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John Reed
Rebuttal Testimony
File No. ER-2021-0312

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Case No.: ER-2021-0312
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**Before the Public Service Commission**
**of the State of Missouri**

# Rebuttal Testimony

**of**

**John J. Reed**

**on behalf of**

**The Empire District Electric Company**

**December 2021**

TABLE OF CONTENTS
FOR THE REBUTTAL TESTIMONY OF JOHN J. REED
THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION
CASE NO. ER-2021-0312

**SUBJECT** **PAGE**

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## I. INTRODUCTION AND PURPOSE

**Q. Please state your name and business address.**

A. My name is John J. Reed. I am Chairman and Chief Executive Officer of Concentric Energy Advisors, Inc. ("Concentric") and CE Capital Advisors, Inc. My business address is 293 Boston Post Road West, Suite 500, Marlborough, Massachusetts 01752.

**Q. On whose behalf are you submitting this Rebuttal Testimony?**

A. I am submitting this Rebuttal Testimony on behalf of The Empire District Electric Company ("Empire" or "the "Company"), an indirect, wholly-owned subsidiary of Algonquin Power & Utilities Corp. ("APUC").

**Q. Did you previously provide Direct Testimony in this proceeding?**

A. Yes. In May 2021, I submitted Direct Testimony to the Missouri Public Service Commission ("Commission") regarding the appropriate Return on Equity ("ROE") and capital structure for Empire in this proceeding.

**Q. What is the purpose of your Rebuttal Testimony?**

A. The purpose of my Rebuttal Testimony is to respond to the Cost of Service Report of the Commission Staff ("Staff") and, in particular, the section sponsored by Staff witness Peter Chari relating to the authorized ROE, and to the Direct Testimony of David Murray on behalf of the Missouri Office of Public Counsel ("OPC"). I also briefly discuss how recommendations of certain witnesses to disallow recovery of retirement costs of the

Company's Asbury coal-fired power plant, if adopted, would affect the cost of equity for Empire.

**Q. Are you sponsoring any schedules as part of your Rebuttal Testimony?**

A. Yes, I am sponsoring **Rebuttal Schedules JJR-1 through JJR-3** to support my Rebuttal Testimony, which were prepared by me or under my direction.

**Q. How is the remainder of your Rebuttal Testimony organized?**

A. The remainder of my Rebuttal Testimony is organized as follows:

- In Section II, I provide a summary and overview of my Rebuttal Testimony and the important factors to be considered in establishing the ROE and capital structure for Empire's electric utility operations.
- In Section III, I discuss how the cost of capital recommendations of Mr. Chari and Mr. Murray compare with the authorized returns for vertically integrated electric utilities in other jurisdictions.
- In Section IV, I respond to Mr. Chari's and Mr. Murray's testimony regarding capital market conditions and the implications for Empire's cost of equity.
- In Section V, I respond to Staff witness Mr. Chari's ROE analyses and recommendations.
- In Section VI, I respond to OPC witness Mr. Murray's ROE analyses and recommendations.
- In Section VII, I respond briefly to certain witnesses who recommend disallowance of costs associated with the retirement of the Asbury plant.
- In Section VIII, I respond to the capital structure recommendation of Mr. Murray.
- Finally, in Section IX, I summarize my conclusions and recommendations.

## II. SUMMARY AND OVERVIEW

**Q. What factors should be considered in evaluating the cost of capital for Empire in this proceeding?**

A. There are two key questions that the Commission must answer in setting the cost of capital for Empire in this proceeding: 1) has the cost of equity increased or decreased for regulated electric utilities since January 2020 when the Commission issued its decision in the 2019 Empire rate case; and 2) is Empire a higher than average risk electric utility? My evidence demonstrates that the cost of equity has increased for regulated electric utilities since January 2020, and that Empire is a higher than average risk electric utility as compared to the proxy group. On that basis, my recommendation of a 10.0 percent authorized ROE and a capital structure comprised of 52.44 percent common equity and 47.56 percent long-term debt[1] are reasonable and should be adopted by the Commission.

**Q. Please explain why you believe the cost of equity for regulated electric utilities has increased since January 2020.**

A. Despite the decline in interest rates on government and utility bonds since January 2020, the forward-looking cost of equity for regulated electric utilities has increased. The Federal Reserve has announced plans to start withdrawing the extraordinary monetary stimulus that was provided to stabilize financial markets in the early days of the COVID-19 pandemic and to support the subsequent economy recovery, as discussed in more detail in Section IV of my Rebuttal Testimony. In addition, this monetary stimulus in conjunction with the aggressive fiscal stimulus provided by the U.S. Congress have contributed to a substantial

[1] Balances should be updated to reflect the June 30, 2021 amounts of 52.79 percent Common Equity and 47.21 percent long-term debt

increase in the money supply. Inflation pressures were mounting in early 2021, and the inflation rate at both the consumer and producer level has been increasing at rates not seen in 30 years, as also discussed in more detail in Section IV of my Rebuttal Testimony. The Federal Reserve initially indicated that inflation was expected to be "transitory;" however, leading economists and market participants are starting to believe that higher inflation will persist for longer than anticipated, as evidenced by the Blue Chip survey results from November 2021. In addition, as discussed in my Direct Testimony, the beta coefficient is used in the Capital Asset Pricing Model ("CAPM") as a measure of the risk of a particular company or industry group relative to a broad market index such as the S&P 500. Betas for regulated electric utilities have increased significantly since January 2020, and there is no evidence that those beta coefficients are moderating, as Mr. Murray claims. This is direct market evidence that investors no longer perceive the electric utility sector as a safe haven during periods of economic weakness and volatility in financial markets. Rather, electric utilities have been trading more in line with the broader market, which suggests that investors perceive these companies as much higher risk than in January 2020. All of these indicators point toward a higher cost of equity for regulated electric utilities such as Empire.

**Q. What is the basis for your conclusion that Empire is a higher than average risk electric utility?**

A. As discussed in Section VIII of my Direct Testimony, Empire has above average business risk relative to the proxy group companies that were used to estimate the cost of equity. In particular, Empire has higher than average business risk for the following reasons: 1) the Company is substantially smaller than the companies in the proxy group and provides

service in towns and small cities with limited economic diversification; 2) Empire's elevated capital spending requirements, which are necessary for operational and service purposes and to benefit customers; and 3) the Company has more regulatory risk than the proxy group, especially as it relates to recovering fuel and purchased power costs, the use of a historical test year, which contributes to regulatory lag, and the absence of protection against volumetric risk through revenue decoupling or weather normalization mechanisms. Partly offsetting these regulatory risks is the fact that Empire has elected to use Plant in Service Accounting ("PISA"), which allows electric utilities in Missouri to defer for future recovery 85 percent of their depreciation expense and returns from certain plant and equipment placed in service between rate cases. Taken together, my analysis demonstrates that Empire is a higher than average risk electric utility.

In addition, Empire retired the Asbury coal power plant in March 2020. As discussed in my Direct Testimony, it is important that Empire be allowed to recover a return on and of the Asbury plant in rates to compensate and return to investors their investments in the Company.[2] Empire is proposing to amortize Asbury's net rate base over 26 years assuming a full return on and recovery of the remaining unrecovered balance. Certain witnesses are proposing disallowance of the return on these costs by the Commission. I respond to that recommendation in Section VII of my Rebuttal Testimony.

[2] Direct Testimony of John J. Reed, at pp. 61-64.

