Exhibit No.:	
Issue(s):	Rate of Return (ROR)/ Capital Structure
Witness/Type of Exhibit:	Murray/Direct
Sponsoring Party:	Public Counsel
Case No.:	ER-2021-0312

DIRECT TESTIMONY

OF

DAVID MURRAY

Submitted on Behalf of the Office of the Public Counsel

THE EMPIRE DISTRICT ELECTRIC COMPANY
D/B/A LIBERTY

FILE NO. ER-2021-0312

** **

Denotes Confidential Information that has been Redacted

October 29, 2021

PUBLIC

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

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

AFFIDAVIT OF 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 29th day of October 2021.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

TIFFANY HILDEBRAND
My Commission Expires
August 8, 2023
Cole County
Commission #15637121

Tiffany Hildebrand
Notary Public

My Commission expires August 8, 2023.

TABLE OF CONTENTS

DIRECT TESTIMONY

OF

DAVID MURRAY

EMPIRE DISTRICT ELECTRIC COMPANY

FILE NO. ER-2021-0312

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 aspect of ratemaking do you address in your testimony?

A. Rate of return ("ROR") for purposes of setting The Empire District Electric Company's ("Empire") revenue requirement for its regulated electric utility operations.

Q. What experience, knowledge and education qualify you to sponsor ROR testimony in this case?

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 aspects of ROR will you address?

A. I will address a fair and reasonable allowed return on common equity ("ROE") and a fair and reasonable capital structure.

Q. What is your main conclusion after analyzing Empire's specific financial situation as well as the current state of capital markets?

A. Empire's allowed ROE should be set at 9%, based on my recommended authorized ROE range of 8.5% to 9.25%. My recommended range reflects consideration of the following factors: Empire's and the electric utility industry's low COE (6.5% to 7.25%), the Commission's last authorized ROE for Empire (9.25%), average electric authorized ROEs of around 9.4%,[1] and my capital structure recommendation. I believe that 8.5% is approximately the lowest authorized ROE the Commission would consider under its zone of reasonableness standard and 9.25% considers the mixed signals about the utility industry's cost of capital when comparing changes in utility debt and equity market prices.

Q. Before you discuss the details supporting your analysis, can you summarize the rationale for your conclusions?

A. Yes. Although capital structure and the allowed ROE are interrelated as to the ultimate impact on Empire's revenue requirement, I will first briefly explain my rationale for each component, separately.

I recommend that the Commission set Empire's allowed ROE for its electric utility operations at 9.0% based on a range of 8.5% to 9.25%. Although utility industry capital market conditions indicate an increase in the cost of common equity ("COE") since the Commission set Empire's ROE at 9.25%, the COE for regulated electric utilities is still sustainably lower at approximately 6.5% to 7.25%. Although there has been speculation that long-term interest rates will consistently increase, causing utilities' cost of capital to increase, this simply has not happened. In fact, post the onset of the COVID-19 pandemic, utility bond yields declined even further than they had prior to the onset of the COVID-19 pandemic. There is no reason to set Empire's ROE higher based on speculation that long-term interest rates will increase considering they have been in an overall declining trend over the past decade. This "lower for longer" interest rate environment allows utility

[1] RRA Regulatory Focus – Major Rate Case Decisions, January – September 2021, S&P Global Market Intelligence, October 28, 2021.

companies, such as Empire, to continue to raise capital at low costs. This reduces Empire's cost of service.

I recommend that the Commission set Empire's authorized common equity ratio at 47.5% rather than Algonquin Power & Utilities Company's ("APUC") consistent request of approximately 52.5% to 53% for Empire in the two rate cases it has filed subsequent to its purchase of Empire on January 1, 2017. Since its 2019 electric rate case Empire elected to use plant in service accounting ("PISA") for its electric utility operations. Senate Bill ("SB") 564 is an investor-friendly ratemaking mechanism, which has reduced Empire's business risk profile. A reduced business risk profile allows an electric utility's capital structure to support a higher proportion of debt, while maintaining the same credit ratings. Although I am recommending a higher common equity ratio in this case compared to my recommendation in Empire's 2019 rate case, the Commission should expressly recognize Empire's lower business risk by lowering Empire's authorized ROE by 25 basis points to 9.0% from 9.25%.

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 9.00% per year, which is within my recommended ROE range of 8.5% to 9.25%, a long-term debt cost of 4.09% per year, a capital structure consisting of 47.5% common equity, and 52.5% percent long-term debt, and a ROR of 6.42% per year.

Q. How is your testimony organized?

A I address a fair and reasonable ratemaking capital structure first. Next, I discuss the context of current utility capital market conditions as it relates to the longer-term trend since 2015, when the Commission initially deemed 9.5% allowed ROEs as reasonable for Missouri's electric utility companies, and the shorter-term trend since the Commission authorized Empire a 9.25% ROE in its last rate case. 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 ROR?

A. I recommend the Commission use a capital structure for Empire that consists of 47.5% common equity and 52.5% long-term debt. This capital structure is generally consistent with the mix of capital that Empire's immediate parent, LUCo, maintained over the test period in this case (October 1, 2019 through September 30, 2020). Perhaps not coincidentally, it is also ** _____ _____ _____ _____ **

Q. Does your capital structure recommendation consider merger conditions 4 and 5 the Commission ordered in its Report and Order in Case No. EM-2016-0213 where it approved APUC's acquisition of Empire?

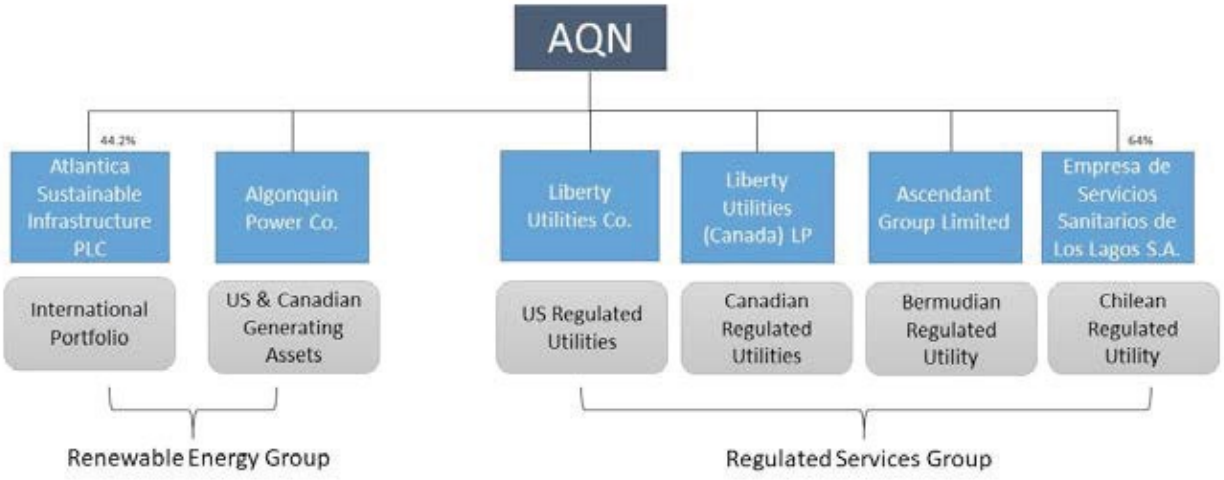
A. Yes. Because my recommended capital structure and associated capital costs are based on a capital structure evaluated and invested in by third-party debt investors, my recommended authorized ROR protects against any potential affiliate financing transaction abuses as it relates to setting a market-based ROR derived from arms-length transactions. My position in this direct testimony is based on the ordered test year in this case. I will provide updated evidence through the ordered update period in my rebuttal testimony.

Q. Has anything changed since Empire's 2019 rate case to cause a need to reevaluate the approach you took to determine a reasonable capital structure in this case?

