*Exhibit No.:*
*Issue(s):* *Rate of Return*
*Witness:* *Peter Chari*
*Sponsoring Party:* *MoPSC Staff*
*Type of Exhibit:* *Rebuttal Testimony*
*Case No.:* *ER-2019-0374*
*Date Testimony Prepared:* *March 3, 2020*

# MISSOURI PUBLIC SERVICE COMMISSION

## FINANCIAL AND BUSINESS ANALYSIS DIVISION

## FINANCIAL ANALYSIS DEPARTMENT

## REBUTTAL 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 prepared the Rate of Return Section of Staff's Cost of Service Report?

A. Yes.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to respond to the direct testimonies of Robert B. Hevert (Mr. Hevert) and David Murray (Mr. Murray). Mr. Hevert sponsored rate of return ("ROR") testimony on behalf of The Empire District Electric Company ("Empire"). Mr. Murray sponsored 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 disagreements do you have with Mr. Hevert and Mr. Murray?

A. Staff disagrees with Mr. Hevert's authorized return on equity ("ROE") recommendation. Staff will address Mr. Hevert's cost of equity ("COE") and ROE analysis, with particular focus on inputs to his models for estimating the COE.

Staff disagrees with Mr. Murray's recommended capital structure and cost of debt. Staff finds the reasons for Mr. Murray's choice of his recommended capital structure faulty and

so will address this in more detail. Staff will briefly address Mr. Murray's recommended cost of debt.

**COST OF EQUITY ESTIMATES**

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

A. Commissions, including the Federal Energy Regulatory Commission ("FERC"), commonly use Discounted Cash Flow Models ("DCF"), Capital Asset Pricing Models ("CAPM"), risk premium models, and comparative earnings analyses for this purpose. Each methodology has certain inherent disadvantages that may bring in personal bias that lead to unreasonable estimates. DCF's main disadvantage revolves around estimation of growth rate, and CAPM's main issue of concern is estimation of market risk premiums ("MRP"). Recently, FERC ruled that expected earnings model does not satisfy the requirements of the *Hope* case[1] and therefore decided not to rely on that approach anymore.[2] At the same time, FERC ruled risk premium models less reliable than the DCF and CAPM models[3] and so decided to also stop relying on them for COE estimation. In light of the aforementioned disadvantages inherent in the COE estimation methodologies, it is important that the Commission reject unreasonable inputs that prejudice COE results. The following chart shows each witness's high/low ranges of COE methodology and results:

[1] In Hope, the Supreme Court explained that "the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks.
[2] FERC Opinion 569, page 117, line 200.
[3] FERC Opinion 569, pages 165 and 166, line 340.

| Low/High Average COE Estimates Summary | | | | |
|---|---|---|---|---|
| | Chari | Hevert | Murray | Average |
| **DCF** | | | | |
| Low | 7.34% | 8.09% | N/A | 7.72% |
| High | 8.14% | 10.04% | N/A | 9.09% |
| Average | 7.74% | 9.07% | N/A | 8.40% |
| **Multi-Stage DCF** | | | | |
| Low | N/A | N/A | 6.50% | 6.50% |
| High | N/A | N/A | 6.75% | 6.75% |
| Average | N/A | N/A | 6.63% | 6.63% |
| **CAPM** | | | | |
| Low | 4.63% | 8.66% | 5.35% | 6.21% |
| High | 5.43% | 9.76% | 6.10% | 7.10% |
| Average | 5.03% | 9.21% | 5.73% | 6.66% |
| **ECAPM** | | | | |
| Low | N/A | 10.19% | N/A | 10.19% |
| High | N/A | 11.05% | N/A | 11.05% |
| Average | N/A | 10.62% | N/A | 10.62% |
| **Risk Premium** | | | | |
| Low | N/A | 9.90% | N/A | 9.90% |
| High | N/A | 10.06% | N/A | 10.06% |
| Average | N/A | 9.98% | N/A | 9.98% |
| Witness Average | 6.39% | 9.72% | 6.18% | 7.43% |
| Witness Recommended Range | 9.05% - 9.80% | 9.80% - 10.60% | 8.05% - 9.25% | |
| **Witness Point Recommendation** | **9.25%** | **9.95%** | **9.25%** | |

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

A. Mr. Murray's COE estimates range from 5.35% to 6.75%. He recommends an authorized ROE of 9.25%, which is at the upper end of his recommended range of 8.50% to 9.25%. Mr. Murray's methodologies include the multi-stage DCF and the CAPM. Mr. Murray also presents a Bond Plus Risk Premium method as a test of reasonableness. Mr. Murray differentiates between COE and authorized ROE.

