Exhibit No.:	210 NP
Issue(s):	Rate of Return (ROR)/ Return on Equity (ROE)/ Capital Structure
Witness/Type of Exhibit:	Murray/Direct
Sponsoring Party:	Public Counsel
Case No.:	ER-2019-0374

DIRECT TESTIMONY

OF

DAVID MURRAY

Submitted on Behalf of the Office of the Public Counsel

EMPIRE DISTRICT ELECTRIC COMPANY

FILE NO. ER-2019-0374

** **

Denotes Confidential Information that has been Redacted

January 15, 2020

NON-PROPRIETARY

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 DAVID MURRAY

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

David Murray, of lawful age and being first duly sworn, deposes and states:

1. My name is David Murray. I am a Utility Regulatory Manager for the Office of the Public Counsel.

2. Attached hereto and made a part hereof for all purposes is my direct testimony.

3. I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge and belief.

David Murray
Utility Regulatory Manager

Subscribed and sworn to me this 15th day of January 2020.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

JERENE A. BUCKMAN
My Commission Expires
August 23, 2021
Cole County
Commission #13754037

Jerene A. Buckman
Notary Public

My Commission expires August 23, 2021.

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DIRECT TESTIMONY

OF

DAVID MURRAY

EMPIRE DISTRICT ELECTRIC COMPANY

FILE NO. ER-2019-0374

Q. What is your name and what is your business address?

A. My name is David Murray, and my business address is P.O. Box 2230, Jefferson City, Missouri 65102.

Q. By whom are you employed and in what capacity?

A. I am employed by the Missouri Office of the Public Counsel ("OPC") as a Utility Regulatory Manager.

Q. On whose behalf are you testifying?

A. I am testifying on behalf of the OPC.

Q. What issues do you address in your testimony?

A. I am sponsoring testimony as it relates to a fair and reasonable rate of return ("ROR") to allow The Empire District Electric Company ("Empire") for purposes of setting its revenue requirement. My determination of a fair and reasonable ROR required me to determine an appropriate capital structure and return components for common equity and long-term debt to apply to this capital structure.

Q. What are your qualifications as it relates to ROR?

A. Please see the attached Schedule DM-D-1 for my qualifications as well as a summary of the cases in which I have sponsored testimony on ROR and other financial issues.

Q. What allowed ROE, long-term cost of debt, capital structure, and, ultimately, allowed ROR are you recommending that the Commission use to set Empire's revenue requirement?

A. I recommend a ROE of 9.25 percent per year (the upper end of my range—8.5%-9.25%), a long-term debt cost of 4.65 percent per year, a capital structure consisting of 46 percent common equity, and 54 percent long-term debt , and a ROR of 6.77 percent per year.

Q. Is cost of equity the same as allowed ROE?

A. No. Allowed ROE is what this and other commissions use for purposes of deciding what a utility's retail rates should be. A utility's cost of equity ("COE") is implied by the price investors are willing to pay for a share of stock. Allowed and earned ROEs—ROEs implied from a utility's actual earnings—have consistently been higher than COEs.

Q. What is Empire's COE?

A. As I explain later, it is approximately 6 percent.

Q. Do you have any observations of which the Commission should be aware before you explain how you arrived at your allowed ROR recommendation of 6.77 percent per year?

A. Yes. After reviewing Empire's current financing arrangements it is clear that Empire no longer manages its capital structure for purposes of raising capital. Instead, Empire primarily manages its capital structure to target a per books common equity ratio for ratemaking purposes. In fact, Algonquin Power and Utilities Corporation ("APUC") has removed Empire's independent financing functions in order to consolidate Empire's financing needs with those of its affiliates. Although it is important to award Empire an allowed ROE based on the risk of its electric utility operations, this allowed ROE should not be applied to Empire's per books capital structure.

Because Empire no longer has an objective, market-tested capital structure, I recommend Empire's allowed capital structure be set consistent with the capitalization ratios APUC targets for the entity on which Empire now relies upon for its debt capital, Liberty Utilities Company ("LUCo"), through its financing subsidiary Liberty Utilities Finance GP1 ("LUF"). The OPC and Staff became aware that APUC intended to consolidate Empire's financing needs at a mesne parent level when it proposed to acquire

Empire in Case No. EM-2016-0213. Consequently, the Commission included conditions in its Order authorizing the acquisition by which it intended to safeguard Empire's ratepayers from APUC's corporate financing strategies. Adoption of my recommended capital structure ensures Empire's ratepayers are only charged a ROR that is consistent with LUCo's more economical capital structure.

Q. What conditions did the Commission impose in Case No. EM-2016-0213 that must be considered when developing a recommended ROR for Empire in this case?

A. The Commission ordered several financing conditions in Case No. EM-2016-0213 that are pertinent to the allowed ROR in this rate case. I address the following conditions in my ROR testimony:

> 4. Empire shall not seek an increase to the cost of capital as a result of this Transaction or Empire's ongoing affiliation with Algonquin Power & Utilities Corp. and its affiliates other than Empire after the Transaction. Any net increase in the cost of capital Empire seeks shall be supported by documentation that: (a) the increases are a result of factors not associated with the Transaction or the post Transaction operations of Algonquin Power & Utilities Corp. or its non-Empire affiliates; (b) the increases are not a result of changes in business, market, economic or other conditions caused by the Transaction or the post Transaction operations of Algonquin Power & Utilities Corp. or its non-Empire affiliates; and (c) the increases are not a result of changes in the risk profile of Empire caused by the Transaction or the post Transaction operations of Algonquin Power & Utilities Corp. or its non-Empire affiliates. The provisions of this section are intended to recognize the Commission's authority to consider, in appropriate proceedings, whether this Transaction or the post Transaction operations of Algonquin Power & Utilities Corp. or its non-Empire affiliates has resulted in capital cost increases for Empire. Nothing in this agreement shall restrict the Commission from disallowing such capital cost increases from recovery in Empire's rates.
>
> 5. 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.

6. The Joint Applicants will not obtain Empire financing services from an affiliate, unless such services comply with Missouri's Affiliate Transaction Rules.

Although it is OPC's position that Empire was already not complying with condition 6 before it filed this case (see OPC witness Robert Schallenberg's direct testimony), I am expressly addressing conditions 4 and 5 in this testimony. In my opinion, these two conditions place upper limits on certain parameters used to set Empire's allowed ROR. I explain why my recommended ROR ensures the detriment anticipated by the above conditions 4 and 5 is eliminated by my recommended capital structure approach.

Q. Can you provide some preliminary information that should be considered when determining a fair and reasonable ROE for Empire?

A. Yes. Utility industry capital market conditions clearly show that investors have bid up the price of utility stocks due to sustained low long-term interest rates. As recently as early fall of 2019, utility stocks achieved valuation levels at or near all-time highs, both on an absolute and on a relative basis. Utility stocks absolute valuation levels have persisted, even though its valuation level relative to the S&P 500 has narrowed. The decline in the relative valuation levels can be attributed to the S&P 500's significant increase during the fourth quarter of 2019. Simply put, as long-term bond yields declined and remained low, utility companies' costs of equity ("COE") also declined and remained low (utility stock prices went up). Although the absolute values of utilities' COEs are much lower than their average allowed ROEs, there is no need to allow this spread to widen. As it becomes more evident that the U.S. markets are in a sustained low, long-term interest rate environment, and utility stock valuations reflect such, because past spreads have proven sufficient to attract utility equity capital, there is no need for ratepayers to support further expansion of shareholder wealth. Therefore, based on industry-wide capital market conditions, I recommend Empire be authorized an allowed ROE of no higher than 9.25%.

Q. How is the rest of your testimony organized?

A Because of the importance of capital structure in this case, I am addressing this issue first. Next, I discuss the context of current utility capital market conditions, with specific emphasis on comparing them to the 2014 to 2015 period when the Commission initially deemed 9.5% allowed ROEs reasonable for Missouri electric utility companies. Following, I provide the details of the approaches and analysis I performed to estimate Empire's COE. Finally, I summarize my overall ROR recommendation.

CAPITAL STRUCTURE

Q. What is capital structure?

A. Capital structure represents how a company's assets are financed. The typical capital structure consist of common equity, long-term debt, and short-term debt. Some utilities' capital structures may include a small portion of preferred stock. Although short-term debt is a typical component of a utility company's capital structure, if it is fully supporting construction work in progress (CWIP), then it is typically excluded from the rate making capital structure, and, instead, is reflected in the allowance for funds used during construction (AFUDC) rate.

Q. What capital structure do you recommend for purposes of setting Empire's rate of return (ROR)?

A. I recommend the Commission use a capital structure for Empire that consists of approximately 46% common equity and 54% long-term debt. This capital structure is consistent with the mix of capital Empire's immediate parent, LUCo, uses to support its investment in its regulated utility subsidiaries. It is also consistent with the amount of leverage APUC targets as reasonable for the lower business risk associated with LUCo's regulated utilities.

Q. Does your capital structure recommendation address merger conditions 4, 5 and 6?

A. Yes. My recommendation complies with merger conditions 4 and 5. It also rectifies Empire's non-compliance with merger condition 6. However, determining the capital structure and capital costs consistent with these conditions required a fairly detailed analysis of APUC's current financial strategies. Although I believe my recommendation is supported by sufficient evidence, I note that OPC was still pursuing additional discovery at the time we filed Direct Testimony. I will provide additional relevant evidence as the case progresses.

Q. Can you explain the issues that have changed that cause the determination of an appropriate capital structure to be more complicated in this case?