A. Yes. While I still consider it appropriate to analyze LUCo's adjusted capital structure to determine the amount of debt capacity APUC considers appropriate for its regulated utility assets, APUC has been much more active in issuing additional holding company securities than it was at the time of Empire's last rate case. Although the APUC level security issuances (short-term debt, mandatory convertible equity units, and subordinated debt) are not guaranteed by LUCo, it is difficult to determine how much of the proceeds from these holding company securities are being used to invest in APUC's regulated utilities. Even if LUCo does not guarantee such security issuances, to the extent liquidity is being maintained by the ultimate parent company rather than at LUCo or Empire, this disrupts the original intent of certain Uniform System of Account ("USOA") principles, which the Commission recognized in Empire's 2019 rate case as it related to the determination of a fair and reasonable AFUDC rate to apply to Empire's CWIP balances.[2]

APUC indirectly owns Empire, as well as many other subsidiaries, in a large and complex multi-holding company structure. APUC has two primary business units consisting of the Regulated Services Group, which primarily owns and operates a portfolio of regulated assets in the United States, Canada, Chile and Bermuda, and the Renewable Energy Group, which primarily operates a diversified portfolio of renewable generation assets.[3] APUC provided the following organizational chart in its 2020 Annual Report, which shows the operations contained in APUC's two business units:

[2] Case No. ER-2019-0374, Report and Order.
[3] Algonquin Power & Utilities Company 2Q 2021 Quarterly Report, p. 5.



[4]

The attached Schedule DM-D-2 shows APUC's corporate structure as it relates to its ownership of its United States' regulated utility companies. As can be seen on this schedule, LUCo is the immediate parent company of APUC's U.S. regulated utilities, with several intermediate holding companies between LUCo and APUC.

Empire relies on affiliates for all of its financing functions, which includes Empire's access to short-term debt and long-term debt. Liberty Utilities Services Corp. manages Empire's treasury needs along with those of APUC's other regulated utility 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 also executed an additional $600 million credit facility on October 5, 2020, to allow for more liquidity during the COVID-19 pandemic. 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 to raise capital for indirect investment in LUCo through affiliate loan agreements and equity infusions from Liberty Utilities (America) HoldCo Inc. (see p. 2 of Schedule DM-D-2). LUCo guarantees all debt LUF issues, which includes debt that was issued for the sole purpose of buying equity in LUCo.[5]

[4] Algonquin Power & Utilities & Corp. 2020 Annual Report, p. 6.
[5] See attached Liberty Midstates response to Staff DR No. 117.3 in Case No. GR-2018-0013.

APUC currently has $1.5 billion of liquidity available through two credit facilities—a $500 million credit facility maturing on July 12, 2024 and a $1 billion credit facility maturing on December 31, 2021. APUC has $287.5 million of 60-year subordinated debt outstanding that matures on October 17, 2078, and $350 million of 60-year subordinated debt that matures on July 1, 2079. APUC issued $1.15 billion in mandatorily convertible equity units on July 17, 2021, at an annual distribution rate of 7.75% (1.18% interest rate plus quarterly contract adjustment rate of 6.57%) for the next three years.

In essence, APUC 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. APUC's increased holding company debt and hybrid financing activity makes it even more difficult to assess APUC's capitalization strategies for its various investments. APUC's increased use of holding company debt causes me concern as to the potential manipulation of LUCo's capital structure. However, based on my analysis of LUCo's adjusted capital structure, at least for the test year period, LUCo is being capitalized consistent with the amount of leverage it communicates to investors as being reasonable for LUCo's low-risk regulated utility assets. Regardless, due to APUC's very convoluted and complex corporate and financing structures, I advise the Commission to err on the side of a lower equity ratio within APUC's communicated range of that which it states is appropriate for its regulated utility assets.

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, transactions such as the $90 million of affiliate long-term debt used to retire Empire's mortgage bonds that matured on June 1, 2018 and $425 million of affiliate long-term debt issued on June 16, 2021 for purposes of investing in Empire's wind projects. APUC assigned a 2.08% cost to both loans, with such cost being determined based on LUF's $600 million bond offering on September 23, 2020.

Q. Did APUC competitively bid Empire's debt financing needs before it decided to execute the $425 million affiliate notes?

A. No. In response to OPC Data Request No. 3010, Empire indicated that it does not have indicative pricing information for this financing. Empire confirmed that the pricing of this note was based on the cost of LUF's 10-year bond.

Q. Are there any other unique transactions specific to Empire's rate base in this case which cause additional complicating factors when assessing an appropriate ratemaking capital structure?

A. Yes. The primary purpose of Empire's rate case is to capture APUC's investments in its three wind projects, North Fork Ridge, Kings Point and Neosho Ridge ("Wind Projects"). Because APUC/Empire received capital from Wells Fargo and JP Morgan in the form of non-controlling interests in the Wind Projects (approximately $553 million), this portion of the wind investment is not included in Empire's rate base. In order to determine the amount and proportion of APUC's' capital indirectly supporting Empire's rate base, this non-controlling interest needs to be removed from APUC's, LUCo's and Empire's capital structures to match the capital invested with the rate base on which Empire will be allowed to earn a ROR. Because the minority interest is classified as equity on APUC's, LUCo's and Empire's books, this reduced the equity ratio in their capital structures.

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. The Commission ordered the following condition in Case No. EM-2016-0216:

> 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 analyzed APUC's, LUCo's and Empire's capital structures to address this condition. However, this condition specifically requires Empire to provide this information in its

direct testimony. Therefore, I will provide additional detail as it relates to this condition when I file rebuttal testimony in this case. Even if this condition were not imposed on Empire when it was acquired by APUC, because Empire's capital structure is no longer actively managed for purposes of accessing the debt markets, it is largely irrelevant to investors other than for purposes of projecting earnings and cash flows from Empire's rate authorizations. Therefore, because Empire no longer accesses third-party debt capital, prospective debt investors providing capital to APUC and LUCo are only indirectly interested in Empire's proportion of common equity and debt, specifically as it relates to its potential use for determining an authorized ROR.

Q. What were Empire's per books common equity ratios for last five quarters through September 30, 2020, which captures the ordered test year in this case?

A. Schedule DM-D-3-1 attached to my Direct Testimony shows that Empire's common equity ratios ranged from 47.05% to 59.55%. The average of this wide range was 52.5%.

Q. What were LUCo's per books common equity ratios for these quarters?

A. Schedule DM-D-3-1 attached to my Direct Testimony shows that LUCo's per books common equity ratios ranged from 49.84% to 61.75%. The average of this wide range was 54.08%.