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

A. Mr. Hevert's COE estimates range from 8.09% to 11.05%. He recommends an authorized ROE of 9.95%, which is close to the lower end of his recommended range of 9.80% to 10.60%. Mr. Hevert's methodologies include the constant growth DCF, the CAPM, the empirical capital asset pricing model ("ECAPM") and a Bond Plus Risk Premium model. Mr. Hevert also presents an Expected Earnings analysis as a corroborating method. Mr. Hevert does not differentiate between estimated COE and authorized ROE.

Q. What models did Staff rely on for COE estimation and authorized ROE recommendation?

A. Staff relied on constant-growth DCF and CAPM models for COE estimation and authorized ROE recommendation.

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

A. Staff's disagreements with Mr. Hevert include (1) Mr. Hevert's insistence that COE and authorized ROE are the same; (2) Mr. Hevert's recommended authorized ROE; (3) the growth rate Mr. Hevert uses in his DCF model; and (4) MRP Mr. Hevert uses in his CAPM and ECAPM models.

Q. Please explain your disagreements with Mr. Hevert's insistence that COE and authorized ROE are the same[4].

A. Mr. Hevert's insistence that COE and authorized ROE are the same runs contrary to widespread evidence that the two can be quite different. COE is a market-based minimum return that investors require in order to invest in a company. Authorized ROE is a

[4] Hevert's Testimony, page 2, lines 9 and 10.

Commission-determined return awarded to utility companies affording them the opportunity to earn fair and reasonable compensation for equity capital employed in the provision of utility services. An authorized ROE is not the same as the COE and commissions recognize this fact in orders when they rule that an authorized ROE is not a guarantee, but an opportunity to earn a fair return.

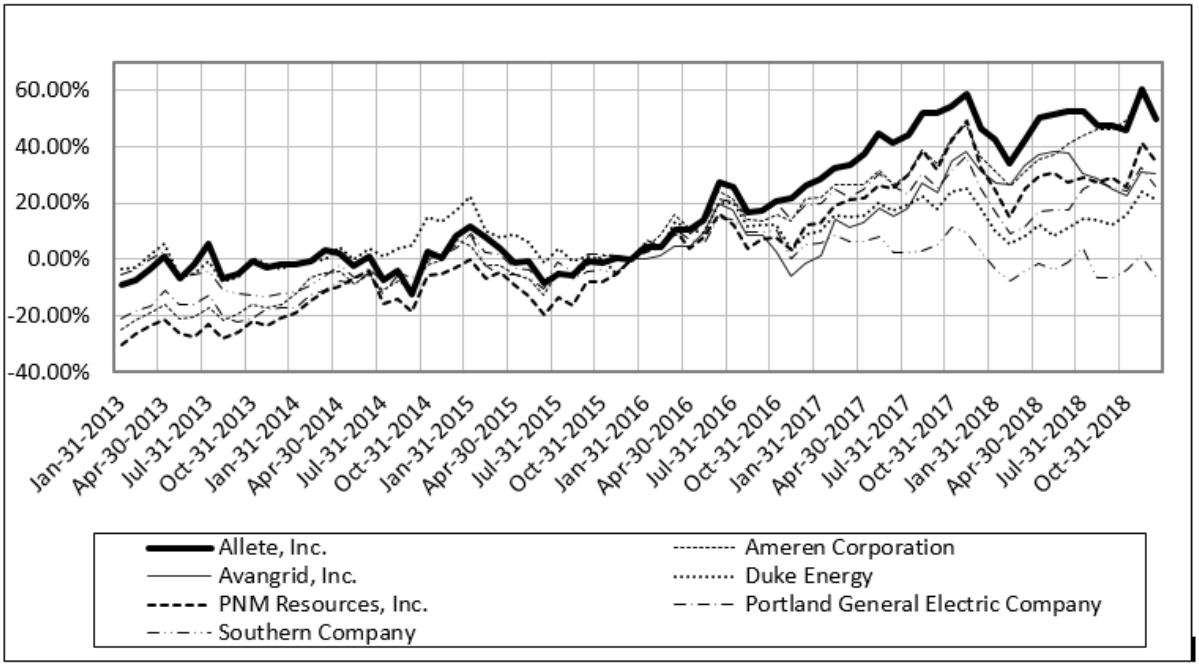
If COE and authorized ROE were the same, companies consistently failing to earn investors' required return would have a difficult time attracting capital. As a result, their stock prices would necessarily fall. Taking a closer look at Mr. Hevert's electric proxy group reveals that several companies have consistently earned returns below national average authorized ROEs and still their stock prices rose. The first of the two charts below show seven companies in Mr. Hevert's proxy group that earned return on equity lower than authorized ROE between 2013 and 2018. The second chart shows price appreciation for same companies in the same period:

**Earned Return on Common stock for Mr. Hevert's Proxy Group**

| Company | FY2013 | FY2014 | FY2015 | FY2016 | FY2017 | FY2018 | Average |
|---|---|---|---|---|---|---|---|
| ALLETE, Inc. | 8.23 | 8.50 | 8.24 | 8.39 | 8.69 | 8.24 | 8.38 |
| Ameren Corporation | 7.70 | 8.76 | 8.39 | 9.20 | 7.26 | 10.88 | 8.70 |
| Avangrid, Inc. | -0.63 | 3.46 | 1.98 | 4.18 | 2.52 | 3.92 | 2.57 |
| Duke Energy Corporation | 6.28 | 6.17 | 6.58 | 6.38 | 7.42 | 6.14 | 6.49 |
| PNM Resources, Inc. | 6.64 | 7.31 | 1.72 | 7.52 | 5.38 | 5.70 | 5.71 |
| Portland General Electric Company | 5.86 | 9.33 | 8.25 | 8.39 | 7.86 | 8.61 | 8.05 |
| Southern Company | 8.32 | 9.47 | 10.95 | 10.13 | 3.37 | 8.28 | 8.42 |

**Commission Authorized ROEs for all Electric Rate Cases in the U.S.A. between 2013 and 2018**

| | FY2013 | FY2014 | FY2015 | FY2016 | FY2017 | FY2018 | Average |
|---|---|---|---|---|---|---|---|
| Average | 9.94 | 9.91 | 9.03 | 9.71 | 9.69 | 9.52 | 9.63 |
| High | 12.40 | 12.00 | 12.00 | 11.60 | 11.95 | 10.20 | 11.69 |
| Low | 8.72 | 9.17 | 9.00 | 8.64 | 8.40 | 8.58 | 8.75 |




The seven companies' stock prices increased an average of 50.53% in the six-year period, despite having earned ROEs lower than the average authorized ROE. If a company continuously earned an ROE lower than its COE, it is unlikely that investors would remain confident in the company's ability to provide investors' required return. This lack of confidence would lead to investors reducing their investment in said company, reducing the company's stock price. Although the above companies' earned ROEs were lower than their authorized ROEs, their stock prices continued rising. This provides empirical evidence that the COE and the authorized ROE are different, contrary to Mr. Hevert's position that the two are the same.

Q. Explain your disagreements with Mr. Hevert's recommended authorized ROE.

A. Mr. Hevert's recommended authorized ROE of 9.95% is too high. An authorized ROE of 9.95% is 56 basis points ("bps") higher than the 2019 national average authorized

ROE of 9.39%.[5] There were six fully litigated vertically integrated electric cases in the U.S.A. in 2019, of which five utilities were authorized 9.50% or less, and one was authorized 10.00%. Even the one case, involving DTE Electric Co., which was awarded a 10.00% authorized ROE was unique; the utility was authorized a capital structure with a far lower common equity ratio than the other five cases.[6] It is therefore, implausible for Mr. Hevert to recommend such a high authorized ROE for Empire.

