc., Facebook, and Netflix that do not pay dividends or did not have dividend yield information, but are nonetheless included in Mr. Reed's S&P 500 group of companies used to estimate the expected market return.[30] Recalculating the constant-growth DCF market return, adjusting for this significant flaw, changes Mr. Reed's estimated market return from 13.71% to 9.10%.[31] Using the

[28] John Reed's Direct Testimony, Case No. ER-2021-0312, page 49.
[29] https://www.investopedia.com/terms/d/ddm.asp and https://www.ferc.gov/sites/default/files/2020-06/EL14-12-004_1.pdf, page 5.
[30] See Chari's Workpapers.
[31] Chari's Workpapers.

9.10% expected market return changes Mr. Reed's MRP and COE estimates as shown in the chart below:

Chart 2[32]

	CAPM	
	Unadjusted	**Adjusted**
Expected Market Return	13.71%	9.10%
MRP	10.91% - 11.40%	6.30% - 6.79%
Mean COE Estimate	12.38% - 12.55%	8.29% - 8.43%

Notice that if Mr. Reed had calculated his MRPs the correct way, his CAPM COE estimates would range from 8.29% to 8.43%, not 12.38% to 12.55%. The unreasonable MRPs used in Mr. Reed's CAPM clearly led to overestimation of his COE and, subsequently, his recommended authorized ROE.

Q. Has any utility regulatory commission ruled on the proper way of estimating total market return using the constant-growth growth DCF?

A. Yes. FERC, in Opinion 569, reaffirmed its position that only dividend-paying companies are to be included in the constant-growth DCF ex-ante MRP method, noting that DCF analysis can only be performed on companies that pay dividends.[33]

Q. How does the recalculated expected market return compare with historical market return?

A. The recalculated expected market return of 9.10% is close to the historical market return estimates. The average market return since 1928, calculated as the geometric mean of returns

[32] Chari's Rebuttal Workpapers.
[33] FERC Opinion 569 page 126.

on the S&P 500, is 9.79%.[34] Between 1926 and 2020, the geometric mean return on large cap stocks as calculated by Ibottson's Stock, Bonds, Bills and Inflation ("SBBI") is about 10.30%.[35] Considering that the market returns that Staff cited do not exceed the long-term historical market return of 10.30%, Mr. Reed's expected market return of 13.71% is not reasonable.

Q. What disagreements do you have with Mr. Reed's Bond Yield-Plus Risk Premium analysis ("BYPRP")?

A. Staff disagrees with Mr. Reed's use of projected risk-free rates in his BYPRP model. Mr. Reed used two projected risk-free rates, 2.60% and 2.80%, in addition to 30-day average of 30-year U.S Treasury bond yield as of March 31, 2021.[36] It is Staff's position that projecting interest rates has been proven to be very difficult,[37] which renders the use of projected risk-free rates unreliable. Mr. Reed's use of a projected risk-free rate should be rejected because it introduces unnecessary speculation in ratemaking. Mr. Reed estimated two COEs, 9.80% and 9.88%, using the projected risk-free rates of 2.60% and 2.80%, respectively. Ignoring the COEs estimated using the projected risk-free rates leaves a reasonable BYPRP COE estimate of 9.67%.[38]

Q. What disagreements do you have with Mr. Reed's Expected Earnings Analysis?

A. Expected earnings analysis is not a market-based model. Appropriate COE models for estimation of a recommended authorized ROE should be based on the market, not on the book value of an enterprise or utility. Mr. Reed's expected earnings analysis relied on the expected book

[34] Estimated by Aswath Damodaran.
[35] https://costofcapital.duffandphelps.com/4c1d9b5e-92d5-4b42-b1c7-ce153467cbb0.
[36] John Reed's Direct Testimony, ER-2021-0312, pg. 53.
[37] https://www.frbsf.org/economic-research/publications/economic-letter/2017/july/bridging-gap-forecasting-interest-rates-with-macroeconomic-trends/.
[38] John Reed's Direct Testimony, Case No. ER-2021-0312, pg. 53.

value ROEs of his electric proxy group as a proxy for what investors would require for their investment in the Empire. In a determination in FERC Opinion 569 and 569-A, FERC found that expected earnings models rely on an enterprise's book value instead of the market value, in violation of the *Hope* ruling. *Hope* ruled that the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks.[39] The FERC added in its explanation rejecting the expected earnings model that, "[T]he return on book value is not indicative of what return an investor requires to invest in the utility's equity or what return an investor receives on the equity investment, because those returns are determined with respect to the current market price that an investor must pay in order to invest in the equity."[40] Because the expected earnings model is not market-based, Staff recommends that the Commission not consider the COE estimate, 10.47%,[41] associated with the expected earnings model.