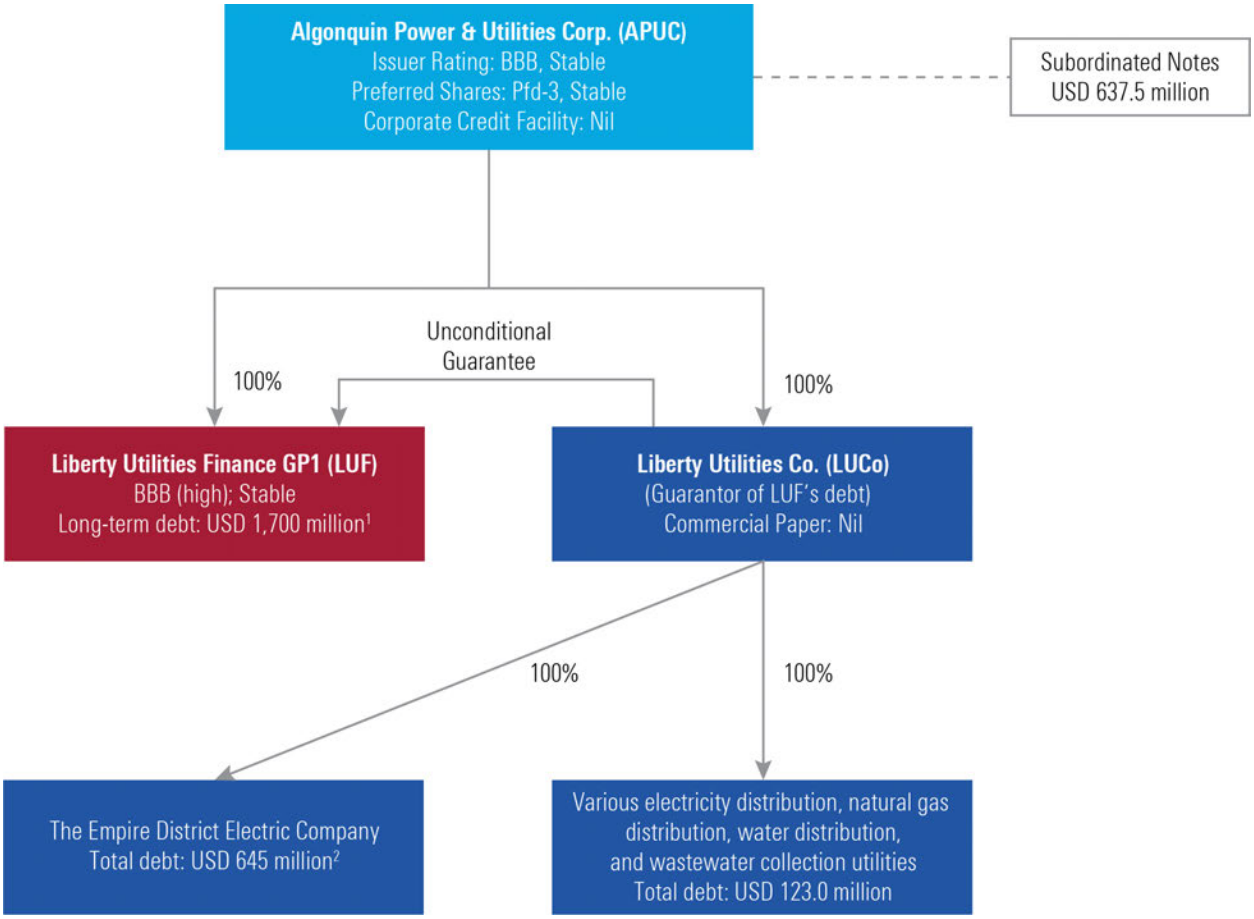
Q. What do these common equity ratios mean in terms of leverage?

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

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

A. No. LUCo obtains its long-term debt financing through affiliate loans from LU America Holdco, which receives its long-term debt financing from LUF. LU America Holdco then provides this capital to LUCo either through affiliate loans or through equity infusions. However, LUCo guarantees all of this debt regardless of how APUC classifies these internal transactions. Rating agencies, such as Fitch Ratings and DBRS Morningstar, accurately consider such debt when assigning credit ratings to the debt supported by LUCo's cash flows. This fact requires adjustments to LUCo's per books capital structure

ratios to reflect the amount of financial risk embedded in LUCo's capital structure. The following chart included in a DBRS report published on January 29, 2021, provides a good simplified illustration of the relationship of LUF as it relates to financing provided to LUCo:



[6]

Q. How much debt not shown on LUCo's quarterly balance sheets for the test year period does LUCo guarantee?

A. It varies. It was $395 million as of September 30, 2019. It decreased to $335 million as of December 31, 2019, and March 31, 2020. It decreased even further to $219 million as of June 30, 2020. However, it increased to $628.5 million as of the end of the test year,

[6] Eric Eng, et. al., "Ratings Report – Liberty Utilities Finance GP1," January 29, 2021, p. 3.

September 30, 2020, due to the fact that LUF issued $600 million of bonds, of which only $131.5 million was provided to LUCo as an affiliate loan. It appears the remainder was transferred to LUCo through an equity infusion because LUCo received $691.04 million in equity from its immediate parent company, LU America Holdco, for the 3-months ended September 30, 2020.

Q. How does this 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. Are your adjustments consistent with the adjustments you made in Empire's last general electric rate case?

A. Yes.

Q. After making these adjustments, what were LUCo's common equity ratios at quarter-end for the quarters September 30, 2019 through September 30, 2020?

A. As shown on Scheduled DM-D-3-1, LUCo's adjusted equity ratio ranged from 44.11% as of September 30, 2019 to 48.97% as of September 30, 2020. The average was 45.96%.

Q. Do you recommend the Commission exclude short-term debt from Empire's ratemaking capital structure?

A. I am not in a position to make a final determination on this matter for purposes of my direct testimony. I still need to review Empire's AFUDC rate calculations before I make my final recommendation. I could not find such information in the workpapers supporting Empire's direct testimony. Therefore, I will pursue this information through further discovery. However, LUCo's CWIP accounted for approximately 6% of LUCo's net plant as of December 31, 2019, and 8.9% as of December 31, 2020. Therefore, because LUCo's short-term debt typically accounts for less than 5% of the capital structure, most of the short-term debt should be factored into the AFUDC rate calculation. However, I still need to confirm such. I will address this issue in my rebuttal testimony in this case.

Q. If you exclude short-term debt from LUCo's adjusted capital structure, what were LUCo's common equity ratios for each quarter-end for the period September 30, 2019 through September 30, 2020?

A. As shown on Scheduled DM-D-3-1, LUCo's adjusted equity ratio ranged from 46.23% as of September 30, 2019 to 48.97% as of September 30, 2020. The average is 47.58%.

Q. What is the significance of LUCo's adjusted capital structures for each quarter-end for the period September 30, 2019 through September 30, 2020?

A. It demonstrates LUCo's actual capital structures as of the 12-month test period through September 30, 2020, were fairly similar to the **_____** APUC communicates to debt investors it intends to target for its Regulated Utilities Group.

Q. How do Empire's and LUCo's capital structures compare to their ultimate parent, APUC?

A. LUCo's capital structures are slightly more levered and Empire's are somewhat consistent with the lower financial risk underlying APUC's capital structure. However, comparing APUC's much more complicated and diverse capital structure, which contains a significant amount and variety of security issuances, does not allow for a straightforward comparison.

Q. Did you attempt to make a more meaningful comparison?

A. Yes. APUC has several different hybrid securities that have characteristics of debt and equity. These consist of 60-year subordinated debt, preferred stock, redeemable non-controlling equity interests and non-redeemable non-controlling interests related to independent renewable power projects. Although there is much complexity to these various securities, it is my understanding that Fitch Ratings gives 50% equity treatment to at least the subordinated debt and preferred stock. However, the other rating agencies may give more or less equity treatment to some of these securities. For example, DBRS gives the subordinated debt 25% equity treatment. Although there is some differences in the various rating agencies approaches, I decided to assign 50% equity and 50% debt weightings to APUC's various hybrid securities, including APUC's redeemable non-controlling interests. Based on these simplified assumptions, APUC is using less leverage

at the consolidated level to offset the higher business risk of its Renewable Energy Group. This is consistent with APUC's communication to its debt and equity investors.

Q. Why does the fact that APUC's capital structure is less leveraged than LUCo's capital structure matter in addressing a fair and reasonable ratemaking capital structure for Empire?

A. Because this is a primary factor often debated when evaluating whether a company's capitalization policies are consistent with balancing business risks and financial risk (i.e. use of debt). The Society of Utility and Regulatory Financial Analysts' ("SURFA") curriculum for its Certified Rate of Return Analyst ("CRRA") designation identifies the following four factors when comparing a subsidiary's capital structure to that of its parent company:

1. Whether the subsidiary utility obtains all of its capital from its parent, or issues its own debt and preferred stock;
2. Whether the parent guarantees any of the securities issued by the subsidiary;
3. Whether the subsidiary's capital structure is independent of its parent (i.e. existence of double leverage, absence of proper relationship between risk and leverage of utility and non-utility subsidiaries);
4. Whether the parent (or consolidated enterprise) is diversified into non-utility operations.[7]

The final two factors specifically consider whether the consolidated parent company's leverage ratio, i.e. debt ratio, is logical as it relates to the holding company's other subsidiaries. If the holding company has non-utility subsidiaries, then it is likely these non-regulated subsidiaries have more business risk compared to their regulated utility affiliates. In order to balance the higher business risk of these non-utility affiliates, the holding company would be expected to have less financial risk than its regulated utility subsidiaries. As of right now, APUC's capitalization strategies are consistent with this expected relationship. Therefore, this supports the adoption of LUCo's adjusted capital structure, which has more debt capacity due to its low-risk regulated utility assets.