Q. Explain your disagreements with Mr. Hevert's DCF growth rate.

A. Mr. Hevert assumes, in his constant growth DCF model, that his electric proxy group's dividends will grow perpetually, at an average of 5.80%, a growth rate that is about 170 bps[7] higher than the estimated long-term growth rate for the general economy. Assuming that utilities will grow at a higher rate than the overall economy is unrealistic, because it runs counter to basic economic principles: in the long run, companies will grow at a rate consistent with the long-term growth rate of the overall economy. Dr. Roger A. Morin ("Dr. Morin"), in his book *New Regulatory Finance* posits, "It is useful 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]." (Roger A. Morin, New Regulatory Finance, page 302). Mr. Hevert also uses his analysts' growth rate inappropriately. Analysts' growth estimates have a short-term projection horizon of between one to five years. The constant growth DCF model assumes a long-term growth rate, which means that analysts' growth forecasts are unsuitable for exclusive use in the constant growth DCF model. FERC, in

[5] Simple average of awarded authorized ROEs for vertically integrated electric utilities as reported by Regulatory Research Associates (RRA).
[6] DTE Electric Co. was authorized a capital structure with 37.94% common equity. The other five companies were authorized common equity ratios ranging from 49.46% to 53.00%.
[7] Long-term GDP growth rate estimate is about 4.1%, nominally.

Opinion 569 acknowledged the unsuitability of exclusive use of analysts' growth forecasts in the constant growth DCF, "[T]he Commission's current policy is to require the DCF analysis of an individual company to include a projection of the long-term growth in dividends based on the growth in gross domestic product (GDP)." (FERC Opinion 569, line 135). FERC requires that analysts' growth estimates be given two-thirds weight and long-term GDP growth rate, one-third weight when calculating the growth rate for use in the constant-growth DCF.[8] Mr. Hevert simply takes analysts' growth forecasts and plugs them into his constant growth DCF model without long-term growth consideration. Analysts' growth forecasts are simply inappropriate for exclusive use in the constant-growth DCF.

Q. What do you have to say about Mr. Hevert's cited research on superiority of analysts' growth forecasts to justify their exclusive use in the constant-growth DC?

A. Mr. Hevert fails to acknowledge that the cited research does not address the suitability of analysts' growth estimates exclusively for use in the constant-growth DCF model. Mr. Hevert cites research by Cragg and Malkiel.[9] Indeed, several researchers support the superiority of analysts' growth forecasts, but these researches are mute on the applicability of such estimates in the constant-growth DCF model.[10] As Staff already mentioned above, exclusive use of analysts' growth forecasts in the constant growth DCF is unsuitable and Mr. Hevert fails to offer any research to support his exclusive use of analysts' growth forecasts in the constant-growth DCF.

[8] https://www.ferc.gov/whats-new/comm-meet/2019/112119/E-11.pdf, paragraph 134.
[9] Hevert Testimony, page 50.
[10] Brown and Rozeff, "The Superiority of Analysts Forecasts as Measures of Expectations", Stanley, Lewellen, and Schlarbaum (SLS), "Further Evidence on the Value of Professional Investment Research", Touche Ross and Company, "Proxy Disclosures and Stockholder Attitudes Survey."

Q. Explain your disagreements with Mr. Hevert's MRPs.

A. Mr. Hevert's ex-ante (forecasted) MRPs of 12.15% and 12.25% are too high compared to Staff's and Mr. Murray's MRP estimates, as well as estimates from industry professionals. For example, Aswath Damodaran[11], estimated MRPs in the range 5.36% to 5.96% between the months of January and June 2019.[12] Dr. Morin in his Regulatory Finance book estimates that reasonable average MRPs for the U.S. range from 5% to 8%.[13]. Duff and Phelps' estimates are 4.50% (geometric) and 6.00% (arithmetic).[14] Staff took a closer look at how Mr. Hevert calculated his constant growth DCF forward-looking MRPs and discovered a significant flaw that led to his unreasonably high MRPs. The principal flaw in Mr. Hevert's MRP is that he included companies that do not pay dividends. The constant growth DCF model assumes dividend payment. Staff discovered 84 companies that do not pay dividends within the S&P 500 company list that Mr. Hevert used to develop his recommendation. This flaw inflated Mr. Hevert's MRPs. Correcting for Mr. Hevert's MRP calculations, according to Staff's suggestions, leads to lower MRPs and COE estimates as shown in the following chart (reproduced from Mr. Hevert's RBH-D4 CAPM schedule):

*continued on next page*

[11] Aswath Damodaran is a professor of finance at Stern School of Business at New York University.
[12] http://pages.stern.nyu.edu/~adamodar/.
[13] Morin, New Regulatory Finance, page 163.
[14] Duff & Phelps Valuation Handbook, 2019.