**Q. What are your key conclusions and recommendations regarding the appropriate ROE and capital structure for Empire's electric utility operations in this proceeding?**

A. My key conclusions are as follows:

1. Although Mr. Chari and Mr. Murray devote many pages of testimony to discussing the results of their various ROE estimation models and attempting to explain why those models are producing reasonable results under current market conditions, they essentially discard their flawed analyses in favor of less drastic recommendations that are not supported by their own financial models.
2. Mr. Chari derives his recommendation of 9.50 percent by adjusting upwards the ROE of 9.25 percent authorized by the Commission for Empire in Case No. ER-2019-0374 by 25 basis points to reflect the fact that the results of his DCF analysis have increased by 42 basis points between 2019 and 2021. However, Mr. Chari's partial adjustment of 25 basis points is inconsistent with the adjustment he applied in the 2019 Empire rate case when he applied the full differential between the DCF results of the two periods being examined to adjust the benchmark ROE. If Mr. Chari had applied the full increase of 42 basis points between his 2021 Two-Step DCF results and his 2019 DCF results, his recommendation would have been 9.67 percent for this case.
3. Mr. Chari references the Federal Energy Regulatory Commission ("FERC") as support for his use and weighting of a short-term and long-term growth rate in his Two-Step DCF Analysis. The weightings that Mr. Chari applies, however, are not consistent with FERC's most recent determination in the MISO transmission owners' case. In Opinion No. 569-A, the development of the average growth rates

was changed from a two-thirds EPS and one-third GDP weighting structure to an 80 percent weight on EPS growth rate estimates and 20 percent on the long-term GDP growth rate.[3] If Mr. Chari had relied on the updated weighting methodology from FERC, his mean Two-Stage DCF result would increase by 19 basis points. This change would indicate that the increase in the COE from the 2019 Empire electric rate case was 75 basis points. (8.49%-7.74% = 0.75%). Applying that full adjustment to the 9.25 percent ROE that was authorized in 2020 for Empire would result in an ROE of 10.0 percent. Reasonable adjustments to Mr. Chari's analysis support the Company's requested ROE of 10.0 percent.

4. Mr. Murray's Multi-Stage DCF analysis relies on a long-term growth rate range of 2.5 percent to 3.5 percent; however, current utility valuations are based in part on the sustainability of current projections of earnings growth. Since Mr. Murray's long-term growth rate range of 2.5 percent to 3.5 percent is much lower than current earnings growth projections, the assumption implies much lower electric utility valuations than the stock prices he relies on to calculate his Multi-Stage DCF analysis. This results in Mr. Murray's Multi-Stage DCF analysis producing cost of equity estimates that are unreasonably low.

5. The economy is in the recovery phase of the business cycle which means improving economic growth and increasing inflation and interest rates. Mr. Chari, Mr. Murray and I agree that utility share prices are inversely related to the yields on long-term government bonds. Therefore, since interest rates are expected to increase over the

[3] Federal Energy Regulatory Commission, Opinion No. 575, Order on Briefs and Initial Decision, May 20, 2021, at pp. 12-13.

near-term, investors expect the utility sector to underperform the broader market. As a result, the DCF results presented by Mr. Chari and Mr. Murray, which rely on recent historical share prices, are likely understating the forward-looking cost of equity for Empire.

6. Empire's proposed capital structure is consistent with the actual capital structures of the operating companies held by the proxy group. Specifically, as shown in my updated analysis, the common equity ratios for the proxy group companies range from 47.01 percent to 60.56 percent, with an average of 53.23 percent. Empire's proposed capital structure is particularly appropriate given the Company's above average risk relative to the proxy group. In addition, Empire's proposed equity ratio of 52.44 percent[4] is within the range of recently authorized equity ratios for vertically integrated electric utilities and supports the Company's proposed capital structure as reasonable. Further, the proposed capital structure is also consistent with the application of the merger stipulation, as discussed in the Rebuttal Testimony of Company witness Todd Mooney.

7. Mr. Murray's conclusion that Empire can increase its leverage due to the Company's use of Plant in Service Accounting ("PISA") to recover electric capital expenditure costs is inappropriate. It is reasonable to evaluate the capital structure of Empire based on the capital structures of the companies in the proxy group and an assessment of the relative risk of Empire to the proxy group. Mr. Murray has not considered the capital structures of the proxy group, nor has he assessed the risk

[4] Balance should be updated to reflect the June 30, 2021 amount of 52.79 percent.

profile of Empire relative to the proxy group. It is not reasonable to adjust the capital structure of Empire on the basis that the Company has a capital cost recovery mechanism when Empire is still more risky than the average utility in the proxy group.

## III. OVERVIEW OF COST OF CAPITAL RECOMMENDATIONS AND COMPARABLE RETURN STANDARD

**Q. Please provide an overview of the other ROE witnesses' recommendations in this proceeding.**

A. Figure 1 summarizes the results of the ROE analyses presented by the other witnesses in this proceeding and their final recommendations. Staff witness Mr. Chari's Two-Step DCF analysis, CAPM analysis and Bond Yield Risk Premium analysis indicate a cost of equity from 6.02 percent to 9.37 percent, while OPC witness Mr. Murray's Multi-Stage DCF, CAPM and Risk Premium methods suggest a cost of equity of 6.10 percent to 7.25 percent. Although Mr. Chari and Mr. Murray abandon the results of their models when establishing their respective ROE recommendations, neither witness questions or reconsiders the validity of the inputs and assumptions used in their respective models. Rather, Mr. Chari simply recommends an ROE for Empire of 9.50 percent, which is 120 basis points higher than the average results of his Two-Step DCF model and 280 basis points higher than the midpoint results of his CAPM analyses. Similarly, Mr. Murray's ROE recommendation of 9.00 percent is 175 to 200 basis points higher than his Multi-Stage DCF model results and 200 to 250 basis points higher than his CAPM results. In short, if the analyses which underlie a recommendation produce unreasonable results, and those results are essentially abandoned when the ultimate recommendation is made, the recommendation becomes

nothing more than an unsubstantiated opinion. Unfortunately, that is what witnesses Murray and Chari have offered, i.e., an unsubstantiated opinion which is not even supported by their own analyses.

**Figure 1: Recommended Capital Structures, ROE Ranges and Point Estimates of the Other ROE Witnesses**

| Witness | Mr. Chari (Staff) | Mr. Murray (OPC) |
|---|---|---|
| Equity Ratio | 52.44%[5] | 47.50%[6] |
| Two Step/Multi-Stage DCF | 6.83%-9.37%<br>Mean: 8.30%[7] | 7.00%-7.25%[8] |
| CAPM | 6.02%-7.62%<br>Mean: 6.70%[9] | 6.50%-7.00%[10] |
| Bond Yield Risk Premium | 6.07%-8.07%[11] | 6.10%-6.35%[12] |
| Recommendation | ***9.50%*** | ***9.00%*** |
| Weighted Equity Return | 4.98% | 4.28% |

**Q. Are authorized returns in other jurisdictions a relevant benchmark to evaluate the reasonableness of the ROE recommendations of Staff and the OPC?**

A. Yes. The *Hope* and *Bluefield* cases establish that authorized ROEs need to be comparable to other investments of commensurate risk. Therefore, the regulatory decisions of other commissions provide a basic test of reasonableness and a benchmark that investors

[5] Staff Cost of Service Report, at p. 6.
[6] Direct Testimony of David Murray, at p. 3.
[7] Schedule PC-8-2.
[8] Direct Testimony of David Murray, at p. 31.
[9] Schedule PC-10.
[10] Direct Testimony of David Murray, at p. 35.
[11] Staff Cost of Service Report, at p. 24.
[12] Direct Testimony of David Murray, at p. 35.

consider in assessing the authorized ROE of one utility against the returns available from other regulated utilities with comparable risk.

**Q. Are the equity return analyses and recommendations of OPC witness Mr. Murray and Staff witness Mr. Chari consistent with the comparable return standard?**

A. No, they are not. Both Mr. Chari and Mr. Murray indicate that one of the guidelines they used in determining the cost of equity for Empire was the comparable return standard established in *Hope* and *Bluefield*.[13] While Mr. Chari considers the authorized ROEs for electric utilities in other jurisdiction across the U.S., he cites the simple average authorized ROEs for all electric utilities in 2020 and 2021 to support his recommended ROE of 9.50 percent.[14] He does not take into consideration the differences between vertically-integrated and distribution-only authorized ROEs, nor does he review the authorized ROE data to determine if individual cases should be excluded from the average due to lack of comparability (i.e., authorized ROEs which reflect penalties, authorized ROEs determined using formula rate plans, etc.). Mr. Murray states that he considered "recent average allowed ROEs for electric utilities" in the development of his recommended range; however, he does not provide any evidence to indicate that authorized ROEs would support his recommended range of 8.50 percent to 9.25 percent.[15] Further, Mr. Murray sets his recommended return at 9.00 percent and suggested that this ROE should be reduced if the Commission were to adopt an equity ratio that is higher than his proposal of 47.50 percent.