[7] David Parcell, "The Cost of Capital – A Practitioner's Guide," 2010 Edition, p. 46.

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 before it was acquired by APUC was approximately 49%.[8] This common equity ratio should be the upper constraint on the allowed capital structure because anything above this is a less economical capital structure and results in higher capital costs being charged to Empire's customers.

Q. Does APUC recognize that its Regulated Utility Services Group has higher debt capacity than its Renewable Energy Group?

A. Yes. In presentations to fixed-income investors, APUC indicates that it targets a long-term debt to total capital ratio in the range of ** _____ ** for its Regulated Utility Services Group and a long-term debt ratio of ** _____ _____ ** for its Renewable Energy Group. After consolidating the two segments, APUC indicates it targets a long-term debt ratio in the range of ** _____ _____[9] ** These targeted capital structures are consistent with the fundamental principles of the interaction of business and financial risk. The Regulated Services Group has the lowest business risk of all three entities—LUCo, APUC, and Algonquin Power Company—because it only owns price-regulated monopoly utilities, which includes the utilities it owns in 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. The Renewable Energy Group, which includes Algonquin Power Company, owns independent power projects, which are not protected by price-regulation. Therefore, the Renewable Energy Group's riskier assets (i.e. business risk) needs to be offset by less leverage (financial risk). When APUC consolidates the Regulated Services Group and the Renewable Energy Group at the holding company level, to the extent APUC does not have holding company debt outstanding, the ratios of its leverage should naturally fall in the

[8] See Rob Sager's Direct Testimony in Case No. ER-2016-0016.
[9] Liberty Utilities Fixed Income Presentation, September 2017, p. 12 and Liberty Power Co. Fixed Income Update Presentation, September 2017, p. 12

middle of the targeted leverages for the Regulated Utility Services Group and the Renewable Energy Group.

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. Assuming Empire is using a short-term debt rate to capitalize a majority of its CWIP, then I recommend the Commission use a common equity ratio of 47.5% for Empire. This is LUCo's approximate average common equity ratio for the test year period in this case and is the mid-point of the common equity ratio that it communicates to investors it targets for its Regulated Services Group. 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. However, if I discover Empire is not assigned a fair share of short-term debt for its AFUDC rate, I may lower my recommended common equity ratio.

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

A. LUCo's embedded cost of debt should be applied to my recommended capital structure because it is based on third-party debt issuances with a balanced weighted-average maturity for the entire portfolio. As of September 30, 2020, LUCo's embedded cost of debt was 4.09% compared to Empire's implied cost of debt of 4.70%. However, as of June 30, 2021, Empire's implied cost of debt declined to 3.76%, whereas LUCo's embedded cost of debt was 4.02%.

Q. Why did Empire's implied cost of debt decline by almost 100 basis points while LUCo's only declined by 7 basis points?

A. Because LUCo's cost of debt as of September 30, 2020, already reflected the $600 million bond issued at a coupon rate of 2.05%. LUCo and Empire did not execute their affiliate loan for $425 million until June 16, 2021.

Q. Why are you recommending that the Commission use LUCo's embedded cost of long-term debt considering it has a higher cost than that implied on Empire's books?

A. Because this is the cost that matches the financial risk embedded in my capital structure recommendation.

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*[10] with modern financial models used to estimate the COE. While setting the allowed ROE based on the COE is at least theoretically sufficient to allow a company to attract capital in efficient markets, because average allowed ROEs have been set higher than the COE, this fact must be

[10] *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).

considered when determining a fair and reasonable allowed ROE. In fact, this Commission has set a "zone of reasonableness standard" [11] 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 since late 2014 to early 2015 to determine if recent changes in utility capital markets represent a fundamental shift as compared to utility capital markets when the Commission set Empire's authorized ROE at 9.25% in 2020. Current utility capital market conditions continue to support Empire's authorized ROE not being set any higher than 9.25%, but I urge the Commission to consider lowering Empire's authorized ROE to 9.0% considering the continuation of low long-term interest rates, which are even lower than when the Commission deemed a 9.25% authorized ROE for Empire to be reasonable, and its lower business risk afforded by the use of PISA.

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

A. Based on my analysis, it is in the range of 6.5% to 7.25%.

Q. Based on your analysis and awareness of capital market conditions, investor expectations and recent average allowed ROEs for electric utilities, what do you consider to be a fair and reasonable allowed ROE for Empire's electric utility operations?

A. 8.50% to 9.25%. 8.5% is approximately the lowest ROE that the Commission would consider under its "zone of reasonableness" standard, while 9.25% would at least maintain Empire's ROE at the level the Commission authorized in Empire's last rate case. After considering my COE estimates, the Commission's last authorized ROE for Empire, and my recommendation in the concurrent Ameren Missouri electric rate case, I consider 9.0% to be fair and reasonable if applied to my preliminary recommended common equity ratio of 47.5%.

[11] *State ex rel. Missouri Gas Energy v. Public Service Commission,* 186 S.W.3d 376, 383 (Mo App. W.D. 2005)

Q. How did you inform yourself 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, its BOD's materials do not discuss financing and/or capital structure strategies. Empire provided a "Certified Copy of Extract Minutes of the Board of Directors of the Corporation [APUC]," which mainly consisted of updates on the progress of the construction on the Wind Projects. I also reviewed investment industry research covering APUC, Algonquin Power Company, and LUCo for the 2021 calendar year. I have also regularly reviewed investment industry research for purposes of preparing for other rate cases over my career.

After performing this research, I decided the best approach for estimating 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 other 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 perform a company-specific analysis of APUC's COE?

A. No.

Q. Why not?

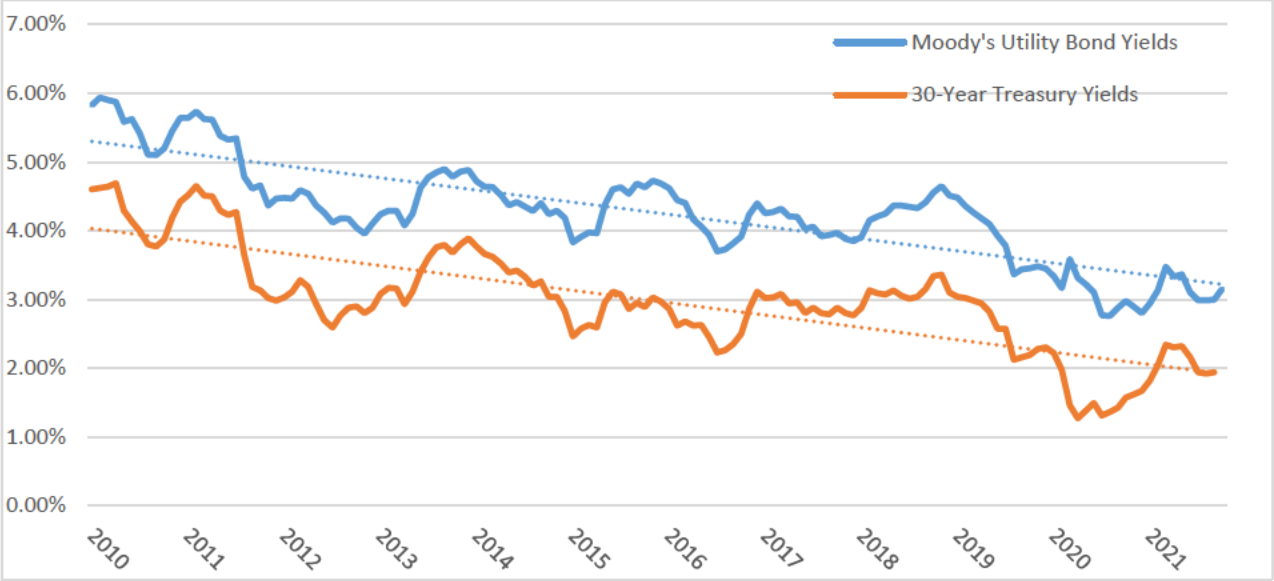
A. APUC is a diversified Canadian-based company with domestic and international regulated and non-regulated utility investments. Although Empire is one of APUC's most significant investments (approximately 30% of APUC's net property plant and equipment as of September 30, 2020), APUC is consistently 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 reasonable 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 likely higher than Empire's COE, but to the extent investors' estimates are available, they can be used as a test of reasonableness.