Capital Asset Pricing Model Results
Bloomberg, and Value Line Derived Market Risk Premium

| | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] |
|---|---|---|---|---|---|---|---|---|
| | | | Ex-Ante Market Risk Premium | | CAPM Result | | ECAPM Result | |
| | Risk-Free Rate | Average Beta Coefficient | Bloomberg Market DCF Derived | Value Line Market DCF Derived | Bloomberg MRP | Value Line MRP | Bloomberg Market DCF Derived | Value Line Market DCF Derived |
| PROXY GROUP AVERAGE BLOOMBERG BETA COEFFICIENT | | | | | | | | |
| Current 30-Year Treasury [9] | 2.63% | 0.496 | 6.83% | 8.50% | 6.02% | 6.85% | 6.88% | 7.92% |
| Near-Term Projected 30-Year Treasury [10] | 2.70% | 0.496 | 6.83% | 8.50% | 6.09% | 6.92% | 6.95% | 7.99% |
| Mean | | | | | 6.05% | 6.88% | 6.91% | 7.95% |

| | | | Ex-Ante Market Risk Premium | | CAPM Result | | ECAPM Result | |
|---|---|---|---|---|---|---|---|---|
| | Risk-Free Rate | Average Beta Coefficient | Bloomberg Market DCF Derived | Value Line Market DCF Derived | Bloomberg MRP | Value Line MRP | Bloomberg Market DCF Derived | Value Line Market DCF Derived |
| PROXY GROUP AVERAGE VALUE LINE AVERAGE BETA COEFFICIENT | | | | | | | | |
| Current 30-Year Treasury [9] | 2.63% | 0.576 | 6.83% | 8.50% | 6.56% | 7.53% | 7.29% | 8.43% |
| Near-Term Projected 30-Year Treasury [10] | 2.70% | 0.576 | 6.83% | 8.50% | 6.63% | 7.60% | 7.36% | 8.50% |
| Mean | | | | | 6.60% | 7.56% | 7.32% | 8.46% |

Notice that if Mr. Hevert had calculated his MRPs the correct way, his CAPM COE estimates would range from 6.02% to 7.60%, not 8.66% to 9.76%. His ECAPM COE estimates would range from 6.88% to 8.50%, not 10.19% to 11.05%. Also, notice that these new CAPM/ECAPM COE estimates are at least 145 bps lower than Mr. Hevert's recommended authorized ROE/COE.

Q. Has any Commission ruled on what companies to include in the constant growth DCF ex-ante MRP calculation?

A. Yes. FERC, in Opinion 569 reaffirmed its position that only dividend paying companies are to be used in the constant growth DCF ex-ante MRP method, noting that DCF analysis can only be performed on companies that pay dividends[15].

[15] https://www.ferc.gov/whats-new/comm-meet/2019/112119/E-11.pdf, page 126.

Q. What issues do you have with Mr. Hevert's ECAPM?

A. Mr. Hevert uses the same flawed ex-ante MRPs in his ECAPM that he used in the CAPM model, resulting in an inflated COE estimate. Furthermore, Mr. Hevert's purported ECAPM calculation simply inputs numbers into Dr. Morin's ECAPM formula that Dr. Morin derived using market data from the period between 1926 and 1984.[16] Dr. Morin's finding was based on his finding that regular CAPM underestimated returns by about 2.00%. However, Dr. Morin also cited other studies that found that the CAPM alpha of returns were between -9.61% and 13.56%, meaning that the CAPM actually overestimated returns in some instances[17]. Such variations in findings do not lend credibility to Mr. Hevert's use of the ECAPM.

Q. What issues do you have with Mr. Hevert's Bond Yield Plus Risk Premium?

A. Staff disagrees with the use of past-authorized ROEs in the calculation of the risk premium used in Mr. Hevert's Risk Premium method because past-authorized ROEs are not market-based, and their use introduces circularity into ratemaking. Even FERC disagreed with the use of past-authorized ROEs when it ruled that the risk premium method is less likely to provide an accurate COE than the DCF or CAPM methods because "it relies on previous ROE determinations, whose resulting ROE may not necessarily be directly determined by a market-based method."[18]

In rejecting the use of risk premium models, FERC concluded that the additional robustness that the Risk Premium model adds to the ROE determination is outweighed by the

[16] Morin, New Regulatory Finance, page 190.
[17] Morin, New Regulatory Finance, page 190.
[18] FERC Opinion No. 569, paragraph 340.

disadvantages of its deficiencies. In light of this ruling by FERC, Staff sees no value in using the risk premium method to estimate COE.