A. Yes. In Empire's last general electric rate case, Case No. ER-2016-0023, determining an objective, market-tested capital structure for Empire was straightforward. It was straightforward because then Empire was a stand-alone, pure-play regulated utility. However, now APUC owns Empire as well as many other subsidiaries in a large and complex multi-holding company structure. APUC has two primary business segments, regulated electric, gas and water utilities owned by Liberty Utilities Company (LUCo), and non-regulated renewable power projects and thermal energy projects, owned by Algonquin Power Company (APCo). APUC refers to these two segments as Liberty Utilities Group and Liberty Power Group, respectively. APUC also holds a 44.2% ownership stake in Atlantica Yield LLC, a company that acquires, owns and manages a diversified international portfolio of contracted renewable energy, power generation, electric transmission, and water assets. APUC's investment in Atlantica is reported under the Liberty Power Group. Finally, APUC has a joint-venture (Abengoa-Algonquin Global Energy Solutions or "AAGES") with Abengoa S.A ("Abengoa"), an international infrastructure construction company. AAGES and its affiliates work with a global reach to identify, develop, and construct new renewable power generating facilities, power transmission lines, and water infrastructure assets. [1]

[1] Algonquin Power & Utilities Company 3Q 2019 Quarterly Report, p. 5.

When Empire was a stand-alone company, it had its own financing functions and direct access to capital markets through its own credit facility, commercial paper, and continuing issuances of long-term debt and equity to third-party investors. Therefore, Empire's cost of capital was a direct function of its own business and financial risks. Empire now relies on an affiliate for all of its financing functions, which includes access to short-term debt and long-term debt. Liberty Utilities Services Corp. manages Empire's treasury needs along with other Liberty Utilities Group companies, predominately at the LUCo level. LUCo has a $500 million credit facility, which supports LUCo's $500 million commercial paper program, which became active on July 1, 2019. LUCo relies on APUC's financing subsidiary, Liberty Utilities Finance GP 1 (LUF), for its long-term debt financing needs. LUF issues debt directly to third-parties on behalf of LUCo and intermediate entities between LUCo and APUC (see p. 2 of Schedule DM-D-2). LUCo guarantees all debt issued by LUF, which includes debt that was issued for the sole purpose of buying equity in LUCo.[2]

At the time of the Liberty Utilities (Midstates Natural Gas) Corp. ("Liberty Midstates") rate case, Case No. GR-2018-0013, APUC had not been issuing a significant amount of holding company debt other than intermittent draws on its corporate credit facility.[3] As of September 30, 2017, APUC had approximately $93 million outstanding under its holding company credit facility. However, since the Liberty Midstates' rate case, APUC issued $287.5 million of 60-year subordinated debt on October 17, 2018 and $350 million of 60-year subordinated debt on May 23, 2019. APUC's decision to issue significant amounts of long-term debt at the holding company level is a departure from its financing strategy at the time of the Liberty Midstates' rate case. In essence, APUC now has debt supporting its utility investments at four different levels-APUC, Liberty Utilities (America) Holdco. Inc., LUF and legacy debt held at its operating utilities, which includes Empire. This makes for a very convoluted and complex corporate and financing structure.

[2] See attached Liberty Midstates response to Staff DR No. 117.3 in Case No. GR-2018-0013 (HC Schedule DM-D-3).
[3] Liberty Utilities (Midstates Natural Gas) Corp.'s Case No. GR-2018-0013, Staff Cost of Service Report, March 2018, Appendix 2, p. 26, ll. 19-20.

Although Empire no longer accesses the financial markets on an independent basis, it still creates financial statements for regulatory purposes, as well as for legacy debt holders. However, affiliate transactions now impact those financial statements, such as the $90 million of affiliate long-term debt used to retire Empire's mortgage bonds that matured on June 1, 2018. APUC determined both the interest rate and the maturity it would apply to this affiliate long-term debt. Although APUC decided to draw on LUCo's credit facility to refinance Empire's $90 million of first mortgage bonds, APUC assigned terms to this transfer of funds based on an average maturity and interest rate spreads from bonds LUF issued to third-party investors in 2017. The resulting affiliate loan had a 15-year term to maturity and a fixed rate of 4.53%. As discussed in Robert Schallenberg's Direct Testimony, this affiliate financing transaction violates affiliate transaction rules, and as a result, it also violates the Commission's ordered conditions in Case No. EM-2016-0213.

Q. Do you know what Empire's cost of debt would be if it still directly issued debt to third-party debt investors?

A. No. There is no objective way to estimate what Empire's cost of debt may have been without competitive bidding for this debt financing need. This was the logic for the Commission ordering compliance with affiliate transaction rules if APUC decided to consolidate Empire's debt financing needs at the corporate level. Although Empire is required to comply with the affiliate transaction rules regardless of the Commission's approval of APUC's acquisition of Empire, Staff and the OPC were aware of APUC's intention to consolidate the debt financing needs of its utility subsidiaries at an affiliate, such as LUF. Staff and the OPC decided that the Applicants' explicit acknowledgement of the applicability of affiliate transaction rules to such possible exporting of Empire's independent financing access should provide greater assurance of no detriment from the acquisition. Although Empire's affiliate debt financing transaction violated the affiliate transaction rules, because I am recommending a capital structure and debt costs that ignore this transaction, my recommendation protects Empire's ratepayers from this violation.

Q. Do you have any other concerns with using Empire's per books capital structure and capital costs for purposes of setting Empire's allowed ROR in this case?

A. Yes. Again, because Staff and OPC knew of APUC's intention to consolidate Empire's financing needs with the rest of its affiliates, the Commission ordered the following condition:

> 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.

I will address Empire's lack of evidence for its capital structure recommendation for Empire in its direct case in my rebuttal testimony. However, I analyzed APUC's, LUCo's and Empire's capital structures for purposes of determining the appropriate capital structure to use for purposes of setting Empire's allowed ROR. I concluded that LUCo is using a more economical, *i.e.*, lower cost, capital structure for purposes of providing debt financing to Empire. Therefore, the Commission should use this capital structure to set Empire's allowed ROR.

Q. What were Empire's per books common equity ratios as of the end of the ordered test year, March 31, 2019, and the end of the ordered update period, September 30, 2019?

A. Schedule DM-D-4 attached to my Direct Testimony shows that Empire's common equity ratio was 51.52% as of March 31, 2019 and 52.48% as of September 30, 2019.

Q. What were LUCo's per books common equity ratios as of those same dates— March 31, 2019, and September 30, 2019?

A. Schedule DM-D-4 shows that LUCo's per books common equity ratio was 53.64% as of the end of the test year with short-term debt included (55.15% excluding short-term debt) and 53.00% as of the end of the update period with short-term debt included (55.55% excluding short-term debt).

Q. What do these common equity ratios mean?

A. They imply that LUCo is less leveraged than Empire.

Q. Does LUCo's current per books common equity ratio provide an accurate and reliable indication of the actual leverage supported by LUCo's assets?

A. No. As I indicated in my previous description of how LUCo obtains its long-term debt financing through the financing subsidiary LUF, LUCo guarantees all of LUF's debt. This includes debt that was loaned to companies created for the sole purpose of loaning these funds to LUCo to inflate its per books common equity ratio rather than loaning these funds directly to LUCo. Liberty Midstates affirmed that this was the sole purpose of these intermediate entities in response to Staff Data Request No. 117.3 in Case No. GR-2018-0013 (see HC Schedule DM-D-3). Rating agencies, such as Fitch Ratings, accurately consider such debt when assigning credit ratings to the debt supported by LUCo's cash flows (see Schedule DM-D-5). This fact requires adjustments to LUCo's per books capital structure ratios to reflect the amount of financial risk embedded in its capital structure.

Q. How much debt not shown on LUCo's balance sheet does LUCo guarantee?

A. $395 million.

Q. For what did LUCo use that debt?

A. To fund equity infusions in LUCo to ultimately fund its regulated utilities.

Q. How does this fact affect the adjustments necessary to provide an accurate and reliable reflection of LUCo's capital structure?

A. Because LUCo used this debt to record a higher equity balance on LUCo's balance sheet, not only should this debt be added to the debt recorded on LUCo's balance sheet, but it should also be subtracted from LUCo's equity balance.

Q. After making these adjustments, what is LUCo's common equity ratio as of the end of the ordered test year and the end of the ordered update period?

A. As shown on Scheduled DM-D-4, LUCo's adjusted equity ratio was 44.54% (45.78% excluding short-term debt) as of the end of the test year. As of the end of the update period, LUCo's adjusted equity ratio was 44.11% (46.23% excluding short-term debt).

Q. What is the significance of LUCo's adjusted capital structure?

A. It demonstrates LUCo is using a more economical capital structure than Empire's implied higher cost capital structure. Staff and OPC contemplated this potential scenario when it negotiated conditions in the Stipulation & Agreement in Case No. EM-2016-0213. However, APUC is attempting to mask LUCo's true capital structure by moving debt off its books. Consistent with the purpose of the condition in the Stipulation & Agreement, I recommend the Commission use LUCo's more economical adjusted capital structure for Empire's capital structure in this case. Doing this will help ensure there is no detriment to Empire's ratepayers as it relates to the allowed ROR.

Q. How much more costly is Empire's capital structure than LUCo's adjusted capital structure?

A. Assuming a 9.25% ROE for both capital structures, setting Empire's allowed ROR based on LUCo's capital structure results in Empire's customers realizing an annual cost savings of approximately $7.93 million.

Q. Is using LUCo's adjusted capital structure the only way to ensure Empire's retail customers are not exposed to a high allowed ROR caused by an uneconomical capital structure?

A. No. The Commission could award a lower ROE. A 8.5% ROE with Empire's higher-cost capital structure would achieve a similar cost savings as using LUCo's more economical adjusted capital structure.

Q. Are you aware of anything else that impacts the appropriate allowed ROR in this case?

A. Yes. Merger condition 4 from Case No. EM-2016-0213 requires that Empire's cost of capital shall not increase as a result of APUC acquiring Empire. Empire's requested common equity ratio at the time of Empire's last rate case was approximately 49%.[4] This common equity ratio should be the upper constraint on the allowed capital structure

[4] See Rob Sager's Direct Testimony in Case No. ER-2016-0016.

because anything above this is a less economical capital structure and results in higher capital costs being charged to Empire's customers.

Q. Did you evaluate APUC's capital structure to determine whether it is appropriate for purposes of setting Empire's ROR?

A. Yes. Although APUC historically did not issue long-term debt financing for purposes of financing LUCo's investments, this is no longer the case. In late 2018 and early 2019, APUC issued $637.5 million of 60-year subordinated debt to finance various investment needs, which included providing funds to repay $75 million of short-term debt outstanding under LUCo's credit facility as well as to partially fund APUC's acquisition of Enbridge Gas New Brunswick, which LUCo directly owns.[5] However, unlike the debt issued by LUF, APUC's debt is not explicitly guaranteed by LUCo.