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

A. No. APUC's business and financing strategies impact Empire's capital structure and cost of capital. Empire no longer performs its own independent financing functions and no longer has 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. 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[12] through the end of 2013, since that time, long-term interest rates have continued an overall declining trend.



Average utility long-term bond yields dropped to modern all-time lows in the latter half of 2020 - levels not experienced since the late 1940s and early 1950s (I am not aware of a publication at the time, such as Regulatory Research Associates, that would provide information on allowed returns to provide guidance for current decisions). However, they have recently moderated to levels consistent with shortly before the onset of the COVID-19 pandemic, which until 2020, had been the lowest levels achieved since the 1960s.

[12] 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.

Q. Why are long-term interest rate trends important when evaluating the utility industry's COE?

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.[13] 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. Since April 2020, have utility stock valuations and bond yields provided traditional and consistent signals about utilities' cost of capital?

A. No. Utility and corporate bond yields have declined significantly since even before the pandemic, which were already trading at yields-to-maturity ("YTM") that were at 60-year lows. During most of the post-pandemic months in 2020, utility and corporate bonds were trading at YTM that were at 70-to-80 year lows. However, broader utility industry stocks (mainly LDC and electric utility stocks) actually declined on both an absolute and relative basis (as compared to the S&P 500). During recent months, utility valuation levels have rebounded, but not to the all-time highs they reached in February 2020.

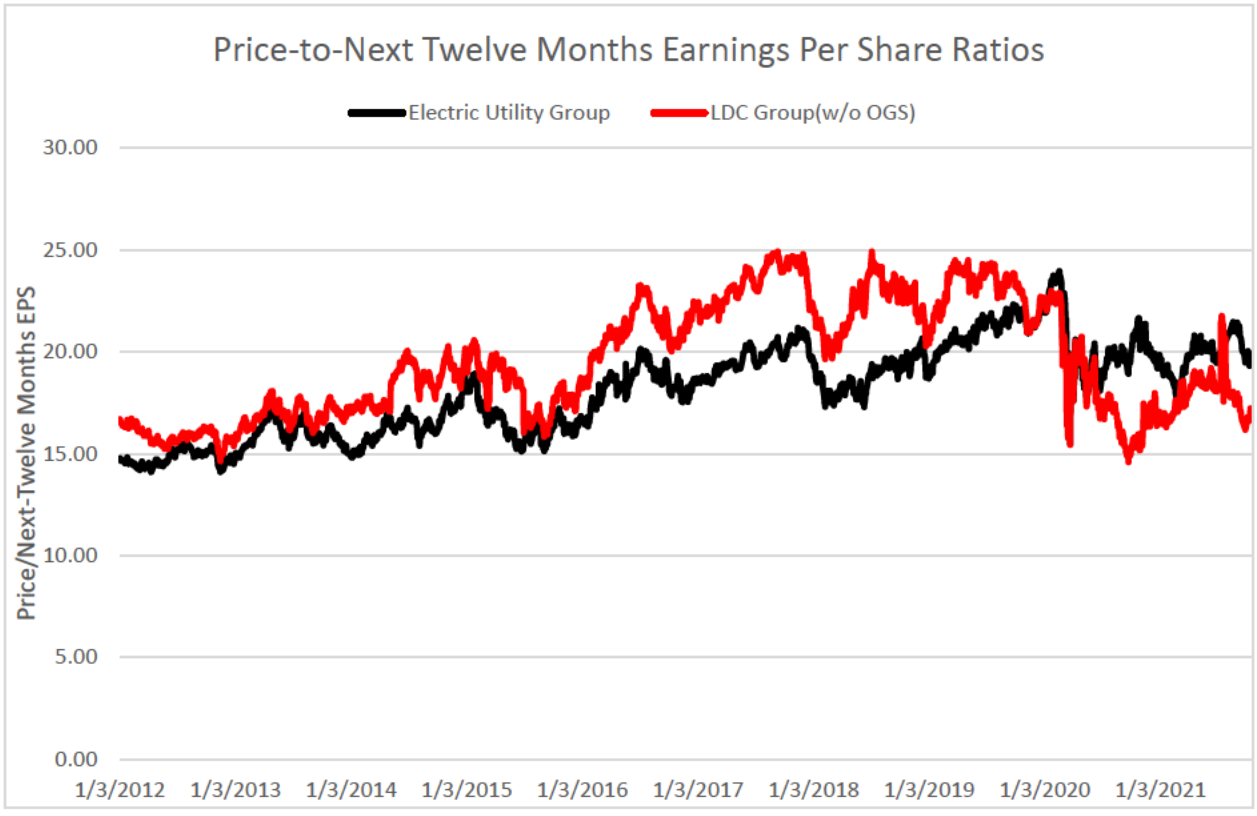
Consequently, while the utility industry is able to issue bonds at lower costs (~20 to 30 basis points) than shortly before the pandemic, the utility equity market data has not been as conclusive about the direction of utility equity costs. For example, as I will discuss later in my analysis using the Capital Asset Pricing Model ("CAPM"), utility stock betas have increased, implying a higher COE. However, the valuation ratios for the electric

[13] Jeremy Tonet, CFA, et. al., "North American Utilities – Thoughts Into 3Q Earnings: Summer Breeze Makes 3Q Feel Fine," October 21, 2021, JP Morgan. Ben Pham, CFA, et. al., "Energy Infrastructure – Correction: The Macro Man Returns," June 1, 2021, BMO Capital Markets. Stephen C. Byrd, et. al., "Regulated Utilities/North America – Positioning in 10 Graphics," May 27, 2021, Morgan Stanley. Daniel Ford, CFA, et. al., "Mind the Gap(s): 2021 Utility Outlook," December 14, 2020, UBS Securities.

utility and LDC industry are only slightly lower than the all-time highs achieved just before the pandemic.

Q. Can you provide a graphic illustration that shows the electric utility industry's and LDC industry's price-to-next-twelve-months-earnings (P/E) ratios since January 1, 2012?

A. Yes. First, I should note that P/E ratios are often used to evaluate the relative cost to the investor to buy a share of earnings and the potential growth of those earnings. Also, for context regarding the favorableness of utility P/E ratios over the past several years, utility P/E ratios averaged 14.4x since 1995.[14] A graph of the P/E ratios for the LDC and electric utility industry follows:



As can be seen in the above graph, the electric utility industry has been trading at a premium to the LDC industry since the beginning of 2020. As it relates specifically to the electric

[14] Durgesh Chopra, et. al., "Utes Close To Fair Value In Our Bond Model," Evercore ISI, April 18, 2021, p. 8.

utility industry, it is worthy to note that although the electric utility industry's P/E ratios are down from their all-time highs around February 2020, they have settled in at around 20x P/E since that period. This compares to an average of approximately 18x since 2012, and an average of around 16x for the 3-year period 2012 through 2014 (period leading up to when the Commission deemed an approximate 9.5% authorized ROE as reasonable for Missouri's electric utility companies).

Q. Can you provide some recent market commentary that supports your analysis and commentary about utility stock valuation levels?