Q. Mr. Hevert says he considered Empire's small size in his authorized ROE recommendation. Do you agree that a size premium should be added to Empire's recommended authorized ROE?

A. No, not in this instance. In his estimation of the size premium, Mr. Hevert assumed that Empire is a standalone company. This is a wrong assumption because since Empire merged with Algonquin Power and Utility Corporation ("APUC"), it ceased to be a standalone company. Empire no longer issues its own debt; it now relies on Liberty Utilities Corporation ("LUCo") and ultimately, APUC for all its financing. Empire is now a private company with all its stocks held and traded by APUC. This means that any size premium for Empire, if at all, should be based on APUC's market capitalization of $8.2 billion However, Staff does not think there should be any size premium consideration for Empire because in Staff's analysis, there is no evidence that APUC is facing any problem raising equity capital because of its relatively small size. Staff analyzed Mr. Hevert's electric proxy group's average daily stock transaction volume ("volume") for the last 52 weeks to see how its liquidity compares to APUC's. APUC's average daily volume was 1,486,991 compared to 1,450,740 for Mr. Hevert's proxy group. Eleven out of twenty companies in Mr. Hevert's proxy group had less average daily volume than APUC.[19] This is overwhelming evidence that APUC is not facing any liquidity problems and, therefore, no adjustment is needed for size premium.

[19] Data was downloaded from Market Intelligence.

**CAPITAL STRUCTURE**

Q. Does Staff have any issues with Mr. Hevert's capital structure?

A. Staff does not have a substantive issue with Mr. Hevert's capital structure. Differences in Staff's capital structure compared to Mr. Hevert's capital structure arise because Mr. Hevert used a capital structure as of March 31, 2019, and Staff used a capital structure as of September 30, 2019. On March 31, 2019, Empire's capital structure was 51.91% common equity and 48.09% long-term debt. On September 30, 2019, Empire's capital structure was 52.90% common equity and 47.10% long-term debt. Between the two dates, retained earnings increased by about $35 million and long-term debt decreased by about $55 million, leading to differences in the capital structure.

Q. Does Staff have any disagreement with Mr. Murray's capital structure recommendation?

A. Yes. Staff disagrees with Mr. Murray's use of LUCo's capital structure for setting Empire's ROR. The correct capital structure for setting Empire's ROR is Empire's book capital structure as presented on September 30, 2019.

Q. What capital structure does Mr. Murray recommend for Empire?

A. Mr. Murray recommends 46.00% common equity and 54% long-term debt for Empire as of September 30, 2019.

Q. Does Mr. Murray's capital structure recommendation properly address merger conditions 4, 5 and 6 in the Stipulation and Agreement for Case No. EM-2016-0213 ("Stipulation"), the APUC – Empire merger transaction case?

A. Mr. Murray's recommendation properly addresses merger conditions 4 and 6. However, Staff does not think that Mr. Murray's capital structure properly addresses condition 5.

Q. Please explain what condition 5 to the Stipulation says.

A. Condition 5 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.[20]

Condition 5 of the merger prohibits Empire from using its book capital structure if the capital structure is less economical than the capital structure of LUCo, the entity it relies on for financing. Whether or not a capital structure is economical or not is a question of the equity ratio in the capital structure. The higher the equity ratio, the less economical the capital structure is, all being equal. This is because equity costs more than the other portions (debt and preferred stock) of the capital structure.

Q. What were the book capital structures of LUCo and Empire, as presented, as of September 30, 2019?

A. LUCo had 53.00% common equity and 47.00% long-term debt. Empire had 52.90% common equity and 47.10% long-term debt. This means that Empire's capital structure is more economical as of September 30, 2019, and per condition 5, Empire's capital structure is the appropriate one for use in setting ROR.

[20] Case No. EM-2017-0000.

Q. Can you explain how Mr. Murray found LUCo's capital structure to be more economical than Empire's?

A. Mr. Murray argues that LUCo's capital structure under reports its debt burden by $395 million, which is the debt held by Liberty Utilities Financing, GP1 ("LUF"). LUF is a subsidiary of APUC, responsible for raising debt for distribution to APUC and LUCo subsidiaries. LUCo guarantees all the debt held by LUF. Mr. Murray argues that because LUCo guarantees the debt held by LUF, LUCo should include it in its capital structure for ratemaking purposes. Consequently, Mr. Murray added the $395 million to LUCo's long-term debt while subtracting the same amount from LUCo's equity. The result of Mr. Murray's adjustments was that LUCo's capital structure changed to 54.00% long-term debt and 46.00% common equity, as of September 30, 2019. Those adjustments made LUCo's capital structure more economical than Empire's and consequently, the appropriate capital structure for use in setting Empire's ROR, according to Mr. Murray.