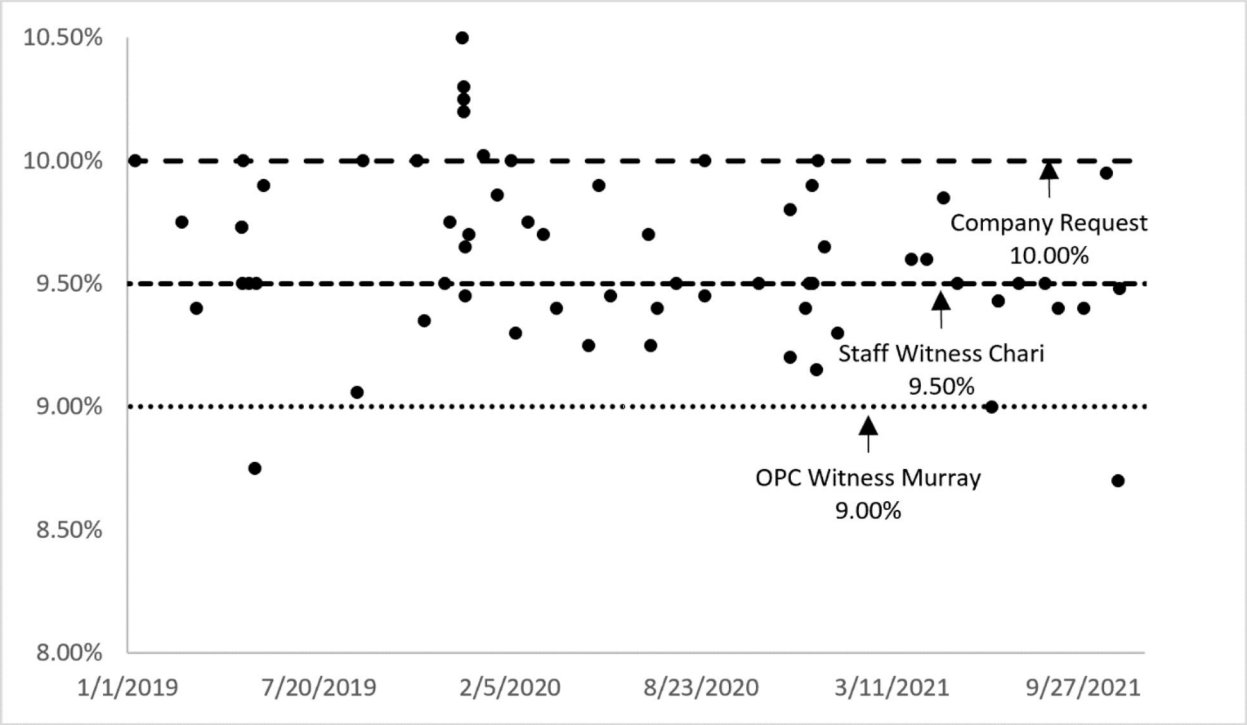
[13] Staff Cost of Service Report, at pp. 6-7 and 12, and Direct Testimony of David Murray, at pp. 16-17.
[14] Staff Cost of Service Report, at pp. 24-25.
[15] Direct Testimony of David Murray, at p. 17.

Neither witness has presented an appropriate comparison of their recommendations and the recent authorized ROEs for vertically-integrated electric utilities across the U.S.

**Q. Have you compared the recommended ROEs of Mr. Chari and Mr. Murray against the ROEs authorized by other utility regulatory commissions across the U.S.?**

A. Yes. Figure 2 shows the authorized returns for vertically-integrated electric utilities in other jurisdictions since January 2019, compared to the returns recommended by Mr. Chari and Mr. Murray. Recent authorized ROEs for vertically-integrated electric utilities range from 8.70 percent to 10.60 percent, with an average of 9.63 percent.[16]

**Figure 2: Authorized ROEs – Vertically Integrated Electric Utilities – January 2019 through November 2021[17]**




[16] Figure 2 provides authorized ROEs for vertically-integrated electric utilities. This figure excludes the two most recent decisions for Green Mountain Power of 8.2 percent and 8.57 percent, because they were formula rate plan updates and not market-determined costs of equity.

[17] Source: S&P Capital IQ. Data through November 17, 2021.

The majority of authorized returns for vertically-integrated electric utilities (44 out of 67 decisions) from January 2019 through November 2021 have been greater than or equal to 9.50 percent. This range is consistent with the Company's requested ROE of 10.0 percent and higher than the ROE recommendations of Mr. Chari and Mr. Murray, both of which are below the average of authorized ROEs for vertically-integrated electric utilities over the past three years. This suggests that both Mr. Chari and Mr. Murray believe Empire has lower risk than other vertically-integrated electric utilities across the U.S. However, neither witness provides any evidence to support this conclusion because they do not consider the relative risk of Empire to their respective proxy group companies. Finally, neither witness has considered their recommendations and recently authorized ROEs in the context of current market conditions, as discussed in more detail in Section VI of my Rebuttal Testimony.

**Q. Are you aware of any utilities that have recently experienced a credit downgrade related to the financial effects of a rate case decision?**

A. Yes. Credit rating agencies take the authorized ROE and equity ratio into consideration in developing a regulated utility company's credit rating. For example, the New York Public Service Commission ("New York PSC") recently approved a settlement agreement for Central Hudson Electric and Gas Company ("Central Hudson"), which included a reduction in that company's authorized equity ratio from 50.0 percent to 48.0 percent and an increase in the authorized ROE from 8.80 percent to 9.00 percent. Moody's subsequently downgraded the credit rating of Central Hudson on September 22, 2021 from

A3 to Baa1, citing the lower equity ratio as a primary factor in the rating downgrade. Moody's explained the rationale for the downgrade as follows:

> Several factors incorporated in the proposal will contribute to the weakness in financial metrics including growth in regulatory assets combined with a reduction in regulatory liabilities and a reduction in equity capital from 50% to 48% over the next 3 years and a large ongoing capital program. These factors are only partially offset by an increase in the allowed ROE to 9%.[18]

Moody's also commented on how the New York PSC's decision affected their view of the regulatory environment in New York, stating:

> While we don't believe that Central Hudson has been a significant target of such actions, these efforts undermine the consistency and predictability of the state's regulatory framework, an important credit consideration.[19]

**Q. What are your conclusions concerning the ROE and capital structure recommendations of OPC witness Murray and Staff witness Chari?**

A. My conclusion is that Mr. Murray's recommended ROE of 9.00 percent and common equity ratio of 47.50 percent do not meet the comparable return standard of *Hope* and *Bluefield*. Mr. Chari's ROE recommendation of 9.50 percent is at the low end of a reasonable range of equity returns, and he supports Empire's proposed capital structure as being reasonable.

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[18] Moody's Investors Service, "Rating Action – Moody's downgrades Central Hudson Gas & Electric to Baa1; stable outlook", September 22, 2021, at p. 1.

[19] Ibid.

## IV. UPDATED CAPITAL MARKET CONDITIONS

**Q. Please summarize the other ROE witnesses' positions on capital market conditions and the implications for the cost of equity.**

A. Mr. Chari provides an overview of macroeconomic indicators comparing levels of these indicators currently to the period surrounding the 2019 Empire electric rate case, as well as general observations about current conditions in both bond and equity markets.[20] Mr. Chari notes that recent economic and capital market conditions have been volatile, inflation is increasing though likely transitory, and unemployment remains high. Several of the articles that Mr. Chari relies on as sources for his macroeconomic data and the inflation outlook are from the first and second quarter of 2021. He concludes that these indicators generally demonstrate that the cost of equity for utilities has increased. He states: "Currently, the utilities sector faces two major risks that have the potential to keep stock prices depressed and COE elevated – fears of high inflation and increasing interest rates. As a consequence, the current economic climate justifies increasing authorized ROE by 25 bps to 9.50% from 9.25% authorized Empire in February 2020."[21]

Mr. Murray also provides an overview of conditions in capital markets and the economy as context and support for his ROE recommendation.[22] He notes that while yields on long-term government bonds and utility bonds have increased and are close to the levels

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[20] Staff Cost of Service Report, at pp. 8-16.
[21] Staff Cost of Service Report at p. 14.
[22] Direct Testimony of David Murray, at pp. 20-25.

achieved prior to the pandemic, bond yields are still at historically low levels[23] and "investors expect that Commissions will reduce allowed ROEs due to very low long-term interest rates."[24] Additionally, Mr. Murray asserts that the recent underperformance of LDC and electric utility stocks relative to the broader market requires careful interpretation. He contends that although utility stocks have rebounded recently, they have not increased to the levels reached prior to the pandemic. Further, he notes that "while the utility industry is able to issue bonds at lower costs (20 to 30 bps) than shortly before the pandemic, the utility equity market data has not been as conclusive about the direction of utility equity costs".[25] In particular, Mr. Murray recognizes that the results of the CAPM indicate a higher cost of equity due to an increase in utility stock betas.