A. Yes. On August 30, 2021, the Wall Street Journal ("WSJ") provided the following comments about recent trading patterns for utility stocks and other defensive industries, such as healthcare:

> Utilities and healthcare are among the best-performing groups in the S& P 500 so far this quarter, with gains of 7.8% and 6.6%, respectively, compared with a 4.9% rise in the broad stock index. Big winners include utility NextEra Energy Inc., which is up 14% this quarter, while shares of medical company Danaher Corp. are up 19%...
>
> …The S& P 500 has advanced 20% this year and set 52 record closes—its highest number of records in a calendar year through the end of August, according to Dow Jones Market Data. Valuations have edged lower this year as earnings soared but remain at historically high levels…
>
> …Healthcare stocks have relatively attractive valuations, some investors said. The sector traded late last week at about 18 times its projected earnings over the next 12 months, compared with about 21 times for the S& P 500, according to FactSet.
>
> The utilities group, meanwhile, traded at 20 times projected earnings, a more modest discount to the broad market, but boasts a dividend yield of 3%—more than double that of the S& P 500.[15]

Although utilities are currently trading at a discount relative to the S&P 500, as compared to the premium they traded to the S&P 500 through most of the past decade, this was due to the fact that the S&P 500 traded at a lower P/E ratio prior to aggressive actions taken by

[15] Karen Langley, "Investors Signal Cautious Outlook," Wall Street Journal, August 30, 2021, page A1 and A2.

the United States' Federal Reserve Bank (i.e. monetary policy) and the United States government (i.e. fiscal policy) in response to the COVID-19 pandemic. The fact that the S&P 500 valuation ratios increased relative to utility industry's valuation ratios suggests the aggressive monetary and fiscal policy caused the markets' cost-of-capital to decline more relative to the utility industry's cost-of-capital. In order to correctly interpret these market signals, it is important to not only analyze valuation ratios across industries at points in time, but also for the same industry over periods of time.

Q. Do investors expect allowed ROEs to trend downward because of the current and prolonged low cost of capital environment?

A. Yes. While investors are accustomed to the practice of commissions allowing ROEs higher than the COE, they price in the potential that commissions will reduce allowed ROEs due to very low long-term interest rates. This is especially true the longer the U.S. capital markets experience a "lower for longer" yield environment.[16]

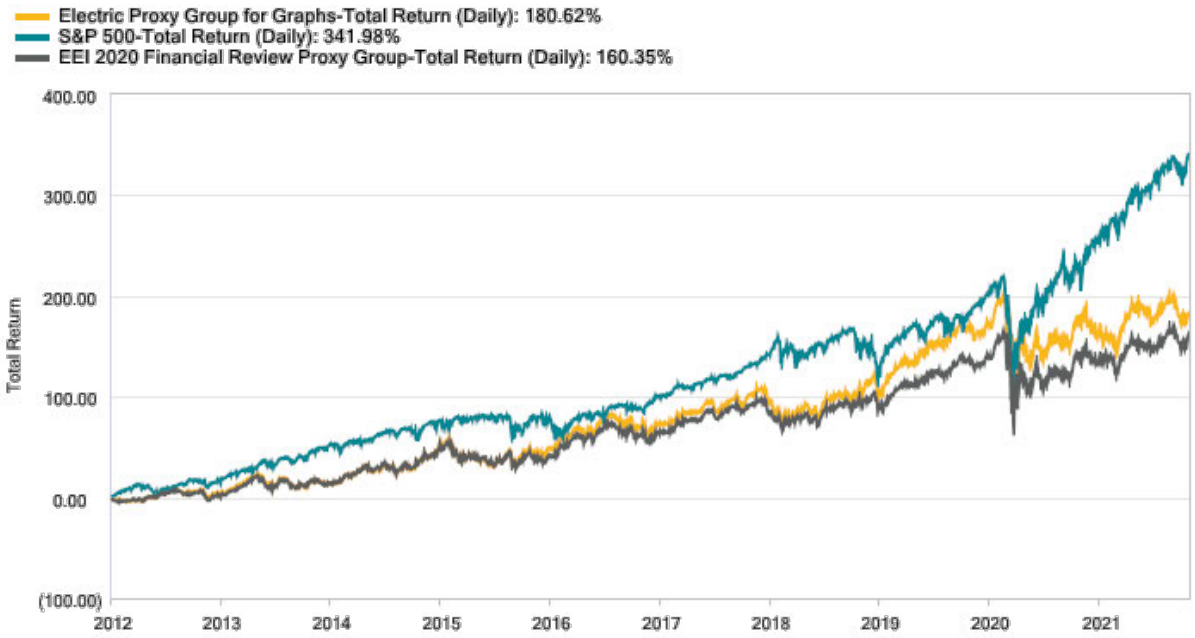
Q. Are you aware of any information specific to APUC and LUCo that supports the fact that APUC itself estimates a very low cost of capital for its regulated utility assets, including Empire?

A. Yes. In response to OPC Data Request No. 3002, Empire provided the cost of capital inputs APUC used to estimate the fair value of its regulated utility assets. In its analysis, APUC accepted a COE in the range of ** _____ **as being reasonable.[17]

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.

[16]Durgesh Chopra, et. al, "Utilities vs Inflation," August 29, 2021, Evercore ISI. Neil Kalton, et. al., "DDM Analysis Supports Sector Valuation & Quality/Growth Trade," August 19, 2019, Wells Fargo.
[17] September 30, 2020 Goodwill/Long-Lived Assets Impairment Analysis.



As is evident, until the onset of the COVID-19 pandemic, electric utility companies had been performing almost at par with the S&P 500. This was likely due to the low growth, lower interest rate environment, which typically favors companies that are less impacted by economic cycles. After the Federal Reserve and Congress instituted aggressive monetary and fiscal policies, respectively, in reaction to the COVID-19 pandemic, this caused a rapid increase in the S&P 500 index, especially among some of the largest technology companies in the S&P 500, which make up approximately 25% of the S&P 500's total market capitalization. Much of this increased value in these larger technology stocks has been attributed to the lower discount rates applied to anticipated profits/cash flows that are not likely to be realized until many years into the future (lower discount rate results in a higher estimate of the present value of these anticipated distant cash flows).

The total returns shown in the chart above convert into the following compound annual returns for the Electric Proxy Group, EEI, and the S&P 500, respectively: 11.07%, 10.23%, and 16.33%.

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 two subsets of this group that have less non-regulated operations than other companies in the broader 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 ("BYPRP") 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 investment analysts use multi-stage DCF approaches to estimate fundamental values of utility stocks, and/or they use relative valuation techniques that compare a company's P/E ratios to averages for the industry and/or potentially a more tailored subset of peer companies. In my experience, professional equity ("Wall Street") analysts project long-term compound annual growth rate ("CAGR") in EPS to determine whether a company's P/E ratio deserves a premium or a discount to its peers. Wall Street analysts do not use these estimated long-term CAGRs in EPS for purposes of projecting a perpetual dividend growth rate, as some ROR witnesses suggest. When performing an absolute valuation analysis, such as a DCF/DDM, Wall Street analysts assume rational perpetual growth rates

in the 2.5% to 3.3% range for electric utility companies and LDCs. Finally, and most relevant to the task at hand, they estimate utilities' COE to be in the 6% to 7% range.[18]

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, Bank of America Merrill Lynch, CIBC, Credit Suisse, Desjardins Securities, Industrial Alliance, J.P. Morgan, Morgan Stanley, National Bank, Peters & Co. Limited, Raymond James, RBC Capital Markets, Scotia Capital, TD Ameritrade, and Wells Fargo.[19]

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 Wall Street analysts are the very individuals that underlie various consensus estimates widely considered by investors. ROR witnesses recognize the influence Wall Street analysts have on utility stock prices by the very fact that they use consensus EPS forecasts for purposes of estimating the 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 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

[18]Durgesh Chopra, et. al, "Utilities vs Inflation," August 29, 2021, Evercore ISI. Neil Kalton, Sarah Akers, and Jonathan Reeder, "DDM Analysis Supports Sector Valuation & Quality/Growth Trade," August 19, 2019, Wells Fargo.
[19] https://investors.algonquinpower.com/news-market-information/analyst-coverage/default.aspx

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 publicly-traded United States utility companies?

A. Not entirely. I am familiar with the following firms' coverage of publicly-traded United States utility companies: Bank of America Merrill Lynch, Credit Suisse, Morgan Stanley, Wells Fargo and JP Morgan.

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 investor's COE used to discount expected APUC cash flows should 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 for 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 2.5% to 3.5%. 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

[20] Staff Cost of Service Report, Case No. ER-2011-0028, p. 18.
[21] *Id.*
[22] Discussed throughout this testimony.