Q. What does Staff have to say about Mr. Reed's position that Empire's authorized ROE should be set above that of its proxy group because of its elevated business risk?[42]

A. Staff rejects Mr. Reed's position as baseless. Mr. Reed cites the small size of Empire relative to the proxy-group, Empire's higher capital expenditures relative to the proxy group, and regulatory risks as factors that elevate Empire's business risk relative to the proxy group. While Staff acknowledges that Empire is smaller, in terms of implied market capitalization, than the average size of the proxy group, it would be naïve to ignore the fact that Empire is not viewed on the market as a standalone company. Empire is viewed as part of the larger Algonquin

[39] Hope, 320 U.S. at 603. Also quoted in FERC Opinion 569-A: https://www.ferc.gov/sites/default/files/2020-06/EL14-12-004_1.pdf, pg. 51.
[40] Ibid.
[41] John Reed's Direct Testimony, Case No. ER-2021-0312, pg. 55.
[42] Ms. Bulkley's Direct Testimony, Case No. ER-2021-0240, pg. 59.

Power and Utility Corp. ("APUC") family. APUC has a market capitalization of about $9.6 billion, which puts it at number nine out of eighteen in the proxy group.[43]

While Empire's capital expenditures ratio (81.5 percent) relative to its net utility plant is high, it does not mean that Empire faces higher risk of under recovery than the proxy group to warrant higher authorized ROE. Empire, like other utilities in Missouri, benefits from an improved regulatory environment. Empire elected to use Plant in Service Accounting ("PISA"), which allows electric utilities in Missouri to defer from future recovery 85 percent of their depreciation expense and return from plant and equipment placed in the service between rate cases. The topic of Empire's business risk is also addressed in the rebuttal testimony of Staff witness Kimberly K. Bolin.

Q. How does Mr. Reed's recommended authorized ROE compare to the nationally authorized ROEs?

A. Mr. Reed's recommended authorized ROE of 10.00% is too high compared to the average of nationally authorized ROEs. A recommended authorized ROE of 10.00% is 53 bps higher than the national average of the fully-litigated, vertically-integrated electric rate cases in the last twelve-months ending October 31, 2021.[44] Considering the vertically-integrated electric cases that were decided by settlement decision in the last twelve months ending October 31, 2021, the average was 9.66%; which is 34 bps lower than Mr. Reed's recommendation.[45] The national average of the combined rate cases (fully-litigated and settled cases) in the last twelve months ending October 31, 2021, is 9.64%, which means that Mr. Reed's recommended authorized ROE is

[43] https://www.capitaliq.spglobal.com/web/client?auth=inherit#company/profile?id=4142273.
[44] 9.47% is the national average of 9 fully-litigated, vertically integrated electric cases in the last 12-months ending October 31, 2021, reported by the Regulatory Research Authority (RRA).
[45] The average authorized ROE for 13 settled vertically-integrated electric cases in the last 12 months ending October 31, 2021, was 9.66%. 10.00% minus 9.66%.

36 bps higher than the average of all the vertically-integrated rate cases, settled and fully-litigated. Any way one looks at Mr. Reed's recommended authorized ROE, it is too high. In order for Empire to earn a fair return it is important that it is authorized an ROE that is comparable to other utilities, not too high or too low.

REBUTTAL TO DAVID MURRAY'S ROE TESTIMONY

Q. Please explain your disagreement with Mr. Murray's recommended authorized ROE.

A. Mr. Murray's recommended authorized ROE of 9.00% is too low for Empire's electric operations and is not supported by the evidence, as COE increased since the period the Commission authorized Empire an ROE of 9.25%. A recommended authorized ROE of 9.00% is about 47 bps lower than the 12-month national average ending October 31, 2021, authorized ROE of 9.47% for vertically-integrated electric utilities.[46] Combining the average of authorized ROEs for fully-litigated and settled vertically-integrated electric utility cases, Mr. Murray's recommended authorized ROE is 66 basis points lower.[47] As Staff stated in the Direct Testimony, COE increased since the Commission authorized an ROE of 9.25% for Empire, which even Mr. Murray acknowledges in his Direct Testimony.[48] Since evidence shows that COE increased since the period that the Commission authorized Empire an ROE of 9.25%, it only makes sense that Empire's authorized ROE should be increased above 9.25%, not decreased below 9.25%.