**Q. Please discuss how you have analyzed changes in capital market conditions.**

A. In order to evaluate changes in capital market conditions, I have compared relevant market data at four points in time: 1) January 2020, when Staff and intervenors filed Direct Testimony in the 2019 Empire electric rate case: 2) July 1, 2020 when the Commission's decision in the 2019 Empire electric rate case was issued; 3) March 2021 when the analysis in my Direct Testimony was developed; and 4) November 2021 (current market conditions). In particular, my analysis focuses on three indicators that are important to equity investors: 1) Treasury bond yields; 2) inflation; and 3) beta coefficients for the electric utility companies in my proxy group. Collectively, these indicators demonstrate that the cost of equity for electric utilities is higher in December 2021 than it was in January

[23] Direct Testimony of David Murray, at p. 20.
[24] Direct Testimony of David Murray, at p. 24.
[25] Direct Testimony of David Murray, at p. 21.

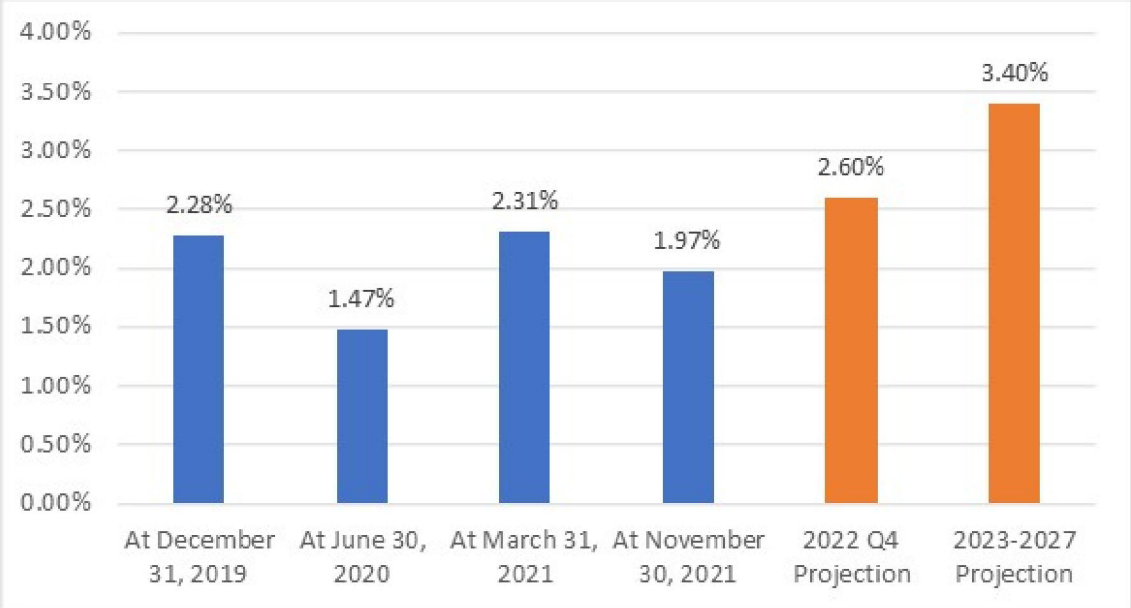
2020, when Staff recommended an authorized ROE of 9.25 percent for Empire and July 2020, when the Commission adopted Staff's recommendation.

**Q. Please discuss how government bond yields have changed over this period and the implications for equity investors considering the utility sector.**

A. The 30-day average yield on 30-year U.S. Treasury bond yields as of December 31, 2019 was 2.28 percent. Treasury bond yields declined precipitously in March and April of 2020 as investors reacted to the onset of the COVID-19 pandemic. Once it became apparent that the aggressive monetary and fiscal programs of the Federal Reserve and the U.S. Congress would provide stability in financial markets and support an economic recovery, government bond yields started to rise in August 2020 and the yield curve steepened. As shown in Figure 3, 30-day average yields on 30-year Treasuries were at 1.47 percent as of June 30, 2020 (immediately prior to the Commission's decision in the 2019 Empire electric rate case) and 1.97 percent as of November 30, 2021. Further, as also shown in Figure 3, yields on 30-year Treasury bonds are projected to increase to 2.60 percent in the fourth quarter of 2022[26] and to 3.40 percent over the period from 2023-2027.[27]

[26] Blue Chip Financial Forecasts, Vol. 40, Issue No. 12, December 1, 2021, at p. 2.
[27] Blue Chip Financial Forecasts, Vol. 40, Issue No. 12, December 1, 2021, at p. 14.

**Figure 3: Comparison of U.S. Treasury Bond Yields**




While it is often reasonable to use current yields on government bonds as the risk-free rate in the CAPM and Risk Premium models, that assumption is not appropriate when bond yields are expected to change significantly from current levels during the period in which rates are to be in effect. Under these circumstances, the use of current government bond yields by Mr. Chari and Mr. Murray contributes to the unreliability of the results of their respective CAPM and Risk Premium analyses. In addition, higher government bond yields place pressure on the valuations of utility companies, which analysts such as Value Line consider to be at unsustainably high levels. If the share prices of the companies in my electric utility proxy group were to decline, the dividend yields used in the DCF analysis for these companies would increase. As discussed in my Direct Testimony, using a dividend yield based on recent historical stock prices may cause the DCF model to understate investors' forward-looking return requirements.[28]

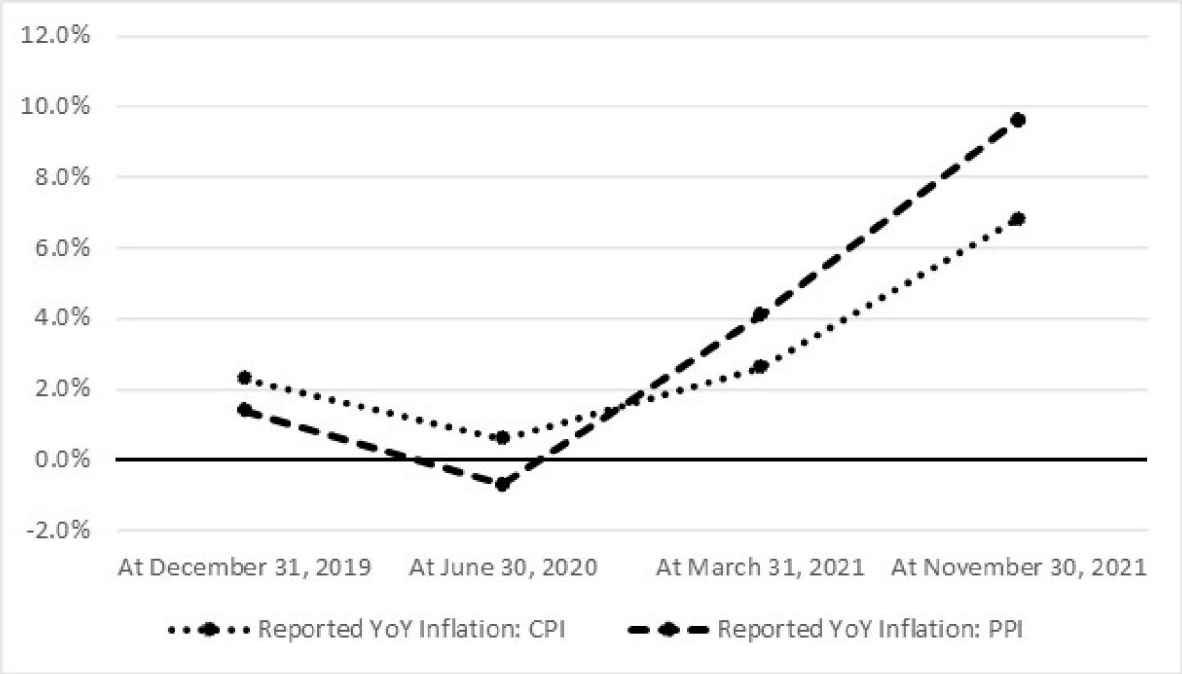
[28] Direct Testimony of John J. Reed, at pp. 26-27.