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 allowed ROEs, this would support a 2.7% perpetual growth rate if investment opportunities are available (9% allowed ROE multiplied by 30%). Both Wells Fargo and Evercore ISI, equity research firms that follow the electric utility industry, assume scenarios where allowed ROEs eventually decline to between 9% to 9.25% as we remain in a prolonged period of low cost of capital.[23]

Q. How does this compare to perpetual growth rates used by equity analysts to estimate fair prices for utility stocks?

A. This is fairly consistent with the perpetual growth rates used for purposes of estimating utility stock prices. For example, Evercore ISI uses a perpetual growth rate of 2.5% in its 3-stage DDM analyses of electric utility stocks.[24] Wells Fargo uses an average perpetual growth rate of around 3%.[25]

Q. Are these growth rates comparable to Empire's rate base growth before Empire added approximately $712 million to its rate base since its 2019 rate case?

A. Yes. Before this rate case, the compound annual growth rate (CAGR) in Empire's rate base had been approximately 3% since 2010. After including the significant increase in Empire's rate base associated with its Wind Projects, the CAGR increased to approximately 6.5%.

Q. Should the increase in rate base associated with a significant investment in the Wind Projects be considered sustainable?

A. No. This is not reflective of long-term expectations of a normalized growth in the investment on which Empire would be expected to earn a return. As an example, the

[23] Durgesh Chopra, et. al, "Q2 2021 Earnings Recap," August 8, 2021, Evercore ISI. Neil Kalton, Sarah Akers, and Jonathan Reeder, "DDM Analysis Supports Sector Valuation & Quality/Growth Trade," August 19, 2019, Wells Fargo.
[24] *Id.*
[25] *Id.*

growth in Empire's book value per common share (a measure of the value in which shareholders expect to earn a return on equity) was approximately 2.5% for the 40-year period from 1968 through 2013.

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 classified as "regulated" and "mostly regulated" utilities by the Edison Electric Institute ("EEI").[26] Although I estimated a COE based on this broad electric proxy group, I also reviewed the companies EEI classifies as "regulated," but even these companies may have non-regulated operations that contribute 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 10% of their operations exposed to competitive markets; these are 18 companies. I also analyzed financial and market data (charts shown in my testimony) of a subset of the EEI companies that I have consistently followed in electric rate cases since 2012.

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.

For the first stage (October 31, 2021 through June 30, 2025) I used Wall Street analysts' consensus DPS estimates to the extent they were available. For the second stage (June 30, 2025 through June 30, 2035), I allowed for a gradual decline from Wall Street analysts'

[26] EEI classifies companies as "Regulated" if at least 80% of their assets are dedicated to regulated utility operations.

projected 5-year CAGR in EPS to a sustainable perpetual growth rate of 3% starting in June 30, 2035. In order to estimate investors' anticipated annual DPS over the second stage, I determined consensus analysts' estimated dividend payout ratios as of 2025. I then allowed the dividend payout ratios to gradually converge to a sustainable payout ratio of 66.67% starting in 2035. This payout ratio is consistent with the constant/sustainable-growth DCF theory that requires DPS, EPS and book value per share ("BVPS") to grow in perpetuity at the same rate. This payout ratio is consistent with the proportion of earnings utility companies should retain to sustain a 3% growth rate at a 9% book ROE.

My industry COE estimate based on application of the multi-stage DCF to the proxy group shows a COE of around 7% to 7.25% (see Schedule DM-D-4-1).

Q. If you had performed your multi-stage similar to how you did so when with Staff, what COE would you have estimated?

A. My estimate would have been approximately 6.8%. 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 during the transition period. However, in order to ensure that DPS, EPS and BVPS grow in equilibrium in the terminal stage, my current method is consistent with the assumptions of the constant-growth DCF and, therefore, should be used. Regardless, because it is clear that the COE is much lower than allowed ROEs, I do not consider it critical to narrow down the COE to a more precise estimate. In my opinion, the fact that a reasonable and logical COE estimate for the electric utility industry is much lower than average awarded ROEs illustrates the reasonableness of my recommended authorized ROE of 9.00%.

Q. Are there any other models that investors typically use to estimate the utility industries' COE?

A. Yes. In my experience, many Wall Street analysts use the CAPM to determine a discount rate, *i.e.*, the COE, to apply to expected cash flows to the equity investor. The CAPM shows the specific impact of lower interest rates on the cost of capital. Although CAPM COE estimates can be manipulated by using unreasonable market risk premium estimates,

fortunately there are a variety of authoritative sources that provide market risk premium estimates that can form the basis for a consensus view on reasonable risk premium based on current capital market conditions.

Q. What is the underlying theory that supports the use of the CAPM to estimate the cost of equity for utilities?

A. The CAPM is based on capital market theory in which it is recognized that although the total risk of a company and/or industry consists of market ("systematic") risk and asset/business-specific ("unsystematic") risk, investors are only compensated for systematic risk because holding a diversified portfolio allows the investor to avoid unsystematic risk. 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 is typically expressed in equation form as follows:

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

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

For purposes of my CAPM analysis, I relied on Duff & Phelps (D&P) recommended market risk premium of 5.5% provided as of December 8, 2020[27] and a range of realized historical market risk premiums of 4.62% (geometric historical mean for 1926 through 2020) to 6.07% (arithmetic historical annual mean for the period 1926 through 2020) derived from data provided by Ibbotson Associates' Stocks, Bonds, Bills and Inflation database. Based on my review of various utility equity analysts' reports over the

[27] https://www.duffandphelps.com/insights/publications/cost-of-capital/duff-and-phelps-recommended-us-equity-risk-premium-decreased-december-2020

last few years, a market risk premium much higher than 6% would be an outlier for purposes of estimating a fair value for utility stocks. One of the primary drivers of using a higher market risk premium versus a lower market risk premium is due to whether this market risk premium is applied to a normalized risk-free rate or a current risk-free rate (higher market risk premiums applied to lower current low risk-free rates). Long-term expected nominal market returns for the S&P 500 are as low as 4% to 5%.[28] Therefore, market risk premiums in the 5.5% to 6.0% range may actually be excessive for purposes of a CAPM analysis.

Q. What does the beta represent in a CAPM analysis?

A. Beta is statistically defined as the covariance of the returns on an asset (in this case an individual stock or group of stocks) with the return on the S&P 500 divided by the variance of the returns on the S&P 500. This statistical measure is intended to provide investors with insight regarding expected volatility of a security (or portfolio of securities) as it relates to market volatility. A beta of less than one implies less expected volatility than the market, with the trade-off of a lower expected return than the market. The reverse is expected for a beta greater than one.

Q. Have utility stock betas increased recently?

A. Yes. At the time I drafted testimony for the 2019 Empire and Ameren Missouri rate cases, electric utility stock betas had declined to quite low levels of around 0.55. Gas utility betas at that time were also around 0.6. Both electric utility stock betas and gas utility stock betas had increased to around 0.80 as of April 2021. Electric utility and LDC betas have moderated recently and seem to be returning to a level of around 0.7 to 0.75.