Although APUC is now issuing long-term debt to fund a variety of investments, APUC's capital structure contains a larger percentage of common equity than LUCo's capital structure, but not Empire's. Since APUC has more business risk on a consolidated basis than Empire or LUCo, this is further evidence that APUC is not managing Empire's capital structure to achieve a more economical cost of capital. Instead, Empire's capital structure is being managed to target a common equity ratio consistent with that which APUC hopes the Commission will allow Empire for ratemaking purposes.

Q. Does APUC recognize that its utility segment, Liberty Utilities, has a higher debt capacity than its non-regulated segment, Liberty Power?

A. Yes. In presentations to fixed-income investors, APUC indicates that LUCo targets a long-term debt to total capital ratio in the range of ** **
and Liberty Power targets a long-term debt ratio of **
**. After consolidating the two segments, APUC's indicates it targets a long-term debt ratio in the range of ** ** These targeted capital structures are consistent with the fundamental principles of the interaction of

[5] Empire's response to OPC Data Request No. 3017 and Algonquin Power & Utilities 3Q 2019 Management Discussion & Analysis, p. 5.
[6] Liberty Utilities Fixed Income Presentation, September 2017, p. 12 and Liberty Power Co. Fixed Income Update Presentation, September 2017, p. 12

business and financial risk. LUCo has the lowest business risk of all three entities—LUCo, APUC, and Liberty Power—because it only owns price-regulated monopoly utilities throughout the United States. Therefore, its assets can support more leverage than the rest of APUC's assets and still carry a stable investment-grade credit rating. Liberty Power owns independent power projects, which are not protected by price-regulation. Therefore, Liberty Power's riskier assets (i.e. business risk) need to be offset by less leverage (financial risk). When APUC consolidates LUCo and Liberty Power at the holding company level, to the extent APUC does not have holding company debt outstanding, the ratios of its leverage would naturally fall in the middle of LUCo's and Liberty Power's leverage.

Q. Has APUC made any statements, internally or externally, about how it manages its regulated utility capital structures?

A. **

**

Q. Based on your analysis and consideration of all of the factors you discussed regarding APUC's, LUCo's and Empire's capital structures and the conditions the Commission imposed in Case No. EM-2016-0213, what capital structure do you recommend for Empire for purposes of setting Empire's allowed ROR?

A. I recommend that the Commission use a common equity ratio of 46% for Empire. This is LUCo's approximate average common equity ratio for the end of the test year and the end of the update period in this case. This common equity ratio captures the amount of debt

capacity APUC recognizes its regulated utility operations can support and still maintain a BBB credit rating.

Q. Are you aware of any Missouri rate cases involving Empire's affiliates that support your recommendation that the Commission use LUCo's capital structure to set Empire's allowed ROR in this case?

A. Yes. In its Report and Order in Case No. GR-2014-0252 the Commission recognized 13 Findings of Fact in supporting its decision to use LUCo's capital structure to set Liberty Midstates' allowed ROR. Of those Findings of Fact, the only one that is currently different for Empire is that Empire has a credit rating. However, since Empire's debt financing needs, both long-term and short-term, are now being provided by LUCo and LUF, Empire's credit ratings are no longer needed for its continued access to capital.

Consequently, the Commission's Report and Order in Case No. GR-2014-0152 supports my recommendation to use LUCo's capital structure for purposes of setting Empire's allowed ROR.

Q. Did LUCo's capital structure require an adjustment for off-balance sheet debt in Case No. GR-2014-0252?

A. No. At the time of Case No. GR-2014-0252, APUC was not was not manipulating LUCo's per books capital structure as it does now. Therefore, no adjustment was necessary.

Q. What cost of debt should be applied to your recommended capital structure?

A. I recommend LUCo's embedded cost debt of 4.65% as of the updated period be applied to my recommended capital structure. By recommending this cost of debt, I am recognizing only third-party debt costs.

Q. Why are you recommending that the Commission use LUCo's embedded cost of long-term debt?

A. Because this is the cost that matches the financial risk embedded in my capital structure recommendation. I can also verify that this debt cost is reasonable based on the embedded cost of debt reflected in the Ameren Missouri rate case, which is approximately 4.6%.

Q. Based on the information Empire provided to you, what is Empire's embedded cost of long-term debt as of the update period?

A. It is 4.98%, which includes the $90 million affiliate note used to retire Empire's first mortgage bond on June 1, 2018, as well as Empire's subsidiary's, The Empire District Gas Company's, first mortgage bond.

Q. If the Commission decides to apply Empire's cost of debt to the authorized capital structure, should it be adjusted?

A. Yes. In order to comply with the affiliate transaction rules, the $90 million advanced by LUCo should be charged based on the lower of market or cost. Because LUCo used short-term debt to initially fund the retirement of Empire's first mortgage bonds, the cost assigned to this debt issuance should be based on LUCo's commercial paper rate.

Q. What is LUCo's commercial paper rate?

A. 2.33% as of September 30, 2019.

Q. Should any short-term debt be included in the capital structure the Commission uses to determine Empire's allowed ROR?

A. This depends on the capitalization rate Empire is using to accrue the allowance for funds used during construction ("AFUDC"). Because Empire is no longer financially managed as a stand-alone entity, the dividend payout ratio and the consistency of this dividend payout ratio is different. Over the last two quarters, Empire has retained all of its earnings rather than distributing dividends to its sole shareholder— LUCo. This distorts how certain ratemaking elements are determined, such as AFUDC. If Empire were still a stand-alone entity, it would have still have paid the dividend its outside shareholders expected, which would require it to issue short-term debt to help fund its capital expenditures. This would result in a lower capitalization rate for purposes of determining AFUDC. In order to ensure no detriment to Empire's retail customers as it relates to this ratemaking determination, I recommend that either all of Empire's CWIP be funded at the short-term debt rate or that short-term debt be included in Empire's allowed ROR.

Q. Is there anything else that the Commission should consider when determining an appropriate capital structure to use to set Empire's allowed ROR?

A. Yes. A key credit metric credit rating agencies evaluate is the FFO/debt ratio. Companies with higher business risk must offset this higher business risk with lower financial risk, *i.e*., debt in the capital structure, in order to be rated similarly to a company with lower business risk. For example, APUC's non-regulated subsidiary, Algonquin Power, has higher business risk than Liberty Utilities. Therefore, in order to achieve the same BBB credit rating as Liberty Utilities, it must have less financial risk. APUC's management of Algonquin Power's capital structure has proven to be more conservative, *i.e*., less debt, in light of its higher business risk. Algonquin Power's FFO/debt ratios have been, and are expected to be, in the 18% to 19% range. Because Liberty Utilities has less business risk, it can use more leverage in its capital structure and still maintain a BBB credit rating. This allows Liberty Utilities to have a lower-cost capital structure because of its ability to use more debt. Liberty Utilities' FFO/debt ratios of approximately 15% to 16% reflect this additional financial risk.

Because Empire's regulated utility operations comprise over 50% of LUCos' low-risk regulated utility assets, which allows LUCo to use more leverage and still maintain a BBB credit rating, it is logical to expect Empire to have the same amount of leverage in order to achieve lower capital costs. However, APUC is not allowing Empire to utilize this additional leverage in its capital structure. Empire's FFO/debt ratios have typically been in the 21% to 23% range and they are expected to remain at this level. Therefore, not only are these ratios higher than those targeted at LUCo, but they are even higher than the levels targeted for Algonquin Power's riskier operations. This demonstrates that APUC is not managing Empire's capital structure to achieve lower capital costs, but rather to target capital structure ratios for ratemaking purposes. This is a detriment from APUC's acquisition of Empire that must be rectified by setting Empire's allowed ROR based on LUCo's more economical capital structure.

Q. What is the *pro forma* impact on Empire's FFO/debt ratio using your more leveraged capital structure recommendation and a 9.25% authorized ROE?

A. For purposes of this analysis, I used Empire's projected financial statements that were provided to Standard & Poor's in February of 2018. Adjusting Empire's projections for the additional leverage included in my recommended capital structure, as well as the resulting reduced revenue requirement, I estimate Empire's FFO/debt would be ** ** in 2019 and ** ** in 2020. This compares to Empire's original estimates of ** ** in 2019 and ** ** in 2020. Consequently, Empire's FFO/debt ratios would not be that much lower than Algonquin Power's, implying that Empire could be capitalized with even more debt and still maintain a BBB credit rating.

FAIR RETURN ON COMMON EQUITY

Q. How did you decide what approach to take for estimating a fair and reasonable allowed ROE for Empire for purposes of setting Empire's rates in this case?

A. I reconciled the principles established in *Hope* and *Bluefield*[7] with the modern financial models investment analysts use to estimate Empire's COE. While setting an allowed ROE for a utility based on the utility's COE is, at least theoretically, sufficient for that utility to attract capital in efficient markets, because allowed ROEs have, on average, been higher than the utilities' COEs, this is something that I considered when determining my recommendation for a fair and reasonable allowed ROE for Empire. In fact, this Commission uses a "zone of reasonableness standard" [8] for purposes of setting an allowed ROE, with the starting point for this zone of reasonableness being a recent industry average allowed ROE. Considering these principles, I first estimated Empire's current COE based on my analysis of proxy companies, then I compared this estimated COE to the utility COE environment in late 2014 to early 2015 when this Commission initially authorized ROEs of approximately 9.5% for Ameren Missouri's and Kansas City Power & Light Company's (n/d/b/a Evergy Metro) vertically integrated electric utility assets in Case Nos. ER-2014-0258 and ER-2014-0370, respectively. The current utility cost of capital environment supports lowering the 9.5% allowed ROEs the Commission deemed reasonable five years

[7] *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591, 64 S.Ct. 281, 88 L.Ed. 333 (1943); *Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679, *43 S.Ct. 675, 67 L.Ed. 1176* (1923).
[8] *State ex rel. Missouri Gas Energy v. Public Service Commission,* 186 S.W.3d 376, 383 (Mo App. W.D. 2005)

ago. My analysis also includes consideration for other recent average allowed ROEs in other jurisdictions.