**Q. Mr. Chari recognizes that inflation has increased, but he contends that the increase is likely transitory, and that inflation will moderate. Mr. Murray does not discuss inflation in his Direct Testimony. What is your response?**

A. The articles that Mr. Chari cites as support for his view that inflation is likely to be transitory were generally published in April and May 2020.[29] The inflation outlook has deteriorated significantly in recent months. In his testimony before the Senate Banking, Housing, and Urban Affairs Committee on November 30, 2021, Federal Reserve Chair Jerome Powell indicated that the central bank would no longer refer to inflation as "transitory."[30] As shown in Figure 4, inflation as measured by the consumer price index ("CPI") and the producer price index ("PPI") has increased significantly in recent months.

[29] See, for example, Staff Cost of Service Report, footnotes 14, 29-32.
[30] CNBC, "Powell says Fed will discuss speeding up bond-buying taper at December meeting," November 30, 2021.

**Figure 4: Comparison of Inflation Rates**




Higher inflation rates are entirely predictable given the extraordinary monetary policy accommodation of the U.S. Federal Reserve and other central banks around the world during the COVID-19 pandemic and the aggressive actions taken by the U.S. Congress to stimulate the economy described in my Direct Testimony.[31] As a result, the money supply as measured by M2 has increased by slightly more than 31 percent since January 2020. It is not surprising that consumer price inflation ("CPI") has surged to levels not seen since 1982, as the U.S. Bureau of Labor Statistics ("BLS") reported on December 10, 2021, that the CPI increased by 6.8 percent for the 12-month period ending November 2021. Similarly, producer price inflation increased at an annual rate of 9.6 percent over the same period, as reported by the BLS on December 14, 2021.

[31] Direct Testimony of John J. Reed, at pp. 16-17.

At its meeting in late October 2021, the Federal Reserve announced plans to begin tapering (i.e., reducing) the Quantitative Easing program under which the Federal Reserve has been purchasing $120 billion of Treasury bonds and mortgage-backed securities each month since April 2020. The Federal Reserve initially reduced this amount by $15 billion per month, starting in November 2021, which suggested that the program would be discontinued in June 2022. At the December 2021 meeting, the Federal Reserve announced an acceleration of its tapering plans due to increased concerns about inflation. The Quantitative Easing program will now be reduced by $30 billion per month, starting in January 2022, suggesting that the program will be discontinued by the end of March 2022. The Federal Reserve has also signaled that it plans to start raising the federal funds rate in 2022, with two or three increases of 25 basis points each in 2022, two to four additional increases in 2023, and one or two increases in 2024, at which time the federal funds rate would stand between 1.75 and 2.25 percent.[32] Although these announcements indicate the Federal Reserve's intention to gradually withdraw the extraordinary monetary stimulus that has been provided in response to COVID, the market is increasingly concerned that the Federal Reserve is behind the curve on raising interest rates as inflation is proving to be higher and more persistent that initially expected.

The inflation risks in the market are twofold: 1) that either inflation becomes embedded in the economy if the Federal Reserve moves too slowly in tightening monetary policy, or 2) that the Federal Reserve responds to inflationary pressure by raising interest rates sooner than expected or more than expected, thereby causing a slowdown in economic

[32] U.S. Federal Reserve, Summary of Economic Projections, December 15, 2021, Figure 2 on p. 4.

growth or a recession. The November 2021 edition of the Blue Chip Financial Forecast reports the results of a survey of leading economists and market analysts taken in October 2021. Blue Chip reports that 53 percent of those surveyed believe that financial markets are too complacent concerning the inflation outlook, 65 percent believe that inflation risks in the U.S. are not temporary but are likely to persist, and 58 percent think that the Federal Reserve will be too slow in removing its monetary accommodation to avoid inflation accelerating well above target.[33]

The Chief Economist for Stifel, an investment management firm based in St. Louis, recently made the following comments about inflation and Federal Reserve policy:

> The Fed has absolutely lost control of inflation and inflation expectations, or at least it appears that way. Policy makes arguably should have moved a lot sooner to pull back on easy policy earlier this year, when inflation was showing signs of persisting beyond what most economists would be comfortable with, even temporarily.
>
> But they continued to stick with their assessment that this is transitory. The fear is not that they won't be able to rein in price pressures eventually, but that now they may have to move at a faster pace than they would have otherwise needed to. By waiting so long, they've created an even more difficult challenge for themselves.[34]

For all of these reasons, I disagree with Mr. Chari that inflation is transitory and that the Commission should not be concerned about how higher inflation will affect the cost of equity for regulated utilities such as Empire. The evidence demonstrates that inflation has increased significantly since January 2020, and the market is coming to believe that inflation will not return to prior levels around 2.0 percent anytime soon. This

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[33] Blue Chip Financial Forecast, Vol. 40, Issue No. 11, November 1, 2021, at p. 14.
[34] MarketWatch, "Behind highest U.S. inflation rate in 31 years lurks fear that Federal Reserve has 'lost control' of consumer prices," November 11, 2021.

suggests that investors will require a higher authorized ROE to compensate them for the risks associated with higher inflation.

**Q. Mr. Chari and Mr. Murray both acknowledge that Beta coefficients for the electric utility companies in their proxy group have increased substantially since the 2019 Empire rate case. Do their ROE recommendations adequately reflect this increase in utility risk?**

A. No, they do not. Mr. Chari's ROE recommendation is based on the change in his DCF model results since the 2019 Empire rate case. Although he acknowledges that electric utility betas have increased from 0.54 to 0.88,[35] he does not use the results of his CAPM analysis in any meaningful way. Comparing Mr. Chari's CAPM results from the 2019 Empire case to what he filed in this proceeding, the results of his CAPM analysis have increased by 1.67 percent (from 5.03 percent to 6.70 percent). This is direct market evidence that clearly demonstrates that Empire's cost of equity has increased by more than 25 basis points (which is the adjustment Mr. Chari recommends) since the Commission authorized an ROE of 9.25 percent in July 2020. Mr. Murray also recognizes that electric utility betas have increased,[36] but he downplays this increase and claims that utility betas have been moderating in recent months.[37] Mr. Murray's data is not consistent with the betas reported by Bloomberg and Value Line for the electric utility companies in my proxy group. Figure 5 compares the beta coefficients for my proxy group companies in December 2019 (immediately prior to Staff and intervenor's Direct Testimony in the 2019 Empire

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[35] Staff Cost of Service Report, at p. 13.
[36] Direct Testimony of David Murray, at p. 21.
[37] Direct Testimony of David Murray, at pp. 33-35.

electric rate case), June 2020 (immediately prior to the Commission's decision in the 2019 Empire electric rate case), March 2021 (when the analysis in my Direct Testimony was performed), and October 2021. As shown in the Figure, utility betas have increased substantially since January 2020, and the average betas in October 2021 are slightly higher than those used in the CAPM analysis in my Direct Testimony, which was prepared using market data through March 2021.

**Figure 5: Comparison of Electric Proxy Group Betas**

| | Bloomberg | Value Line |
|---|---|---|
| December 2019 | 0.538 | 0.591 |
| June 2020 | 0.873 | 0.739 |
| March 2021 | 0.893 | 0.881 |
| October 2021 | 0.898 | 0.900 |

Starting in February 2020, utilities began trading more in-line with the broad market, and Mr. Chari and I agree that utilities have not been a safe-haven for investors, as they traditionally have been during prior economic downturns.[38] The increase in beta coefficients for electric utilities is evidence that investors perceive the sector as having higher risk relative to the broad market than before. This is further evidence that the cost of equity for Empire has increased, not decreased as Mr. Murray claims.

[38] Staff Cost of Service Report, at p. 13.