[46] 9.47% is the average of 9 fully-litigated electric cases, as of October 31, 2021, reported by the Regulatory Research Authority ("RRA").
[47] The average for both fully litigated and settled electric cases in the 12-month ending October 31, 2021 is 9.66%, as reported by the RRA.
[48] David Murray's Direct Testimony, Case No. ER-2021-0312, page 2, lines 17 to 20.

Q. Please explain how Mr. Murray's analysis shows that COE increased since the Commission authorized Empire an ROE of 9.25%.

A. Staff compared Mr. Murray's COE estimates for the Empire rate case, No, ER-2019-0374, in 2019/2020, to the COE estimates in the current rate case and found that Mr. Murray's analysis shows that COE increased by up to 49 bps, as will be explained here. Mr. Murray's multi-stage DCF COE estimate in the current rate case is an average of 7.39%, compared to an average of 7.22% that Mr. Murray estimated in the Empire rate case, an increase in COE of 17 bps.[49] Staff refined Mr. Murray's proxy group to exclude PG&E, because PG&E was going through bankruptcy at the time Mr. Murray presented testimony in the Empire rate case.[50] Staff removed PG&E from both the proxy group that Mr. Murray used for Empire's analysis and the proxy group in the current rate case and found that COE increased by up to 53 bps.[51] It is important to note that an increase in COE of up 53 bps is in line with Staff's analysis, which shows that COE increased by up to 42 bps.[52] It is therefore problematic that Mr. Murray would recommend an authorized ROE that is not only too low as compared to the national average but also an authorized ROE that is lower than that the Commission authorized Empire in 2020.

CAPITAL STRUCTURE

REBUTTAL TO TODD MOONEY'S CAPITAL STRUCTURE RECOMMENDATION

Q. Does Staff have any major concerns with Mr. Mooney's recommended capital structure?

[49] David Murray's Direct Testimony, Case No. ER-2021-0312, Schedule DM-D-4-1 and Schedule dm-d-6.
[50] https://www.nytimes.com/2020/07/01/business/energy-environment/pge-bankruptcy-ends.html#:~:text=PG%26E%20sought%20bankruptcy%20protection%20in,destroyed%20the%20town%20of%20Paradise.
[51] See Staff's adjustments of Mr. Murray's schedules DM-D-3-1, labeled Murray 2021 DCF (Case No. ER-2021-0312) and dm-d-6, labeled Murray 2019 DCF (Case No. ER-2019-0374).
[52] Staff's Cost of Service Report, ER-2021-0312, page 8, line 21.

A. No. Staff accepted Mr. Mooney's recommended pro forma capital structure as of March 31, 2021. Staff will update its capital structure recommendation as the Company updates its data through the end of the update period. In Staff's Cost of Service Report, Staff incorrectly stated that Mr. Mooney's recommended pro forma capital structure was stated as of September 30, 2021.

REBUTTAL TO DAVID MURRAY'S CAPITAL STRUCTURE RECOMMENDATION

Q. Please explain your disagreement with Mr. Murray's recommended capital structure.

A. Mr. Murray's recommended capital structure for use in setting Empire's ROR in this proceeding does not properly consider the merger conditions 4 and 5 that the Commission ordered in its Report and Order in Case No. EM-2016-0213, where it approved APUC's acquisition of Empire. The merger conditions require Empire to provide evidence that its per books capital structure is the most economical among the capital structures of the entities on which Empire relies for financing. Mr. Murray recommended LUCo's, Empire's immediate parent company, capital structure that consists of 47.5% common equity and 52.5% long-term debt for use in setting Empire's ROR in this proceeding. In justifying recommending LUCo's capital structure for use in setting Empire's ROR in this proceeding, Mr. Murray stated that his recommended capital structure "is generally consistent with the mix of capital that Empire's immediate parent, LUCo, maintained over the test period in this period in this case (October 1, 2019 through September 30, 2020)".[53]

Q. Why is LUCo's capital structure not appropriate for Empire's ratemaking in this proceeding?

[53] David Murray's Direct Testimony, ER-2021-0312, pg. 4.