Q. What is your estimate of Empire's COE?

A. Based on my analysis, it is in the range of 5.5% to 6.5%.

Q. What do you consider to be a fair and reasonable ROE for the Commission to allow for Empire in this case?

A. Based on my analysis and awareness of capital market conditions, investor expectations, and recent average allowed ROEs for electric utilities, I consider an allowed ROE for Empire of 8.50% to 9.25% to be fair and reasonable. I consider 8.5% likely to be the lowest allowed ROE that the Commission would consider under its "zone of reasonableness" standard, while a 9.25% allowed ROE provides a more gradual reduction of the Commission's previous allowed ROEs of around 9.5% for Missouri's electric utilities.

Q. What did you review for purposes of determining the best methods and approaches to use to estimate Empire's COE?

A. I reviewed the board of directors' ("BOD") materials and minutes of Empire and its affiliates to which Empire provided access in response to OPC Data Request No. 3003. I requested Empire's BOD's materials as well as APUC's BOD's materials related to Empire's assets/operations. However, because Empire no longer performs its own financing functions, most of its BOD's materials were not useful for purposes of evaluating Empire's financing strategies. Additionally, the APUC BOD's materials that I reviewed were limited in scope due to Empire's view that this material was not related to its operations. For example, Empire did not provide APUC BOD's materials which relate to APUC's strategic financing decisions. I also reviewed investment industry research covering APUC, Liberty Power, LUCo and the utility industry over at least the last year.

After performing this research, I decided the best approach to estimate Empire's COE was to perform a COE analysis on proxy groups of utilities whose operations are comparable to Empire's regulated electric utility operations. Although APUC's North

America regulated utility operations currently account for approximately 70% of APUC's business mix, the investment community views APUC as a diversified utility. Additionally, APUC's financial policies and strategies are atypical of the policies and strategies that rate-regulated utilities in the U.S. employ.

Q. What models did you use for estimating Empire's COE?

A. I used a multi-stage discounted cash flow ("DCF") method, with specific emphasis on consensus analysts' estimated dividends and the modeled growth of dividends. A DCF method that focuses on dividends as the proxy for cash flow is more precisely defined as the dividend discount model ("DDM"). I also applied the Capital Asset Pricing Model ("CAPM") to the proxy group. Finally, I performed simple and logical reasonableness checks of my COE estimates. These reasonableness checks recognize the basic characteristics of utility stocks, mainly that the investment community perceives them as yield/income investments. One such reasonableness check is a straightforward bond-yield-plus-risk-premium method, a method that is included in the Chartered Financial Analyst ("CFA") Program curriculum.

Q. Did you estimate APUC's COE?

A. No.

Q. Why not?

A. APUC is a diversified Canadian-based company with both regulated and non-regulated utility investments across the globe. Although Empire is one of APUC's most significant investments (slightly less than 25% of APUC's total assets as of September 30, 2019), APUC is consistently and constantly acquiring regulated and non-regulated utilities, both domestically and internationally. APUC uses unique financing arrangements for these acquisitions. Therefore, due to APUC's acquisition strategy, its diversified business mix, its international operations, and its unique financing strategies, a better approach for estimating Empire's COE is to analyze a proxy group of U.S.-regulated electric utilities

with simpler financing strategies and more familiar business risks. In short, APUC's COE is not a good proxy for Empire's COE.

Q. Is APUC irrelevant to analyzing Empire's cost of capital?

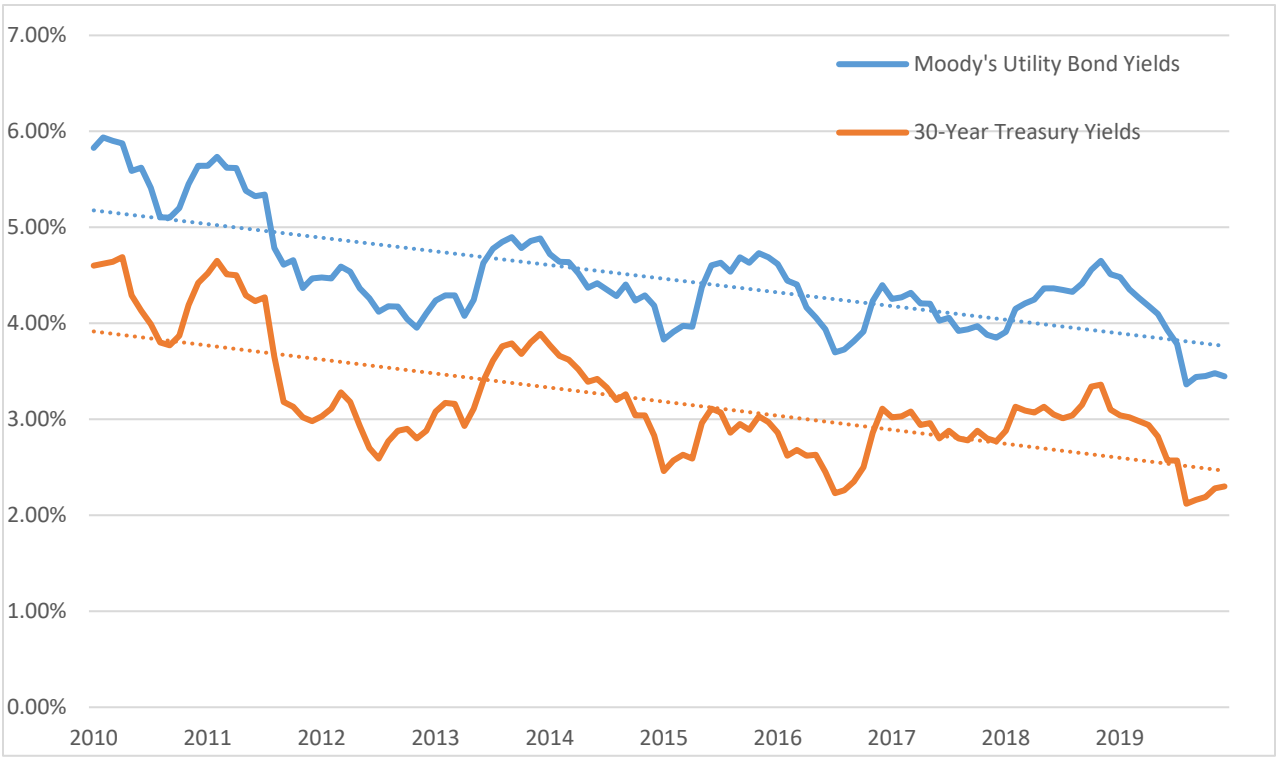
A. No. In fact, in the Stipulation & Agreement in Case No. EM-2016-0023 that the OPC and Staff joined, they were very mindful of the potential impact APUC's business and financing strategies might have on Empire's capital structure, and cost of capital. Therefore, Staff and the OPC proposed several financing conditions to safeguard Empire's access to capital at reasonable costs. Staff and the OPC were also mindful of the potential that Empire would lose both its independent financing functions and its direct access to the capital markets. Therefore, for purposes of evaluating the amount of debt Empire's assets are supporting at the APUC corporate level, it is important to evaluate APUC's financing activities. Also, because APUC, Empire's ultimate parent, has more business risk than Empire, analyzing and understanding APUC's capitalization and cost of capital tests the credibility of whether Empire's current per books capital structure is consistent with the financing strategies APUC communicates to third-party investors.

Q. Would you provide some contextual background on capital market conditions for the electric utility industry before you get into the details of how you estimated Empire's COE?

A. Yes. Investment grade utility bond yields are lower now than they have been for the past decade.[9] The below graph shows long-term bond yields since January 1, 2010, which captures the prolonged period of lower long-term interest rates post the recession/financial crisis of 2008/2009. While some financial analysts considered the early stages of lower long-term interest rates in the first half of this decade as potentially anomalous because of the Federal Reserve Bank's ("Fed") quantitative easing ("QE") programs[10] through the end of 2013, since that time, long-term interest rates have continued an overall declining trend.

[9] S&P rates Ameren and Ameren Missouri investment grade at BBB+; Moody's rates Ameren and Ameren Missouri investment grade at Baa1.

[10] QE involved three rounds of the Fed's direct intervention in bond markets beyond just lowering the Fed Funds rate. The Fed's QE programs had the express intent of reducing long-term interest rates.



Average utility long-term bond yields recently hit their lowest levels in over 60 years. Yields for utility bonds were approximately 50 to 80 basis points higher in 2015 when the Commission decided that allowed ROEs in Missouri should be approximately 9.5%. As recently as the 2018 calendar year, many analysts and economists projected long-term interest rates would finally break out of their long-term, declining trend. That has not happened.