**Q. What is the outlook for the utility sector among investors and equity analysts?**

A. The utility sector is expected to continue to underperform the broader market as the economy recovers and interest rates increase. Staff witness Chari shares this view, stating: "During economic recovery, utilities tend to underperform the broader market which, consequently, pushes COE for utilities higher."[39] Fidelity Investments, for example, recently reported that the utility sector had the weakest one-year return of the eleven S&P sectors, and Fidelity recommended underweighting the utility sector, noting that "weak fundamentals and high valuations could be headwinds for utilities and real estate, especially if rates increase."[40] Similarly, Charles Schwab has continued to classify the utility sector as "Underperform", noting several negative factors for the sector including that interest rates are expected to recover from their recent decline, that economic recovery makes the sector less attractive relative to other sectors, and unattractive valuations. Schwab has also noted risks for the sector including uncertainty regarding potential clean-energy legislative funding and much higher interest rates due to an unexpected rise in inflation.[41]

**Q. Do you agree with Mr. Murray that investors expect authorized ROEs to decline because of the low interest rate environment[42]?**

A. No, Mr. Chari and I agree that market conditions suggest an increase in the cost of equity. As discussed in Mr. Chari's testimony, betas for the proxy group companies have increased

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[39] Staff Cost of Service Report, at pp. 9-10.
[40] Fidelity Investments, "Q4 2021 sector scorecard: Communication services, utilities, and health care led Q3 as economic growth slowed," October 27, 2021.
[41] Charles Schwab, "Sector Views: Utilities Sector Rating: Underperform," November 18, 2021.
[42] Direct Testimony of David Murray, at pp. 24.

as compared with prior periods, and volatility and inflation have increased, all of which suggest an increase in the cost of equity. Furthermore, since reaching a low of 1.32 percent in August 2020, the average yield on the 30-year Treasury Bond has increased to 1.97 percent as of November 30, 2021. The average authorized ROE for vertically-integrated electric utilities was 9.60 percent in 2020, during the low point of yields on the 30-year Treasury bond. Interest rates have increased since August 2020 and are expected to continue to increase over the near-term as the economy recovers from the COVID-19 pandemic, supporting my view that investors do not expect authorized ROEs for vertically integrated electric utilities to decline.

**Q. What are your conclusions regarding the effect of capital market conditions on the cost of equity for Empire?**

A. There are several important conclusions regarding the effect of capital market conditions for Empire:

1) The trend in interest rates, inflation, and beta coefficients for electric utilities all support my recommendation that the cost of equity has increased for Empire since the Commission determined in July 2020 that the authorized ROE should be set at 9.25 percent. Mr. Chari agrees and recommends a modest increase in the authorized ROE for Empire of 25 basis points.

2) While the ROE estimation models use some historical data (i.e., stock prices and dividends in the DCF model, and bond yields in the CAPM), based on the expectation that interest rates will increase, it is also appropriate to consider near-term projections in the ROE estimation models.

3) Mr. Murray's assumption that the cost of equity is lower than authorized ROEs causes him to inappropriately conclude that the authorized ROE for Empire should decline even though interest rates have increased since August 2020 and are expected to continue to increase over the next several years.

## V. RESPONSE TO STAFF WITNESS CHARI'S ROE ANALYSIS

**Q. Please provide an overview of Mr. Chari's ROE analyses.**

A. Mr. Chari develops multiple models including the DCF, CAPM and Bond Yield Risk Premium approaches and estimates a range of results from each methodology. Figure 6 summarizes the results of his ROE estimates and compares the ROE results to those that were filed by Staff in Empire's 2019 electric rate case.

**Figure 6: Comparison of Mr. Chari's ROE Results to Staff's Analysis in 2019 Empire electric rate case**

| Methodology | Staff 2019 Case Range | Mr. Chari's Current Range |
|---|---|---|
| DCF | 7.34%-8.14%<br>Mean: 7.74% | 6.83%-9.37%<br>Mean: 8.30%[43] |
| CAPM | 4.63%-5.43%<br>Mean: 5.03% | 6.02%-7.62%<br>Mean: 6.70%[44] |
| Bond Yield Plus Risk Premium | NA | 6.07%-8.07%[45] |
| Recently Authorized ROEs for Electric Utilities | 2019 Fully Litigated: 9.36% | 2021 Fully Litigated: 9.44%<br>2021 Settled: 9.48%<br>2021 All: 9.46%[46] |

**Q. Is Mr. Chari's ROE recommendation based on the results of his ROE estimation models?**

A. No, it is not. As shown in Figure 6, Mr. Chari's ROE estimation models suggest a range of 6.02 percent to 9.37 percent, and his mean values are all at or below 8.3 percent. However, he essentially disregards the results of his ROE estimation methodologies when

[43] Staff Cost of Service Report, at p. 22.
[44] Ibid, at p. 23.
[45] Ibid, at p. 24.
[46] Ibid, at p. 25.

he establishes a recommended range for Empire from 9.25 percent to 9.70 percent. Staff's recommended range is based on the authorized ROE in the 2019 Empire electric rate case of 9.25 percent at the low end, adding the 42 basis point increase determined from Mr. Chari's comparative analysis to derive the high end of 9.70 percent.[47] Mr. Chari arrives at his recommendation of 9.50 percent by adding 25 basis points (rather than the 42 basis points that resulted from his comparative analysis) to the 9.25 percent ROE that was authorized in the 2019 Empire electric rate case.

**Q. What are the principal areas of disagreement with the methodologies that Mr. Chari uses as the basis for his modeling?**

A. I have many areas of disagreement with the technical aspects of Mr. Chari's ROE analysis. However, as a practical matter, Mr. Chari does not actually rely on any of those analyses to support his recommendation for Empire, as they all produce results that are significantly below his recommended ROE range and point estimate of 9.50 percent. Rather, Mr. Chari's ROE recommendation is based on a comparison of the results of his Two-step DCF model in this case to the results of the DCF model that he relied on in Empire's 2019 electric rate case. While I disagree with many aspects of Mr. Chari's DCF, CAPM and Risk Premium analyses, the fact is that he has not relied on those models in the development of his range or his ROE recommendation. Therefore, my response to Mr. Chari will address each methodology at only a high level, and I will focus more specifically on the Two-Step DCF methodology and the comparison underlying his recommended return.

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[47] Staff Cost of Service Report, at p. 6.

**A. Two-Step DCF Analysis**

**Q. Please summarize Mr. Chari's Two-Step DCF model.**

A. Mr. Chari's DCF analysis is a two-stage model which relies on projected earnings growth rates from Value Line and S&P Market Intelligence as the estimate of the short-term growth rate and projected GDP growth as the long-term growth rate.[48] In support of his position that it is common practice for ROR witnesses to combine short-term and long-term growth rates to estimate a reasonable growth rate in the DCF model, Mr. Chari cites to FERC. For the long-term growth rate, Mr. Chari relies on projected real GDP growth estimates from the Federal Reserve and the Energy Information Administration within a range from 1.6 percent to 2.2 percent, to which he adds projected inflation of 2.0 percent, and a nominal GDP growth rate projection from the Congressional Budget Office of 3.70 percent. Mr. Chari averages these three estimates to derive this long-term GDP growth rate of 3.83 percent.[49] As shown in Schedule PC-7-2, Mr. Chari's combined growth rate is the result of assigning a two-thirds weight to the average EPS growth rates and a one-third weight to the long-term GDP growth rate.[50] Schedule PC-8-1 shows the results of Mr. Chari's Two-Step DCF analysis, which range from 6.83 percent to 9.37 percent, with an average of 8.30 percent.

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[48] Staff Cost of Service Report, at Schedule PC-7-2.
[49] Staff Cost of Service Report, at p. 22.
[50] Staff Cost of Service Report, at p. 25. Staff Witness Chari does not specify a FERC Order in his reference; however, recent FERC precedent is to weight the short-term growth rates 80% and the long-term growth rate 20%, which, if applied to Mr. Chari's analysis would increase the growth rate used in the DCF model.

**Q. Are the results of Mr. Chari's Two-Step DCF model reasonable?**

A. No. Mr. Chari's Two-Step DCF analysis understates the cost of equity when compared with the authorized equity returns for vertically-integrated electric utilities in other jurisdictions. The mean result of Mr. Chari's Two-Stage DCF analysis of 8.30 percent is well below the average authorized ROEs for integrated electric utilities of 9.63 percent. The *Hope* and *Bluefield* decisions, which Mr. Chari acknowledges are standards for setting a just and reasonable return,[51] require the authorized return to be comparable to other returns available to investors in companies with similar risk. Mr. Chari's Two-Step DCF results do not meet this standard.

**Q. Does Mr. Chari's Two-Step DCF analysis follow FERC's current methodology?**

A. No, it does not. Mr. Chari relies on FERC for support the weighting of EPS and GDP growth rates to establish the long-term growth rate in the DCF model. The weightings that Mr. Chari applies, however, are not consistent with FERC's most recent determination in the MISO transmission owners' case. In Opinion No. 569-A, FERC adjusted its application of the two-stage DCF model. In particular, the development of the average growth rate was changed from a two-thirds EPS and one-third GDP weighting to an 80 percent weight on EPS growth rate estimates and 20 percent on the long-term GDP growth rate.[52]

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[51] Staff Cost of Service Report, at p. 8.