A. LUCo's capital structure is inappropriate for setting Empire's ROR in this proceeding for two reasons. Firstly, the capital structure that Mr. Murray is recommending is outdated – Mr. Murray is recommending a capital structure that LUCo maintained in the period between October 1, 2019, and September 30, 2020. Empire has made some investments in its rate base, which include the Wind Projects investments, since September 30, 2020. Secondly, Mr. Murray did not properly consider the merger conditions ordered by the Commission in the merger case. The merger conditions require Empire to compare its capital structure to the capital structures of the entities, APUC and LUCo, on which it relies for financing to determine which capital structure is the most economical. In the last Empire rate case (No. ER-2019-0374), Mr. Murray compared the capital structures of Empire, LUCo and APUC when he determined, based on equity ratio size, that LUCo's capital structure was the most economical. In the current rate, Mr. Murray decided to use a different approach and insists that he still considered the merger conditions.

Q. What approach did Mr. Murray use in this proceeding to determine which capital structure is the most economical among APUC's, LUCo's, and Empire's capital structures?

A. In arguing that his recommended capital structure considers the merger conditions of the Case No. EM-2016-0213, Mr. Murray stated that, "Because my recommended capital structure and associated capital costs are based on a capital structure evaluated and invested in by third-party debt investors, my recommended authorized ROR protects against any potential affiliate financing transaction abuses as it relates to setting a market-based ROR derived from arms-length transactions". Mr. Murray seems to imply that since LUCo's capital structure was "evaluated and invested in by third-party" debt investors, that makes it more economical. Empire's capital structure is also largely based on a capital structure evaluated and invested in by third-party

debt investors. Except for about $515 million (44%) in affiliate long-term debt in Empire's capital structure, Empire's capital structure and the associated capital costs are also based on a capital structure evaluated and invested in by third-party debt investors.[54] It is Staff's position that the correct approach to determine the most economical capital structure is to compare Empire's capital structure to the entities that Empire relies on for its financing.

Q. What capital structures did Staff consider for comparison to determine the economical capital structure for ratemaking purpose in this proceeding?

A. The following table shows the pro forma capital structures of APUC, LUCo, and Empire as of March 31, 2021:

Chart 3

	Empire	LUCo	APUC
Long-term Debt	**47.56%**	**47.21%**	**40.30%**
Preferred Stock	**0.00%**	**0.00%**	**0.79%**
Redeemable Non-Controlling Interest held by Related Party		0.32%	2.64%
Redeemable Non-Controlling Interest			0.18%
Common Stock	**52.44%**	**52.47%**	**56.10%**
Total	100%	100%	100%

As can be seen, Empire's capital structure has the lowest equity ratio, hence the most economical capital structure.

COST OF DEBT

Q. Do you agree with Mr. Reed's recommended cost of debt for Empire?

A. Yes. Staff agrees with Mr. Reed's recommended cost of debt of 3.76% as of March 31, 2021.

[54] Empire received $90 million and $425 million in affiliate long-term debt to retire mortgage debt and for wind projects, respectively.

Q. Do you agree with Mr. Murray's proposed cost of debt for Empire?

A. No. Staff disagrees with Mr. Murray's recommended cost of debt of 4.09% for Empire's ratemaking in this proceeding. Mr. Murray's recommended cost of debt is LUCo's cost of debt as of September 30, 2020. Mr. Murray recommended LUCo's cost of debt for Empire's ratemaking purpose for the same reason he recommended LUCo's capital structure – because "it is based on third-party debt issuance".[55]

SUMMARY AND CONCLUSIONS

Q. What should the Commission consider in deciding the reasonable ROE and capital structure for setting Empire's ROR?

A. Staff recommends the Commission reject Mr. Reed's unreasonably high inputs to the DCF and CAPM models. Staff recommends the Commission reject Mr. Murray's unreasonably low ROE recommendation because it is inconsistent with the evidence that cost of equity has increased. Considering the reasonable inputs into Staff's COE estimation models, the apparent evidence that COE increased since the Commission authorized Empire an ROE of 9.25% in Empire's last rate case, and the moderating market risk since the beginning of the pandemic, provide sufficient support for an authorized ROE of 9.50% for Empire in this proceeding. In respect to capital structure, Staff recommends the Commission consider Empire's pro forma capital structure as of March 31, 2021, to be the most economical and, therefore, the appropriate capital structure for ratemaking in this proceeding.

Q. Does this conclude your rebuttal testimony?

A. Yes.

[55] David Murray's Direct Testimony, Case No. ER-2021-0312, pg. 16.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Request of The Empire District Electric Company d/b/a Liberty for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in its Missouri Service Area	)))))	Case No. ER-2021-0312

AFFIDAVIT OF PETER CHARI

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW PETER CHARI and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Rebuttal Testimony of Peter Chari*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

PETER CHARI

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 15th day of December, 2021.

Notary Public

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2023
Commission Number: 15207377