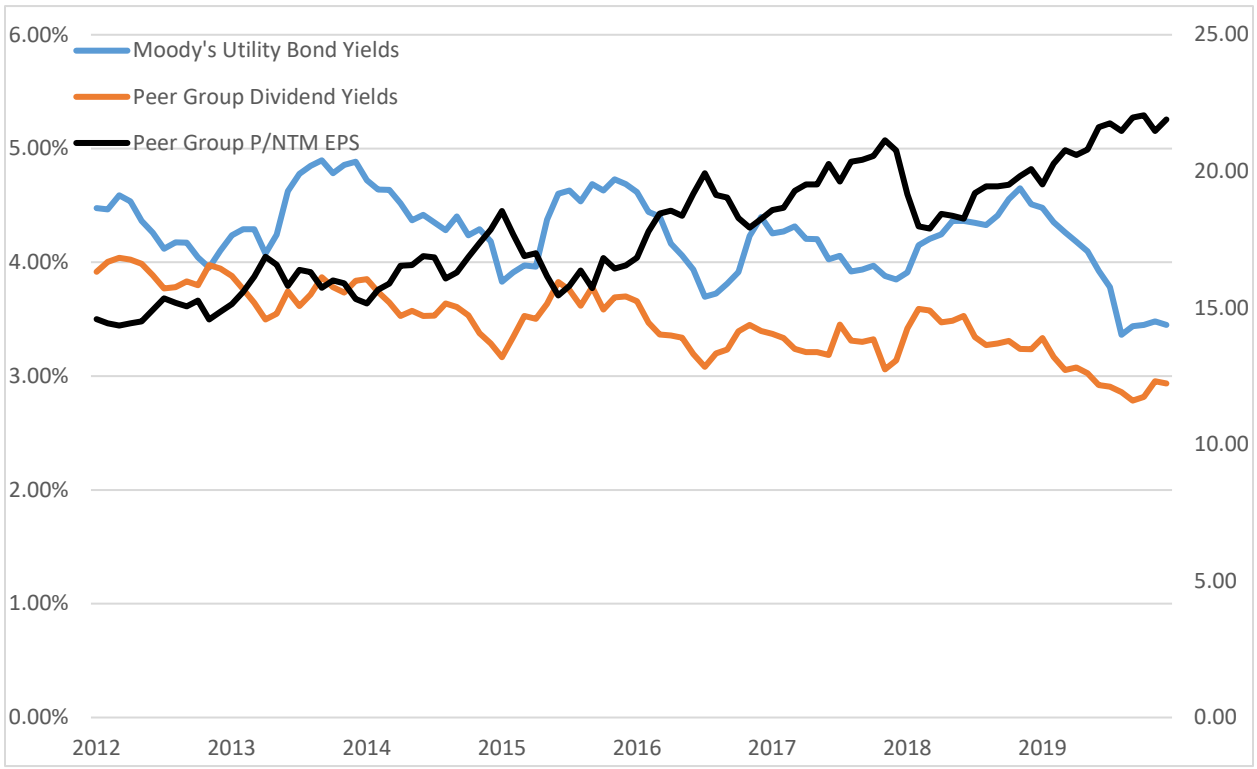
Q. Why are long-term interest rate trends important when evaluating utility COEs?

A. For investors, utility stocks are a close alternative to bonds. In fact, the investment community estimates fair prices of utility stocks based on regressions to bond yields.[11] The investment community often refers to utility stocks as bond-substitutes or pseudo-bonds. Therefore, changes in utility stock valuation levels typically have a strong inverse correlation to changes in bond yields, *i.e.,* as bond yields decline, utility stock prices increase.

Q. Does the strength of this correlation vary in time?

A. Yes. Based on my experience of following utility stocks and analyzing historical periods during various long-term interest rate cycles, when long-term interest rates decline significantly and unexpectedly, utility stock valuation levels increase significantly. This relationship was on full display during late 2014 and early 2015, as well as in the middle of 2016, as can be seen in the chart below:

[11] Julien Dumoulin-Smith, et. al, "4Q 2018 Regulated Utilities Preview: Pullback limited as Contagion Contained," January 22, 2019, Bank of America Merrill Lynch.



The black line on the above chart shows utility P/NTM (Price/Next-Twelve-Months) earnings per share (EPS) ratios since January 1, 2012 for a proxy group of electric utility companies that I analyzed when I was a Staff witness in electric utility rate cases in 2012 and 2014 ("2012/2014 Group").[12] These are the same companies Staff analyzed in Empire's 2012 and 2014 rate cases, Case Nos. ER-2012-0345 and ER-2014-0351. Although I was not a Staff witness in those cases, I supervised Staff's witness, Shana Atkinson, at the time; therefore, I am familiar with her testimony and work product in those cases. The orange line shows the dividend yields for these companies, and the blue line reflects Moody's average utility bond yields. As the chart shows, utility P/E ratios spiked at the end of 2014 and early 2015 when interest rates declined.

[12] Alliant Energy (LNT), American Electric Power (AEP), CMS Energy Corporation (CMS), DTE Energy Company (DTE), IDACORP Inc (IDA), OGE Energy Corp. (OGE), Pinnacle West Capital (PNW), PNM Resources Inc. (PNM), Portland General Electric (POG), Southern Company (SO), Wisconsin Energy (WEC), Xcel Energy (XEL)

Q. As the Staff's Financial Analysis Department Manager, did you collaboratively develop appropriate ROR positions to consider utility stock price reactions to the decline in interest rates in late 2014 and early 2015?

A. Yes. While I was Staff's Manager of the Financial Analysis Department, we observed and testified on these pricing changes that occurred from November 2014 through March 2015. The increase in utility stock prices was clearly due to the declining cost of capital. Utility dividend yields and bond yields declined both rapidly and dramatically. In fact, because it was so clearly evident that utility companies' costs of capital (both debt and equity) had declined consistently and significantly, I recommended the Commission allow Ameren Missouri a ROE of 9.25% in Case No. ER-2014-0258. I made that recommendation because at the time I estimated that Ameren Missouri's COE had declined by at least 50 basis points since the Commission allowed Ameren Missouri a ROE of 9.8% in Case No. ER-2012-0166. Staff also recommended similar allowed ROEs for Empire and KCPL during that period. Staff's recommendation for Empire's allowed ROE was 25 basis points higher than its recommendations for Ameren Missouri and KCPL in 2014 because Empire's credit rating was lower than those of Ameren Missouri and KPCL at the time. Moody's, the only rating agency that still performs a stand-alone analysis on Empire, assigns the same credit rating to Empire as it does to Ameren Missouri, currently Baa1.

Q. When has this inverse correlation between utility stock valuation levels and bond yields broken down?

A. Utility stock valuation levels increased during much of 2018 while Moody's utility bond yields increased. This relationship was the opposite of the traditional inverse correlation of bond yields and utility stock valuation levels. Most in the investment community attributed the high demand for utility stocks in 2018, despite higher bond yields, to investors' fear of a potential recession with the flattening of the yield curve. As Wolfe Research noted in a January 6, 2019, research report, "2018 was only the 8th year in the last

50 years that utilities outperformed the market in a year when bond[s] yields rose (the others were 1973, 1974, 1975, 1977, 1981, 1990, 2005, 2006, and 2016)."[13]

Q. Have utility stock valuation levels and bond yields reverted to their traditional inverse correlation?

A. Yes. Utility stock P/E ratios are at all-time highs. Electric utility P/NTM EPS have been in the 21x to 22x[14] range for the entire second half of 2019 with little signs of a pullback. Consistent with these high valuation levels, electric utility dividend yields have been at 3% or below during the same period. Utility bond yields are at their lowest levels in over 60 years. Both the utility debt and equity markets clearly indicate that the cost of capital for utilities is the lowest it has been in modern times. Although there was some sentiment during 2017 to 2018 that interest rates/bond yields might finally return to higher levels, this sentiment has changed. Consequently, investors continue to price utility stocks based on expectations that the cost of capital is going to remain low for the foreseeable future.

Q. Are you aware of equity analyst statements about recent utility stock valuation levels?

A. Yes. Wolfe Research indicated the following in its 2020 Outlook:

> "…but valuations are still high…Utilities are trading at an 11% premium to the market, which is still well above the 4% average. They trade at nearly 20x 2021 earnings, an all-time high. While 5-6% EPS growth is decent, current valuations are still highly dependent on a low growth, low rate environment."[15]

Wells Fargo recently provided the following commentary in its 2020 outlook:

> In 2019, the S&P Utilities provided investors with another year of attractive risk-adjusted returns. The total return for the sector was 26% vs. 31% for the S&P 500 – keep in mind, the group's adjusted beta is 0.5X. We attribute the solid performance to a number of factors including (1) a persistently

[13] Steve Fleishman and David Paz, "Top 10 things to watch for 2019," January 6, 2019, Wolfe Research.
[14] Valuation levels of stocks are often evaluated/compared as a price to earnings per share (P/E). Although the numerator (price) is usually consistent across measurements, the denominator (earnings per share) can be measured in a number of ways. Earnings per share (EPS) may be measured on a historical basis or a forward estimate basis. EPS estimates may be for the next twelve months (NTM) or estimates for the next fiscal year or 2 to 3 fiscal years out.
[15] Steve Fleishman, et. al, "Top 10 things to watch for 2020," January 7, 2020, Wolfe Research.

> benign interest rate environment (the yield on the 10-yr Treasury declined nearly 30% to 1.9%), (2) global economic uncertainty including the ongoing trade war with China and (3) a continued strong fundamental outlook for regulated electric, gas & water utilities. With that said, utilities lagged the broader market by ~10% in Q4'19 as global trade tensions eased and reported economic data remained healthy.[16]

Q. Do investors expect the prolonged low cost of capital environment we are experiencing to cause allowed ROEs to fall?

A. Yes. While investors are accustomed to allowed ROEs being higher than the industry COE, when evaluating stocks they price in the probability that the spread between allowed ROEs and the industry COE will not widen considerably, and may narrow. This is especially true the longer the U.S. markets experience a "lower-for-longer" yield environment.[17]

Wells Fargo specifically stated the following:

> One of the more surprising trends of the last decade is the stickiness of allowed ROEs despite a period of sustained low long-term interest rates. As depicted in Exhibit 9, the spread between allowed ROEs and the 10-Yr Treasury Bond yield has been 700+ bps since 2009 vs. <700 bps during the period 1990-2008. We attribute the high spread to a number of factors including (1) limited overall bill pressure (per Exhibit 10, the 5-yr national average annual electric rate increase was 1.7% during the period 2014-18), (2) greater policymaker appreciation for the benefits of infrastructure investment ranging from improved reliability to economic stimulus, (3) increased adoption of investment tracker and rider mechanisms, which further reduced revenue requests in base rate proceedings and (4) regulatory fragmentation – our perception is that regulators are generally hesitant to approve ROEs that materially differ from the national average (particularly to the downside) for fear of losing capital investment to other states.