[52] Federal Energy Regulatory Commission, Opinion No. 575, Order on Briefs and Initial Decision, May 20, 2021, at pp.12-13.

**Q. Have you re-calculated the results of Mr. Chari's DCF analysis using the current FERC weightings to establish the growth rate?**

A. Yes. As shown in **Rebuttal Schedule JJR-1**, this change would increase Mr. Chari's 2021 growth rate from 4.81 percent to 5.00 percent and his mean ROE from 8.30 percent to 8.49 percent.

**Q. What are the primary drivers of the unreasonably low results of Mr. Chari's Two-Step DCF analyses?**

A. There are two main factors that contribute to the unreasonably low results of Mr. Chari's Two-Step DCF model: 1) the dividend yield; and 2) the long-term growth rate. As discussed in my Direct Testimony, dividend yields for electric utilities are currently suppressed by the low interest rate environment.[53] One assumption of the DCF model is that the P/E ratio will remain constant in perpetuity. Industry analysts such as Value Line have commented that current valuations for electric utilities are not sustainable. As such, it is not reasonable to set the forward-looking cost of equity for Empire based entirely on the DCF model when the underlying assumptions of that model are being violated. If the utilities sector underperforms as analysts expect, utility stock valuations will decline, and the dividend yield in the DCF model (which is based on average historical stock prices) will increase.

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[53] Direct Testimony of John J. Reed, at p. 26.

With respect to the long-term growth rate, Mr. Chari's estimate of projected nominal GDP growth of 3.83 percent is well below Blue Chip's consensus forecast of nominal GDP growth rate of 4.24 percent, which is based on real GDP growth of 2.00 percent and projected inflation of 2.20 percent for the period from 2028-2032.[54] In addition, Mr. Chari's projected GDP growth rate is much lower than the 5.49 percent GDP growth rate used in my Multi-Stage DCF analysis, which was based on historical average real GDP growth of 3.14 percent and projected inflation of 2.28 percent.[55]

**Q. Please summarize Mr. Chari's comparative DCF analysis.**

A. Mr. Chari compares the results of his Two-Step DCF model using data through August 2021 with the results of a single-step Constant Growth DCF model that he conducted in the 2019 Empire electric rate case.

**Q. Is the model that Mr. Chari developed in this proceeding consistent with the model that he developed in the 2019 Empire electric rate case?**

A. No, it is not. In the 2019 Empire electric rate case, Mr. Chari relied on a single-step Constant Growth DCF model; however, several inputs of that model differ from the model he developed for the current case. Specifically, Mr. Chari's 2019 DCF model was based on different growth rates, including historical dividends per share, book value per share, and earnings per share, and projected earnings growth rates as the basis for his growth rate range. Further, Mr. Chari did not assume that long-term growth would revert to GDP growth and therefore did not weight his short-term and long-term growth rates to develop the range of growth rates in the 2019 Empire case.

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[54] Blue Chip Financial Forecasts, Vol. 40, Issue No. 12, December 1, 2021, at p. 14.
[55] Direct Testimony of John J. Reed, at p. 42.

**Q. Do you agree with the comparison that Mr. Chari performs between the analysis from the 2019 Empire electric rate case and the analysis he performed in this proceeding?**

A. No, I do not. Mr. Chari compares the mean results from the 2019 DCF analysis of 7.74 percent to the mean result of his current analysis of 8.30 percent. However, because the methodologies that he used to develop these analyses are not consistent, it is not reasonable to compare the results of the two models and conclude that the differential represents the change in market requirements.

**Q. Did Mr. Chari also develop a comparative analysis that informed his recommendation in the 2019 Empire case?**

A. Yes. In that case, Mr. Chari compared the results of his analyses to the results of Staff's analyses in the 2017 Spire Missouri case.[56]

**Q. Is Mr. Chari's decision to make a 25-basis point adjustment to the authorized ROE from the 2019 Empire case consistent with the way he applied his comparative analysis in the 2019 Empire case?**

A. No, it is not. Mr. Chari's adjustments in this case are inconsistent with the 2019 Empire case and cause the resulting ROE here to be understated. Specifically, Mr. Chari's comparison of the DCF results in this case to those in 2019 indicate that the cost of equity for Empire has increased by 42 basis points. Yet, Mr. Chari makes only a 25-basis point adjustment to the 9.25 percent ROE that was approved by the Commission in the 2019 Empire case. Mr. Chari does not offer any meaningful explanation as to why it is appropriate to limit the increase to 25 basis points, other than his view that inflation is

[56] Staff Cost of Service Report, Case No. ER-2019-0374, January 2020, at p. 5.

transitory. Furthermore, this approach is inconsistent with the adjustment that Mr. Chari made in the comparative analysis that he prepared in developing his recommendation in the 2019 Empire case. In that case, Mr. Chari concluded that there was a 55 basis point decrease in the cost of equity from the Spire case to the Empire electric rate case using the electric proxy group, and he applied the *entirety* of that decrease to the ROE that was authorized in the Spire case.[57] Mr. Chari is not being consistent in adjusting the benchmark ROE when he concludes that the current cost of equity has decreased as when he concludes it has increased.

**Q. What would Mr. Chari's ROE recommendation have been if he had applied the full cost of equity differential to the authorized ROE for Empire?**

A. Empire's current authorized ROE for its electric operations is 9.25 percent. Simply applying the full amount of Mr. Chari's adjustment (i.e., 42 basis points) would result in an authorized ROE of 9.67 percent, which is 33 basis points lower than my recommended ROE of 10.0 percent.

**Q. Earlier in your testimony, you adjusted Mr. Chari's Two-Stage DCF results to reflect the current FERC weightings on short and long-term growth rates. Have you conducted any analysis as to how that would affect Mr. Chari's comparative analysis?**

A. Yes. Using the adjusted ROE of 8.49 percent, reflecting the FERC growth rate weighting, the difference in the cost of equity from the 2019 Empire case would be 75 basis points.

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[57] Staff Cost of Service Report, Case No. ER-2019-0374, January 2020, at p. 5, footnote 2. Mr. Chari's calculations, which were based on the comparison of model results for natural gas utilities, resulted in a 75 basis point difference in the cost of equity, which he adjusted by 20 basis points to account for the difference between electric and natural gas ROEs. Mr. Chari ultimately concluded that his analysis demonstrated a decrease in the cost of equity for Empire of 55 basis points.

(8.49%-7.74% = 0.75%). Consistent with Mr. Chari's approach in the 2019 Empire case, applying that full adjustment to the 9.25 percent ROE that was authorized for Empire in 2019 would result in an ROE of 10.00 percent, which matches my recommendation exactly. These calculations are shown in **Rebuttal Schedule JJR-1**.

**Q. You also previously questioned the GDP growth rate that Mr. Chari uses in his Two-Stage DCF model. Have you conducted any analysis as to how a change in that long-term growth rate would affect Mr. Chari's comparative analysis?**

A. Yes. Substituting the nominal projected GDP growth rate of 4.24 percent from Blue Chip for Mr. Chari's nominal GDP growth rate of 3.83 percent results in an ROE of 8.57 percent. The difference in the cost of equity from the 2019 Empire rate case would be 83 basis points. (8.57% - 7.74% = 0.83%). Applying that full adjustment to the 9.25 percent ROE that was authorized for Empire in 2019 would result in an ROE of 10.08 percent. See **Rebuttal Schedule JJR-2** for these calculations.

**B. Capital Asset Pricing Model**

**Q. Please summarize Mr. Chari's application of the CAPM.**

A. Mr. Chari develops the CAPM as a test of the reasonableness of his DCF results.[58] As shown in Schedule PC-9, Mr. Chari's CAPM analysis uses a risk-free rate based on the average yield on the 30-year Treasury bond of 2.01 percent, Value Line betas that average 0.89 for his proxy group companies, and two measures of the market risk premium. The first (6.07 percent) is the long-term arithmetic average of historical return differences from 1926-2020. The second (4.62 percent) is based on the long-term geometric average of

[58] Staff Cost of Service Report, at p. 22.

historical returns over the same time period. The results of Mr. Chari's CAPM analyses range from 6.02 percent to 7.62 percent, with a mean of 6.78 percent. Mr. Chari concludes that because the results of his CAPM analysis overlap the results of his DCF analysis, the CAPM "confirms the reasonableness of Staff's COE estimates."[59]

**Q. Does Mr. Chari rely on his CAPM analysis to establish his recommended ROE for Empire?**

A. No, he does not. Mr. Chari's ROE recommendation is based solely on the benchmarking analysis performed using the results of his Two-Step DCF model and the DCF model prepared for the 2019 Empire case.