Q. Does Staff agree with Mr. Murray's inclusion of the $395 million from LUF in the capital structure for the purpose of ratemaking?

A. No. Mr. Murray's inclusion of the $395 million debt in LUCo's capital structure for ratemaking purposes is based on an erroneous assumption that the $395 million debt is entirely used for LUCo's regulated operations. LUF holds debt not just for LUCo but also for all other regulated utility subsidiaries of APUC~~, which include non-regulated entities~~. Including the $395 million in LUCo's capital structure incorrectly allocates the debt burden of the entirety of APUC's entities to LUCo's regulated utilities, including Empire. Staff does not think that the fact that LUCo guarantees LUF's debts means that the debt should be included in the capital structure for ratemaking purposes. The proper way of handling the $395 million debt is to

include it in the capital structure only for the purpose of full disclosure, and for conservative financial analysis[21] to determine appropriate debt and equity levels for LUCo. The debt should not be included in a capital structure to be used for the purpose of ratemaking because it would be unfair for both LUCo and Empire to use a capital structure that is not representative of the capital they use in their operations.

Q. Is there any precedence by other public utility commissions for a scenario like this?

A. Yes. In Wisconsin, the Commission ruled in a rate case involving Wisconsin Electric Power Company that off-balance sheet financing and Pollution Control Bonds must not be included in the capital structure for ratemaking purposes. "[O]ff-balance sheet financing and Oak Creek Pollution Control Bond Issue should be included as a matter of conservative financial analysis when determining appropriate debt and equity levels for public utilities, but not in setting utility rates." (Selected Orders of the Public Service Commission of Wisconsin, Volume 69, page 464).[22] Wisconsin Electric Power Company guaranteed those issues but the Wisconsin Public Service Commission correctly ruled in favor of the utility company to keep the debts out of the capital structure for ratemaking purposes.

**RECOMMENDED COST OF DEBT**

Q. Does Staff agree with Mr. Murray's recommended embedded cost of debt?

A. No. Mr. Murray recommends LUCo's cost of debt of 4.65% as of the updated period, to match his recommended capital structure, for Empire's ROR determination.

[21] Conservative financial analysis is comparable to conservative accounting, which is a concept that suggests a less optimal estimate should be used when given options.

[22] https://books.google.com/books?id=vCtSAAAAMAAJ&pg=PA463&lpg=PA463&dq=should+utilities+include+longterm+debt+they+guarantee+on+their+books?&source=bl&ots=PEhbOlN6YT&sig=ACfU3U0oQlAU4CWWdnPOc7LsPbdmOsj0QQ&hl=en&sa=X&ved=2ahUKEwjwyNeUj67nAhUPIqwKHYztD7IQ6AEwAHoECAUQAQ#v=onepage&q=should%20utilities%20include%20longterm%20debt%20they%20guarantee%20on%20their%20books%3F&f=false.

Mr. Murray argues that he uses LUCo's capital structure because, "[It] is the cost that matches financial risk embedded in my capital structure recommendation" (Murray Direct Testimony, page 14). Because Mr. Murray's choice of recommended cost of debt is based on his choice of capital structure, Staff rejects Mr. Murray's recommended cost of debt for the same reason as outlined in the section regarding the capital structure.

Q. What cost of debt does Staff recommend?

A. In Direct Testimony Staff recommended a cost of debt of 4.76%, adjusted from the 4.84% provided by Empire in Data Request No. 0185. Staff had disallowed a total of $673,000 debt cost classified as 'Annual Amortization Deferred Financing Costs.' Empire made a mistake in classifying this cost as such. Upon further discovery, Empire in Data Request. No. 0185.1 corrected the mistake and explained that the $673,000 represents Empire's annual amortization of its Total Loss on Reacquired Debt. Staff accepts Empire's corrections. Staff's current recommended cost of debt is now 4.84%.