Looking ahead, we remain of the opinion that the overall regulatory approach towards allowed ROEs will be one of incrementalism. In the event the 10-Yr Treasury Yield

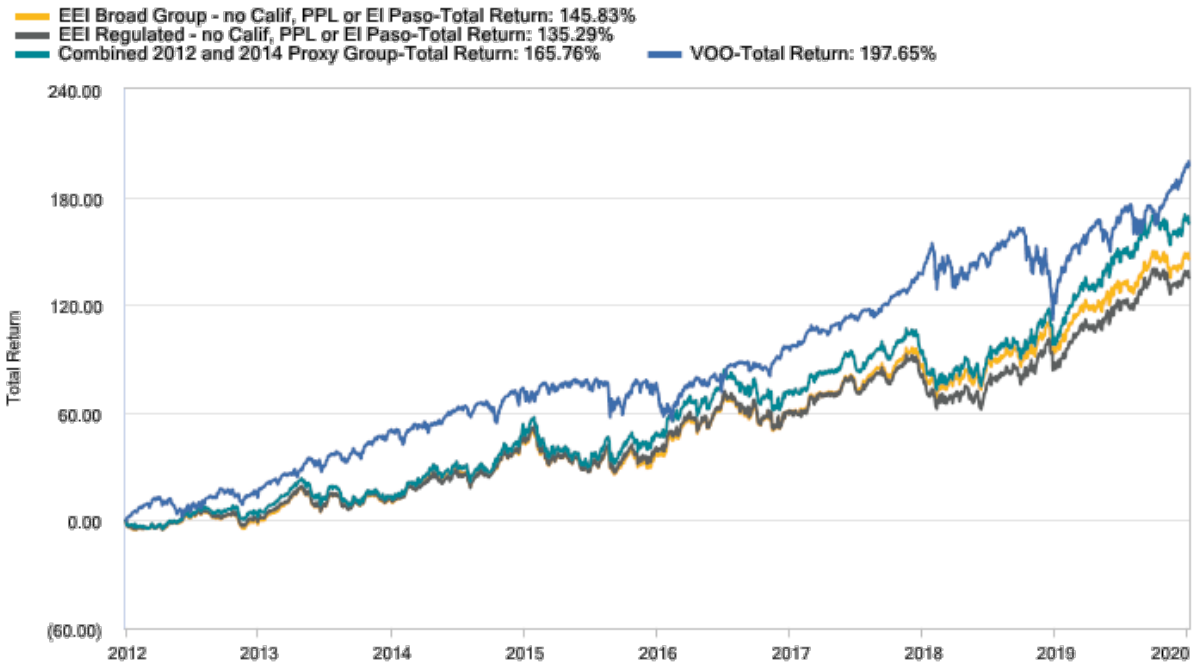
[16] Neil Kalton, Sarah Akers, Jonathan Reeder, David Welkener, "Utility and Infrastructure Outlook 2020 (And Beyond)," January 8, 2020, Wells Fargo

[17] Greg Gordon, et. al, "Regulatory Risk Is Starting To Be More Pronounced. Utilities Have Lagged The S&P 500 By 6.6% Since Late October," November 27, 2019, Evercore ISI. Neil Kalton, Sarah Akers, and Jonathan Reeder, "DDM Analysis Supports Sector Valuation & Quality/Growth Trade," August 19, 2019, Wells Fargo.

remains sub 3%, we think the average allowed ROE could drift down to ~9% vs. the 2019 average of 9.6%. We also believe this could take a few years to play out.[18]

Q. How have returns on investments in electric utility companies performed relative to the companies in the S&P 500?

A. See the below chart for a graphic illustration of a couple of proxy groups of electric utilities as compared to the S&P 500.



As can be seen, the total return for the S&P 500 over the last eight years has been higher than the various electric proxy groups. The compound annual return for the S&P 500 was 14.61% as compared to 13.00% for the 2012/2014 Group, 11.29% for the Edison Electric Institute (EEI) regulated proxy group, and 11.9% for the EEI broader proxy group. Perhaps one of the more interesting observations from the above chart is the fact that the S&P 500's total return was similar to that of the 2012/2014 Group through October 1, 2019. Although the S&P 500 significantly outperformed utilities in the fourth quarter of 2019, this was not due to a contraction in utility stock prices, but rather a rapid increase in the

[18] . Neil Kalton, Sarah Akers, Jonathan Reeder, David Welkener, "Utility and Infrastructure Outlook 2020 (And Beyond)," January 8, 2020, Wells Fargo.

S&P 500 index. Consequently, since utility stock valuation levels have been essentially constant since I prefiled testimony in Ameren Missouri's electric rate case last month, my opinion that the utility industry continues to enjoy a very low cost of equity has not changed.

Q. Why are electric utility stock market returns nearly keeping pace with those of the S&P 500?

A. Declining interest rates and investors' expectations that long-term interest rates are going to remain lower for longer. Although there may be a few utility companies, such as Ameren Corporation, for which investors may expect higher near-term growth rates, the utility industry-wide market data does not support this as a general proposition.

Q. Do you have any other support for your opinion that electric utility industry's COE is low?

A. Yes. A common financial metric investment analysts use to evaluate the valuation levels of stocks is the price-to-earnings to long-term growth ratio ("PEG"). This ratio divides the P/E ratio by projected long-term growth rates (P/E ÷ LTG). Investment analysts use this ratio because it is indicative of whether P/E ratios are increasing due to increased growth expectations or some other factor(s), e.g., declining COE. PEG ratios have been increasing since 2014, which means that the P/E ratio has been expanding more rapidly than is expected based on growth alone. Therefore, COEs have been declining, making expected cash flows from utilities worth more than they were when their COEs were higher. The PEG ratio was 3.39x during the 6-month period October 2014 through March 2015 (general period Commission reviewed when authorizing 9.5% ROEs in 2014 rate case) and 4.08x for the period July 1, 2019, through December 31, 2019. If the PEG ratio had stayed consistent with its level in 2014, then it might be appropriate to conclude that the increase in the P/E ratio over time was due to higher growth expectations. However, a closer review of the implied growth rates from the PEG ratios in 2014 shows that expected long-term growth rates have barely changed. Consequently, most of the increase in the P/E ratio for utilities since 2014 is evidence that their costs of capital have declined since 2014.

Q. Do you have any other support that the cost of capital for utilities is much lower now than it was in 2014?

A. Yes. Betas (a measure of risk), which is an adjustment factor used to estimate required returns in the CAPM, have declined considerably for the utility industry since 2014. Betas for companies in my proxy group in the 2014 rate case with a higher regulated business risk concentration were generally in the range of 0.70 to 0.75. Betas for my proxy groups in this case are generally in the range of 0.55 to 0.60. This 0.10 to 0.20 decline in beta implies reductions to the utility industry's risk premium of 60 to 120 basis points premised off an approximate 6% equity risk premium.

Assuming the risk-free rates remained the same, then this in and of itself shows that the electric utility industry's COE has decreased by at least 60 to 120 basis points since the Commission used allowed ROEs of approximately 9.5% when setting rates for Missouri's vertically-integrated electric utilities in early 2015. However, considering that risk-free rates have also declined since then, this indicates an even greater decrease in the utility industry's COE.

Q. How much lower are the yields on utility bonds for the most recent 6 months compared to the 6-month period from October 1, 2014, through March 30, 2015?

A. They are 60 basis points lower. All of the market data signals that utilities' costs of capital have declined considerably since late 2014/early 2015.

COST OF EQUITY METHODS

Q. Now that you have provided some context on changes in the utility capital markets, would you explain how you decided to approach estimating Empire's COE?

A. I performed a multi-stage DCF analysis and a CAPM analysis on a broad electric utility proxy group. Because this broad proxy group contains diversified companies, I also evaluated the COE of various subsets of members in this broad proxy group to determine if their average implied COE was significantly different than those of the broad group. I

then tested the reasonableness of my estimates by using some simple, straightforward sanity checks, such as the straightforward bond-yield-plus-risk-premium method discussed in the CFA curriculum.

Q. What have you done to make informed decisions as to rational and reasonable inputs for your COE analyses?

A. Being that the objective of a ROR witness is to emulate investors' approaches to analyzing and making investment recommendations as it relates to investing in utility stocks, I have made it a priority to review, analyze, and understand how equity research analysts estimate fair prices for utility stocks. This has allowed me to test the theory of cost of capital estimation in utility ROR testimony, as it compares to practice. I have discovered that investment analysts may use some form of a multi-stage DCF approach to estimate fundamental values of utility stocks, but they do not assume that dividends will grow in perpetuity at the same rate as a projected long-term compound annual growth rate ("CAGR") in EPS. They assume rational perpetual growth rates in the 2.5% to 3.5% range when discounting dividends. Finally and most relevant to the task at hand, they presently are estimating the electric utility industry's COE to be in the range of 5% to 6%.[19]

Q. What equity research firms cover Empire's parent company, APUC?

A. According to APUC's website, the following firms cover its stock: BMO Capital Markets, Canaccord Genuity, CIBC, Desjardins Securities, Industrial Alliance, J.P. Morgan, National Bank, Raymond James, RBC Capital Markets, Scotia Capital, TD Ameritrade, and Wells Fargo.

[19] *Id.*

Q. Is it important to analyze the information these equity research firms rely on to determine a fair and reasonable ROE for Empire?

A. Yes.

Q. Why?

A. Analyzing this information is important because these professional investment analysts are the very individuals that underlie various consensus estimates widely considered by investors. ROR witnesses recognize the influence investment analysts have on utility stock prices by the very fact that they use consensus EPS forecasts for purposes of estimating a proxy group's COE.

Q. Did you review research by any of these firms for purposes of performing your cost of equity analysis?

A. Yes. I mainly relied on reports Empire provided to me in response to OPC Data Request No. 3001. However, over my career I have established relationships with some equity investment firms/analysts who have distributed this material to me directly through their email distribution lists. These relationships were borne from my role as a regulator in which many of these analysts seek information related to general and specific Missouri regulatory issues. I have also interacted with these analysts through my participation in organizations, such as the Society of Utility and Regulatory Analysts ("SURFA").

Q. Are the equity research firms that follow APUC the same firms that typically follow United States' publicly-traded utility companies?

A. No, with the exception of three firms, Bank of America Merrill Lynch, Wells Fargo and JP Morgan. The remaining firms primarily cover Canadian publicly-traded utility companies.

Q. Do firms perform capital market analyses for Canadian utility companies similarly to how they perform them for United States' utility companies?