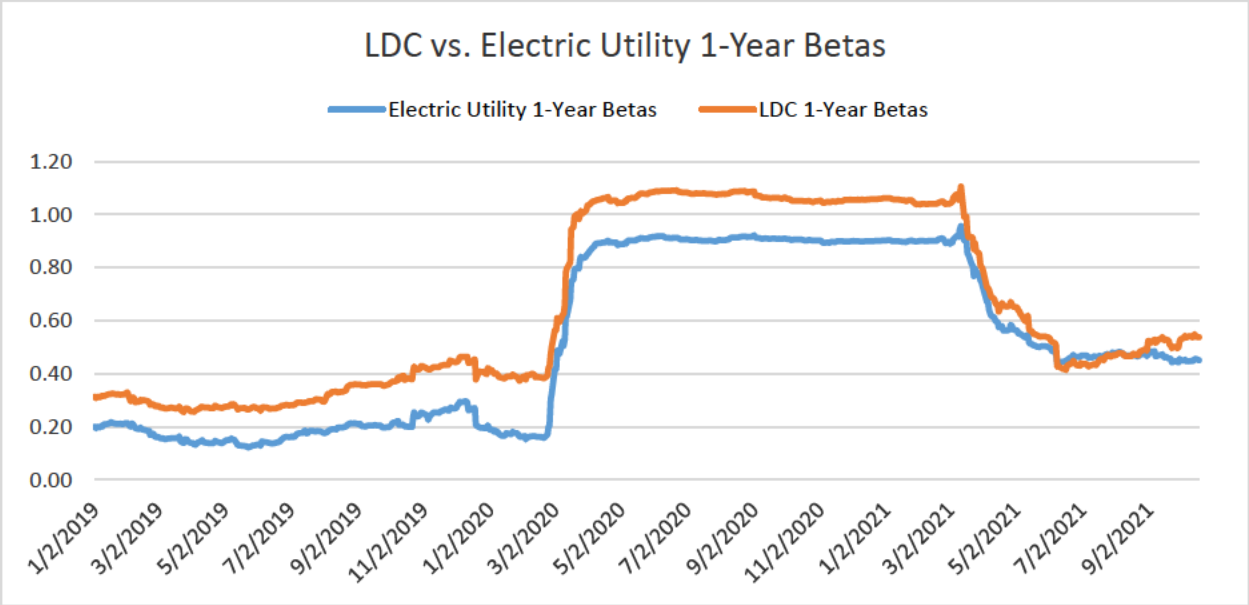
[28] First Quarter 2021 Survey of Professional Forecasters, Philadelphia Federal Reserve Board (Feb. 12, 2021), https://www.philadelphiafed.org/-/media/frbp/assets/surveys-and-data/survey-of-professional-forecasters/2021/spfq121.pdf, and John Bilton et al., *Executive Summary: A new Portfolio for a New Decade*, J.P.Morgan (Nov. 9, 2020), https://am.jpmorgan.com/us/en/asset-management/institutional/insights/portfolio-insights/ltcma/executive-summary/.

Q. What was the primary cause of the increase in utility stock betas?

A. The spike in utility stock betas occurred when the market plummeted at the onset of the pandemic in March 2020. It is quite common for all securities, both higher-risk and lower-risk securities, to move in tandem during significant market corrections. Because betas measure the relative volatility of a company or a portfolio as it relates to the market, if all securities rapidly decline at the same time, this causes all betas to converge toward one. For example, the semiconductor equipment industry typically have betas that significantly exceeds one. However, when all securities declined at the start of the pandemic, the semiconductor equipment industry's betas decreased towards one. After the stock market data associated with the synchronized decline of equity markets during March and April of 2020 began to drop off of 1-year beta calculations, the semiconductor equipment industry's betas started to increase back to their normal higher levels.

Q. How much have gas and electric utility one-year raw betas changed over the last couple of years due to the market contraction at the onset of the pandemic?

A. As can be seen in the following chart, LDC utility raw betas increased to over 1.0 from around 0.3 before the pandemic, and have now fallen back to approximately 0.45. Electric utility raw betas were in the 0.2 to 0.25 range before they increased to approximately 0.9 and then declined to around 0.45 as well.



Q. Based on your CAPM analysis, what is your estimated COE for the proxy group?

A. My CAPM COE is in the range of 6.5% and 7.0%. (see Schedules DM-D-6-1 through DM-D-6-3).

Q. Are there any other reasonableness tests to show your COE estimates are rational and logical?

A. Yes. First, as I indicated earlier in my testimony, a simple rule of thumb the Chartered Financial Analyst ("CFA") suggests in its curriculum to estimate the COE is to add 3% to 4% risk premium to a company's bond yield to provide a fairly simple, but objective cost of equity. Being that the investment community views utility stocks as bond surrogates/substitutes, it is logical and reasonable not to add a risk premium any higher than 3% to the bond. Simply adding a 3% risk premium to the recent average yields on A-rated and Baa-rated Moody's utility bonds of 3.1% to 3.35%, implies a COE of around 6.1% to 6.35%. Additionally, adding a 3% risk premium to LUCo's 2.05% bonds issued in 2020 implies LUCo's COE may be as low as approximately 5%.

Q. Based on your analyses and understanding of the electric utility industry's COE, investor expectations on allowed ROEs, average electric utility authorized ROEs and your recommendation in Ameren Missouri's concurrent electric utility rate case what would be a fair and reasonable allowed ROE range for Empire in this case?

A. 8.5% to 9.25% would be justified with 9% being more than adequate for Empire to attract capital. However, my recommended authorized ROE is dependent on the authorized equity ratio to which it is applied.

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 9.00% allowed ROE as long as this ROE was applied to my recommended 45% common equity ratio. A legitimate argument can be made that because LUCo's capital structure is less leveraged than that which I recommended for Ameren Missouri, it should be allowed a slightly lower ROE. In my opinion, a reasonable resolution to this difference would be to authorize Empire a common equity ratio of 45% rather than adjusting my recommended ROE of 9.00%. As I argued extensively in the Ameren Missouri rate case, Missouri's electric utility companies' ability to use PISA has lowered investors' view of Missouri's electric utilities' business risks. Because Ameren Missouri represents over 50% of Ameren Corp's assets, this lower business risk has been taken into specific consideration in allowing Ameren Corp to carry more leverage without jeopardizing its credit rating. Because Empire is no longer a separate stand-alone company, it is difficult to assess how much consideration independent investors (both debt and equity) give to this lower business risk. However, because there is clear evidence that Ameren Missouri's lower business risk allows for a higher debt ratio (which as I explain in my Ameren Missouri testimony is being used at Ameren Corp rather than Ameren Missouri), this provides a good proxy for potential debt capacity allowed by this lower business risk.

Additionally, certain consumer safeguards for customer rates were included in SB 564, but these safeguards only apply to Ameren Missouri, Evergy Metro and Evergy West. After all three of these companies elected to take advantage of PISA, they were subject to a three-year rate moratorium and annual rate increase caps. These provisions of SB 564 do not apply to Empire, which explains why they were able to file a rate case within a year of electing PISA. The lack of these legal safeguards applying to Empire also should be considered as it relates to evaluating a fair and reasonable ROR to award Empire.

Q. What is your recommended ROR for Empire?

A. My recommended ROR of 7.76% is based on an ROE of 9.00% applied to a 47.5% common equity ratio and cost of debt of 4.09% applied to the remaining 52.5% of the capital structure (see Schedule DM-D-7).

SUMMARY AND CONCLUSIONS

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

A. Yes. The cost of capital for utilities continues to be low with the utility industry being able to issue debt at costs not experienced in at least 70 years. For example, LUCo issued a 10-year bond last year at a coupon rate of 2.05%. Although utility equity prices have not increased as much as typically expected considering the extremely low interest rates, they are still trading at high valuation levels when considering longer periods, such as the past 10 to 20 years. Because electric utility P/E ratios are still approximately 3x to 5x higher than they were in 2015, this supports not authorizing Empire a ROE consistent with the Commission's previous lower threshold of 9.5%. Because a 9% authorized ROE still would allow Empire to earn 200 to 250 basis points over its COE, this is a fair and reasonable authorized ROE. Not only do rational COE estimates support lower allowed ROEs, but investors expect it.

Nothing has changed since the last rate case to cause Empire's capital structure to be viewed as investable and market-tested. Empire no longer has its own financing

functions and it does not directly access the capital markets. APUC raises capital for its regulated utility investments at various levels. Its current primary debt financing platform for its United States regulated utility assets occurs at Liberty Utilities Finance GP1, which makes indirect loans to LUCo through various affiliate financing transactions. However, APUC also issues financing at the holding company level and at other levels for its other investments. Because of APUC's constantly changing mix of investments and financing strategies, facts relied on for past ratemaking decisions can change quickly. Although there are several complicating issues involved in analyzing APUC's strategies, at least it clearly communicates to debt investors that it considers a 45% to 50% equity ratio to be consistent with the risk profile of its regulated utilities. This information fully supports my recommended common equity ratio of 47.5% in this case.

Q. Does this conclude your testimony?

A. Yes.