**CAPITAL MARKET UPDATE**

Q. Have there been any major changes in the capital markets since you filed Direct Testimony?

A. Yes.

30-year Treasury yields dropped 8 bps in January 2020, breaking an upward trend between August and December 2019 when yields rose steadily from 2.12% to 2.30%. Average utility bond yields fell 3 bps between November and December, also marking a reversal of an upward trend since August 2019 when yields rose from 3.36% to 3.48%. Yields fell because of high demand for government bonds, a consequence of a flight to safety, as investors transitioned from equities into government bonds, due to perceived risks to the economy from

the coronavirus epidemic in China. At its meeting on January 29, 2020, the Federal Open Market Committee ("FOMC") decided to leave the federal funds rate ("funds rate") unchanged, citing the easing of uncertainties around the globe. Apparently, the FOMC felt the signing of the U.S.-China trade deal on January 15, 2020, and the exit of Britain from the European Union on January 1, 2020, were two important events that removed uncertainties in the global economy. The Fed expects inflation to rise closer to the Fed's 2.00% long-term target from around 1.50% (personal consumption expenditure) that persisted from the last twelve months ending November 2019.

On December 11, 2019, the FOMC revised down its growth projection for the gross domestic product ("GDP"). The FOMC members now expect GDP growth to slow from between 2.10% -2.20% in 2019 to between 2.00% -2.20% in 2020 and further slow to a long-run average of between 1.80% -2.00% in 2021 and beyond[23]. The median expectation for the funds rate is 1.6% in 2019 and 2020, down from 1.9% in the September estimate, and rising to 1.9% in 2021, compared with the previous estimate of 2.1%. The 2022 projection also came down to 2.1% from 2.4%, though the longer-run estimate remained consistent at 2.5%. Falling yields and lower funds rate make utilities stocks look more attractive than bonds, a scenario that increases demand for utilities stocks. Increase in demand for utilities stock boosts prices, and subsequently raises P/E ratios. High P/E ratios are associated with lower COE. Lower GDP growth estimate adds to the likelihood that the FOMC will cut funds rate in an attempt to support the economy. Lower funds rate supports a lower COE environment.

Q. How have regulated utility stocks performed since Staff presented Direct Testimony?

[23] https://www.cnbc.com/2019/12/11/fed-decision-interest-rates.html.

A. From December 1, 2019, to February 11, 2020, Staff's electric proxy group outperformed the S&P 500. Staff's electric proxy group experienced a total return of 11.89% compared to the S&P 500 total return of 8.90%. Dividend yields for Staff's electric proxy group fell from 3.13% on December 1, 2019, to 2.84% on February 12, 2020. Gas proxy group's dividend yields also fell from 2.67% on December 2, 2019, to 2.50% on February 12, 2020. Price to earnings ratio ("P/E") rose for both proxy groups in the same period. Staff's gas proxy group P/E ratios rose from 30.50x to 33.06x and Staff's electric proxy group's rose from 29.48x to 32.72x. With PE ratios increasing and dividend yields falling since December 2, 2019, it appears COE decreased.

**SUMMARY AND CONCLUSIONS**

Q. What are the main points the Commission should consider in determining an appropriate capital structure and a fair rate of return for Empire?

A. Staff recommends the Commission disregards Mr. Hevert's Risk Premium and ECAPM models. If the Commission ignores Mr. Hevert's flawed ex-ante MRPs and the inappropriately applied DCF growth rate, it will find sufficient evidence to support Staff's recommendation of authorized ROE of 9.25%.

In determining a fair and reasonable capital structure, Staff recommends the Commission disregard Mr. Murray's arbitrary and unreasonable adjustment of LUCo's capital structure. Without the adjustments to LUCo's capital structure, Empire's capital structure is the most economical and therefore, the appropriate capital structure to use for setting Empire's ROR.

Q. Does this conclude you rebuttal testimony?

A. Yes, it does.

**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 Tariffs Increasing Rates for Electric Service Provided to Customers in its Missouri Service Area | ) ) ) ) ) | Case No. ER-2019-0374 |

**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*; 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 2nd day of March 2020.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

Notary Public

Changes to Testimonies

Chari Rebuttal Testimony

**Page 15, lines 18 to 19**. LUF holds debt not just for LUCo but for all other subsidiaries of APUC, which include non-regulated entities.

**Remove the phrase:** ‘which include non-regulated entities.’

**New sentence:** LUF holds debt not just for LUCo but also for all other regulated utility subsidiaries of APUC.