A. Yes. The fundamentals to valuation analysis do not vary by country, even if the strategies of Canadian-based utilities may be a bit different from those of their U.S. counterparts. For example, I discovered many of these investment analysts perform DCF analyses to estimate a fundamental value for the companies they cover. They also compare the P/E ratios of their covered companies to their peers in Canada, but also to their peers in the United States. Of course, in order to perform a DCF analysis an investor must estimate his/her own cost of equity. Because APUC is riskier than Empire, an investors' COE used to discount expected APUC cash flows would be higher than a COE used to discount Empire's cash flows.

Q. What is a sustainable growth rate for electric utility industry in the United States?

A. I reviewed past actual historical industry growth rate data from the Moody's electric utility index,[20] a sample group of electric utility companies in which data was available from Value Line,[21] and commentaries/analyses available from institutional investors/analysts.[22] This information supports a perpetual growth rate in the range of 2% to 3%. A perpetual growth rate within this range is also consistent with the "sustainable growth model," which estimates EPS growth by multiplying an average long-term industry retention rate by an expected book ROE. Assuming the utility industry reverts to its long-term earnings retention rate of approximately 30% and allowed ROEs are eventually lowered to compress the spread between the COE and the allowed ROE, this would support a 2.7% perpetual growth rate (9% allowed ROE multiplied by 30%). Equity analysts at both Wells Fargo and Evercore ISI are using scenarios where allowed ROEs eventually decline to between 9% to 9.25% as we remain in this prolonged period of low debt and equity capital costs.[23]

[20] Staff Cost of Service Report, Case No. ER-2011-0028, p. 18.
[21] *Id.*
[22] Discussed throughout this testimony.
[23] Greg Gordon, et. al, "Regulatory Risk Is Starting To Be More Pronounced. Utilities Have Lagged The S&P 500 By 6.6% Since Late October," November 27, 2019, Evercore ISI (HC Schedule DM-D-14). Neil Kalton, Sarah Akers, and Jonathan Reeder, "DDM Analysis Supports Sector Valuation & Quality/Growth Trade," August 19, 2019, Wells Fargo (HC Schedule DM-D-15).

Q. How does this perpetual growth rate in the range of 2% to 3% compare to perpetual growth rates equity analysts use for estimating fair electric utility stock prices?

A. It is consistent. For example, Evercore ISI is using a perpetual growth rate of 2.5% in its 3-stage DDM analyses of electric utility stocks.[24] Wells Fargo is using an average perpetual growth rate of around 3%.[25] In the past, when Goldman Sachs provided visibility to its DDM analysis, it used 2.5% as a perpetual growth rate.[26]

Q. Are these growth rates comparable to Empire's rate base growth over the past ten years?

A. Yes. Based on Empire's estimated rate base through the true-up period in this case, Empire's rate base compound annual growth rate (CAGR) has been approximately 3% since 2010. This further supports a rational expected terminal growth rate in the 2% to 3% range.

PROXY GROUP COST OF EQUITY

Q. How did you select the proxy group that you used for purposes of estimating Empire's COE?

A. I decided to analyze a broad proxy group of utilities that Edison Electric Institute ("EEI") classified as "regulated" or "mostly regulated" as of December 31, 2018.[27] Although I provide a COE estimate based on this broad electric proxy group, it is important to evaluate the COE estimates for various subsets of this broad proxy group that are more representative of Empire's pure-play regulated business risk profile. Because the broad group included several utility companies with significant exposure to the California wildfires and PPL Corporation, which has been facing uncertainty regarding its utility operations in England, I provided a COE estimate without these companies.

[24] *Id.*
[25] *Id.*
[26] Staff Cost of Service Report, Case No. ER-2010-0036, p. 32.
[27] EEI 2018 Financial Review, p. 38. EEI classifies companies as "Regulated" if at least 80% of their assets are dedicated to regulated utility operations.

Even this subset still has non-regulated business risk exposure, contributing to volatility to earnings and/or cash flows. Therefore, I reviewed the various business segments of each of these companies to determine which generally have less than 5% of their operations exposed to competitive markets (14 companies). After determining this subset, I further refined the subset of companies to select a proxy group that could be considered pure-play multi-utilities (regulated gas and electric, but predominately electric-7 companies). My final subset of this group was limited to companies that are truly pure-play vertically integrated electric utilities (5 companies). I also reviewed the 2012/2014 Group, which also was a subset of the EEI group.

Q. What methods/models did you use to estimate the proxy groups' COE?

A. I used the DCF method and the CAPM.

Q. What version of the DCF did you use for your DCF analysis?

A. I used the multi-stage version because it allows for a modeling of changes in dividend growth due to varying capital expenditure cycles occurring within the electric utility industry. As I observed in the pending Ameren Missouri rate case, Case No. ER-2019-0335, some companies are currently in a higher capital expenditure cycle due to policy initiatives related to grid modernization and investment in renewables. During such cycles, companies will typically retain a higher percentage of their earnings in order to reinvest capital back into their systems. Although the utility may still increase its dividends during this capital spend cycle, it is typically at a slower rate than the utility's expected earnings growth. At the point in time at which the investment cycle ends, a company's DPS will grow faster than its EPS until the company achieves a payout ratio (DPS/EPS) consistent with a sustainable growth rate. From this point in time forward into perpetuity, the constant-growth DCF (more specifically the constant-growth DDM) can be used to estimate the value of perpetual cash flows.

Q. How did you determine the near-term expected DPS for your proxy group?

A. I used consensus equity analysts' estimates of the annual DPS for each company. I used these discrete estimates for as many annual periods that were available. Consensus equity analysts' annual DPS estimates are available for at least the next two years for all companies in the broad proxy group, with 75% of the companies having annual DPS estimates for at least three years.

Q. How did you model the expected DPS for your proxy group for annual periods after the discrete stage?

A. I determined each company's estimated dividend payout ratio for the final year where a discrete annual DPS estimate was available. I then modeled an equal percentage change in the annual payout ratio from this period until the terminal year, which is when I assumed that all companies would return to an historical industry average payout ratio of approximately 70%. This payout ratio is consistent with a constant-growth state for the electric utility industry where growth returns to the long-term historical averages in the range of 2% to 3%. Assuming average allowed ROEs remain at their current level of approximately 9.5%, this payout ratio translates into a perpetual growth rate of 2.85% (0.3 x 9.5%).

My utility industry COE estimate based on application of the multi-stage DCF to the proxy group shows a COE in the 6.5% to 6.75% range. However, when I filter the results to ensure that the COE estimates are limited to pure-play regulated utilities or at least predominately regulated utilities, the COE estimates are consistently around 6.5% (see Schedule DM-D-6-4).

Q. Did you perform your multi-stage DCF analysis in this case the same way you performed that analysis when you were employed by Staff?

A. No. While I was with Staff, the multi-stage DCF I performed on my proxy group was more generic (see Schedule DM-D-6-5). I assumed that dividends would grow at the same rate as EPS during the first five years. However, typically DPS will not increase at the same rate as EPS during periods of higher capital expenditures. The growth in DPS will usually lag the growth in EPS. After the increased capital expenditure cycle ends, then the DPS

growth rate will usually be higher than the EPS growth rate. During this period, companies will adjust their dividend payout ratios to consider their stage in the building cycle. After the building cycle returns to a maintenance level of capital expenditures, then the payout ratio will increase until the company reaches its sustainable/constant state. The multi-stage DCF I performed in this case incorporates this reality. After a build-cycle, especially with no expected load growth, eventually the growth rate would revert to no higher than historical averages. Because rate-regulated utilities earn a return on the book value of their investment, it is reasonable to use the long-term electric utility industry average dividend payout ratio (around 70%) to determine the potential perpetual growth rate by multiplying the retention ratio by a book ROE. My second stage growth rate was a generic five-year transition period until the model reaches the terminal stage.

The multi-stage DCF analysis that I sponsor in this case for the proxy groups still has three stages, but the first stage discounts discrete consensus annual DPS estimates for as many years as they are available for each company. At the point in time for which no discrete DPS estimates are available, I applied an estimated dividend payout ratio to each company's projected EPS in order to estimate the dividend payment. Because the projected EPS is based on analysts' estimates for the first five years and then transitions to a sustainable growth rate by year ten, this approach captures the influence of analysts' estimates on utility stock prices, while still discounting the appropriate metric, DPS. This method also corrects for the fact that the dividend payout ratio should change until the company reaches a sustainable state where it manages its dividend payout ratio to ensure it is not required to issue new equity, which would reduce the value of existing shares.

Q. How did this change in your multi-stage DCF analysis from when you were employed by Staff affect your COE estimate?

A. It increased my COE estimate by up to ten basis points, *i.e.*, my estimate would have been up to ten basis points lower with the inputs I used when at Staff than with the inputs that I used in this case. The higher COE estimate using my current approach is mainly due to the fact that adjusting the dividend payout ratio for a sustainable stage recognizes that dividends will increase faster than EPS for the transition period. However, ensuring that

earnings, dividends, and book value grow in equilibrium in the terminal stage is consistent with the assumptions of the constant-growth DCF model and, therefore, this approach should be used. Regardless, because it is clear that the estimated COE is much lower than allowed ROEs, I do not consider it critical to more precisely estimate the COE. In my opinion, it is simply fair and reasonable for the Commission to lower the authorized ROEs for Missouri's electric utility companies due to the significant amount of evidence that indicates their cost of capital has declined even further since 2014-2015. This lower cost of capital has been sustained over many years and utility stock prices reflect an expectation of sustained low long-term interest rates.

Q. How does this COE estimate compare to the COE estimates that you and the Staff personnel you supervised in 2014-to-2015 recommended during the three electric rate cases in late 2014 to early 2015?

A. My current COE estimate using the same approach, but with updated stock prices and updated 5-year growth rates, indicates a COE that is approximately 60 to 100 basis points (0.6% to 1.0%) lower than those we estimated in late 2014 and early 2015.[28]

Q. Did you use any other models to estimate the proxy groups' COE?

A. Yes. I used the CAPM. The CAPM shows the specific impact of lower interest rates on the cost of capital. Although one can manipulate COE estimates by using unreasonable risk premium estimates in the CAPM analysis, there are several authoritative sources that provide equity risk premium estimates based on current capital market conditions that can form the basis for a consensus view on reasonable risk premiums.

Q. What is the theory underlying the CAPM?

A. The CAPM is based on capital market theory. In that theory it is recognized that the total risk of a company and/or industry consists of market ("systematic") risk and asset/business-specific ("unsystematic") risk; however, investors are only compensated for systematic risk

[28] Staff Cost of Service Report, Case No. ER-2014-0258, Appendix 2, Schedule 12-1; Staff's Cost of Service Report, Case No ER-2014-0351, Appendix 2, Schedule 13-1; and Staff's Cost of Service Report, Case No. ER-2014-0370, Appendix 2, Schedule 13-1.

because investors can avoid unsystematic risk by diversifying their portfolios. Systematic risks are unanticipated events in the economy, such as economic growth, changes in interest rates, demographic changes, etc., that affect almost all assets to some degree. The required risk premium for incurring the market risk as it relates to the investment/portfolio is determined by adjusting the market risk premium by the beta of the stock or portfolio. The adjusted risk premium is then added to a risk-free rate to determine the cost of equity. The CAPM equation is as follows:

$$K_e = Rf + \beta\,(RP_m)$$

Where:
K_e = the cost of equity for a security;
Rf = the risk-free rate;
β = beta; and
RP_m = equity risk premium.

Although the equity risk premium is the main variable that typically introduces bias/error in cost of common equity estimates, fortunately many sources provide rational and reasonable estimates of expected/required market returns for purposes of determining an industry/company-specific COE estimate. Duff & Phelps (D&P) summarize many of these market risk premium estimates in their 2019 Valuation Handbook. According to Exhibit 3.28 in the 2019 D&P Valuation Handbook, equity risk premiums are generally in the range of 5% to 7%. An equity risk premium within this range is also consistent with the 5.5% equity risk premium Bank of America Merrill Lynch used to estimate the COE to apply to cash flows derived from Atlantica Yield.[29] Although each of these equity risk premium estimates are based on both ex-post and ex-ante approaches, as well as conditional and unconditional risk-free rates, any estimate outside these levels would not be considered consistent with the "consensus." One of the primary drivers of using a higher equity risk premium versus a lower equity risk premium is due to whether this equity risk premium is applied to a normalized risk-free rate or a current risk-free rate (higher equity risk premiums applied to lower current low risk-free rates). Expected market returns for the S&P 500 are as low as in the 5% to 6% range[30], with no rational institutional investor

[29] Bank of America Merrill Lynch Report, May 4, 2019.
[30] https://www.philadelphiafed.org/research-and-data/real-time-center/survey-of-professional-forecasters/2019/survq119

expecting a market return greater than 8% to 9%. An equity risk premium of approximately 6% is reasonable for purposes of the CAPM.

Q. Based on your CAPM analysis, what are your COE estimates for your proxy groups?

A. The proxy group estimates are in the range of 5.35% to 6.1%, with the pure-play subsets of the broad proxy group indicating a COE toward the lower end because of their lower betas (see Schedules DM-D-7 through DM-D-9).

Q. Is there anything about your CAPM analysis that you would like to highlight?

A. Yes. Because regulated utilities are more insulated from macroeconomic factors than the overall market, regulated utility betas (risk-adjusted risk premium) have consistently been the lowest of all industries over various economic/business cycles. Although utility betas are consistently lower than those of almost all other sectors, they can vary within the utility sector over time. In recent years, utility betas have declined considerably. My analysis of utility betas shows they are now near 0.5 compared to around 0.7 just a couple of years ago. I rely on my past cost of capital analyses in utility rate cases over the last several years for this conclusion. A 0.5 beta implies that investors would require half the risk premium they require for investing in the market. Not only have betas declined, but risk-free rates also have declined. Since long-term risk-free rates have declined due to general market conditions rather than a concerted effort by the Fed to reduce long-term rates through quantitative easing programs, these conditions are not anomalous, as some have suggested in years past.

Q. What other tests did you use to verify that your COE estimates are rational and logical?

A. First, I used the simple rule of thumb that the CFA curriculum suggests for providing an approximate estimating of a company's COE, which it to add a 3% to 4% risk premium to a company's bond yield. Because the investment community views utility stocks as bond surrogates/substitutes, it is logical and reasonable to add the low end of this risk premium

range to a bond yield. Simply adding a 3% risk premium to recent average BBB rated and 'A'-rated utility bond yields of 3.4% to 3.75% implies a COE of around 6.4% to 6.75%.

Second, one just needs to consider the basic characteristics of utility stocks, which is that investors view them as yield investments. A Bernstein research report showed that between 1974 to 2010, approximately 68% of returns from utility stocks were from the income received through dividends, with the remaining return coming from capital gains.[31] Assuming regulated electric utility companies have sustainable investment opportunities to allow them to generate 50% of returns from capital gains, this translates into at most a 6% required return considering regulated electric utilities are trading at an approximate 3% dividend yield. However, this would mean that there would be a fundamental shift in the composition of expected utility returns, which historically has been more heavily weighted to returns being achieved through income.

Q. Did you perform any other reasonableness tests of your COE estimate for Empire?

A. Yes. Using rational inputs, the constant-growth DCF (i.e. the Gordon Growth DDM) can provide fairly straight-forward and logical COE estimates. Dividend growth for the utility industry has not been very high over long periods. As I have already discussed, most investors use a terminal growth rate of close to 3% for purposes of the perpetual growth stage. This terminal growth rate is based on long-term industry averages and economic logic. Consequently, a COE estimate much higher than an average electric utility dividend yield of approximately 3% plus a 3% to 4% dividend growth rate is not logical based on the current economic environment and industry fundamentals. Combining the dividend yield with a 3% to 4% growth rate implies a COE of 6% to 7%. However, this conclusion as to COE implies that regulated electric utility investors expect a greater portion of their return to be in the form of capital gains rather than the dividend yield, which would be a departure from utility stock characteristics.

[31] Hugh Wynne, Francois D. Broquin, and Saurabh Singh, "U.S. Utilities: Our Dividend Growth Model Identified Utilities Poised to Pay More," May 20, 2011, Bernstein Research.

Q. Based on your analysis and understanding of the utility industry's current COE, investor expectations on allowed ROEs and the COE environment that existed when the Commission initially authorized its electric utilities an allowed ROE of approximately 9.5%, what would be a fair and reasonable allowed ROE in this case?

A. Based solely on the utility industry capital market evidence, an allowed ROE of 8.5% to 9.0% is justified. However, as I explained earlier in my testimony, if Empire's authorized capital structure is set consistent with the amount of leverage APUC targets and/or uses to invest in its regulated utility assets, then I recommend the Commission allow Empire a 9.25% ROE.

OVERALL RATE OF RETURN

Q. Are there any other matters that you need to consider for purposes of your recommended allowed ROR in this case?

A. Yes. In the Ameren Missouri rate case, I recommended the Commission not allow Ameren Missouri any higher than a 9.25% allowed ROE as long as this ROE is applied to my recommended 48% common equity ratio. While I consider it important to recognize the amount of leverage APUC's regulated utility assets truly support, I also recognize that a legitimate argument can be made that because LUCo's capital structure is more leveraged than that which I recommended for Ameren Missouri, it should be allowed a slightly higher ROE. In my opinion, a reasonable resolution to this discrepancy would be to authorize Empire a common equity ratio of 48% rather than adjusting my recommended ROE of 9.25%. However, considering the various issues I encountered in this case in deciphering the true amount of debt Empire's assets are supporting at the LUCo level, I think the use of LUCo's actual common equity ratio of approximately 46% is fair and reasonable. It is within APUC's power to be more conservative and transparent about the true amount of leverage it uses to support its utility investments, including its support of Empire.

Q. What is your recommended ROR for Empire?

A. My recommended ROR of 6.77% is based on an ROE of 9.25% applied to a 46% common equity ratio and cost of debt of 4.65% applied to the remaining 54% of the capital structure (see Schedule DM-D-10).

SUMMARY AND CONCLUSIONS

Q. Can you summarize your main conclusions and views as it relates to an allowed ROR in this case?

A. Yes. The cost of capital for utilities is low nationwide, and has fallen further in recent years. The sustained high valuation levels of utility stocks is direct evidence of this. Around the time—2014-to-2015—when the Commission initially decided an approximate 9.5% allowed ROE was fair and reasonable for Missouri's electric utilities, electric utility stocks traded at P/E ratios of around 15x, but now they trade at over 20x. Each year that goes by, it would seem unlikely that utility P/E ratios could not go higher, but they do. This is a direct result of a continued downward trend in long-term interest rates, which has resulted in the issuance of utility bonds at rates that have not been realized in 60 to 70 years. Electric utility dividend yields are also below 3%, which shows that the lower interest rates have caused a significant decline in the utility industry's cost of equity as well. Additionally, utility stock betas have declined considerably to approximately 0.5, which means utility stock investors require half the risk premium required to invest in the S&P 500.

As it relates to APUC's management of Empire's capital structure, it is clear that APUC has not managed this capital structure for purposes of economic efficiency for Empire's customers. In fact, Empire no longer has independent access to the capital markets. APUC is managing Empire's capital structure for its own economic efficiency. The Staff and the OPC attempted to protect Empire's customers from these issues by imposing certain financing conditions on its agreement to recommend the Commission approve APUC's acquisition of Empire. Unfortunately, APUC has not complied with these

conditions. However, I believe my recommended capital structure rectifies APUC's, LUCo's, and Empire's failure to comply with these conditions.

Q. Does this conclude your testimony?

A. Yes.

DAVID MURRAY

DIRECT TESTIMONY

CORRECTION SHEET

Page #	Line #	Correction Made	Reason for Correction
14	Lines 4, 14 and 15	GR-2014-0252 should be GR-2014-0**1**52	Typo
15	Line 17	Replace “Over the last two quarters” with “In the first and third quarters of 2019”	Mistake
15	Line 21	Replace “of” with “to”	Error