**Q. How do the results of Mr. Chari's CAPM analysis compare to authorized ROEs for vertically-integrated electric utilities?**

A. The range produced by Mr. Chari's CAPM analysis of 6.02 percent to 7.62 percent is too low to be considered reasonable. According to data from Regulatory Research Associates, there have been no authorized returns at these levels for vertically-integrated electric utilities over the past 40 years.

**Q. Do you disagree with Mr. Chari's estimated risk-free rate and MRP range?**

A. Yes, but because Mr. Chari does not rely on his CAPM methodology, and the result of this approach demonstrates that his assumptions are unreasonable, I do not address in detail the concerns I have with the methodology that Mr. Chari uses to estimate the risk-free rate and MRP. Further, many of the assumptions Mr. Chari uses to estimate his MRP were also relied upon by OPC witness Murray and are addressed in my response to that witness.

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[59] *Ibid,* at p. 24.

**C. Bond Yield Plus Risk Premium Approach**

**Q. Please summarize Mr. Chari's Bond Yield Plus Risk Premium analysis.**

A. In this analysis, Mr. Chari adds an equity risk premium to the yield-to-maturity on a company's long-term debt. The yield-to-maturity is the three-month average yield on Moody's A- and Baa rated public utility bonds as of September 30, 2021 of 2.95 percent and 3.19 percent, respectively. The average of these two yields is 3.07 percent. Mr. Chari establishes his range by adding to this yield a range of risk premiums from 3% to 5%. Mr. Chari provides no source or basis for these risk premiums other than to indicate that they are "considered acceptable." The result of his bond-yield risk premium approach is a range from 6.07 percent to 8.07 percent.[60]

**Q. Do you agree with this methodology?**

A. While I agree that it is generally appropriate to rely on risk premium methodologies, Mr. Chari's risk premium approach relies on unsupported estimates of the market risk premium. In addition to lacking support for the critical assumption in this analysis, Mr. Chari's analysis relies on a three-month average yield on utility bonds that does not reflect the expectation of rising interest rates. As such, this methodology is not reflective of investor's forward-looking return requirements. Mr. Chari does not rely on his risk premium analysis, which is the right conclusion.

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[60] Staff Cost of Service Report, at p. 24.

**D. Authorized Returns in Other Jurisdictions**

**Q. Please summarize Mr. Chari's analysis of authorized returns in other jurisdictions.**

A. Mr. Chari summarizes the authorized returns for all rate cases, fully litigated rate cases only and settled rate cases only for gas and electric utilities in other jurisdictions from 2010 to 2021.[61] Mr. Chari's data from Regulatory Research Associates indicate that the average authorized ROE for electric utilities in both fully litigated and settled proceedings has been in the range of 9.44 percent to 10.37 percent over this period.

**Q. Do you have any concerns with the authorized returns Mr. Chari has considered?**

A. Yes. Mr. Chari should have only reviewed the authorized returns for vertically-integrated electric utilities. Moody's Investors Service, among others, has noted that generation ownership causes vertically-integrated electric utilities to have higher business risk than electric transmission and distribution companies.[62] Mr. Chari's recommended ROE of 9.50 percent is 44 basis points below the average authorized ROE for vertically integrated electric utilities from 2010-2021 of 9.94 percent and 338 basis points below the highest ROE award during this period for a vertically integrated utility. Additionally, as shown in Figure 2, Mr. Chari's recommendation is near the low-end of the authorized ROEs for vertically-integrated electric utilities since 2019. As noted above, 44 out of 67 decisions from January 2019 through November 2021 have been at 9.50 percent or higher.

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[61] Staff Cost of Service Report, at pp. 24-25.

[62] Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities, at p. 21. The Commission itself has relied on authorized ROEs for vertically integrated electric utilities in deciding the appropriate ROE because of its recognition that vertically integrated electric utilities have more business risk than distribution only utilities. See *In the Matter of Union Electric Company*, File No. ER-2014-0258, Report and Order, 320 P.U.R.4th 330 (Apr. 29 2014) (Finding of Fact 11 in the Return on Equity section of the Order).

**Q. Has Mr. Chari presented any evidence that Empire is a below-average risk utility?**

A. No. Mr. Chari has presented no evidence regarding the relative risk of Empire and other vertically integrated electric utilities across the U.S., or his proxy group companies.

**Q. Is it important to conduct an analysis of the relative risk of Empire and the proxy companies?**

A. Yes, it is, and the Commission has expressly considered relative risk in assessing the sufficiency of ROE recommendations. For example, in its decision in Spire Missouri's 2017 rate case, the Commission concluded that the ROE recommendation of 9.20 percent proposed by the OPC was too low because the OPC did not consider the fact that Spire Missouri faced increased business risk when compared to OPC's proxy group.[63]

**Q. Have you conducted a comparative risk analysis?**

A. Yes, as discussed in my Direct Testimony, I evaluated the small size of Empire relative to the proxy group companies, Empire's capital expenditure program and the regulatory risk of Empire as compared to the companies in the proxy group. I concluded that Empire had greater business risk than the average company in the proxy group.[64] Based on this risk assessment, an authorized ROE below the average authorized ROE for vertically-integrated electric utilities since 2019 of 9.63 percent would not sufficiently compensate equity investors for the incremental risk faced by Empire relative to the proxy group companies.

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[63] *In the Matter of Laclede Gas Company's Request to increase its Revenues for Gas Service*, File No. ER-2017-0215 and File No. GR-2017-0216, Report and Order (Feb. 21, 2018), at p. 31.

[64] Direct Testimony of John J. Reed, Section VIII, at pp. 55-66.

## VI. RESPONSE TO OPC WITNESS MR. MURRAY'S ROE ANALYSIS

**Q. Please summarize Mr. Murray's ROE analyses.**

A. Mr. Murray develops several cost of equity analyses including a Multi-Stage DCF model, a CAPM analyses, and a bond yield plus risk premium method. As shown in Figure 7, the results of Mr. Murray's ROE estimation methodologies range from 6.10 percent to 7.24 percent.

**Figure 7: Results of Mr. Murray's ROE Estimation Methodologies**

| Methodology | Range |
|---|---|
| Multi-Stage DCF (3.0% long-term growth rate) [65] | All EEI companies: 7.39%<br>Less than 10% Non-Reg: 7.24%<br>Common Since 2012/14: 7.11% |
| CAPM[66] | 6.50%-7.00% |
| Risk Premium[67] | 6.10%-6.35% |

**Q. Is Mr. Murray's ROE recommendation based on the results of his ROE models?**

A. No, it is not, which is the right conclusion, since none of his analyses produce reliable results for setting Empire's allowed ROE. Instead, Mr. Murray subjectively establishes a range that he suggests the Commission consider of 8.50 percent to 9.25 percent.[68] However, he provides no basis for that range in his testimony or workpapers. Within that range, Mr. Murray's recommendation of an ROE of 9.00 percent is based on the Commission's acceptance of his proposed 47.5 percent equity ratio.[69] While Mr. Murray

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[65] Direct Testimony of David Murray, at pp. 30-31, and DM-D-4-1.
[66] Direct Testimony of David Murray, DM-D-6-1, DM-D-6-2, DM-D-6-3.
[67] Direct Testimony of David Murray, at p. 35.
[68] Ibid, at p. 17.
[69] Direct Testimony of David Murray, at p. 17.

suggests that he considers his cost of equity estimates, the results of Mr. Murray's models do not even come close to supporting his recommended range. Mr. Murray's recommendation of 9.00 percent is 175 to 250 basis points above the range that he determines based on his models of 6.50 percent to 7.25 percent. Mr. Murray states that his recommendation is also based on consideration of the Commission's authorized ROE for Empire in 2019, capital market conditions, and an approximation of the "Zone of Reasonableness" that the Commission would consider.

**Q. How does Mr. Murray factor his ROE model results into his recommendation?**

A. Mr. Murray relies on his essentially discarded Multi-Stage DCF analysis and the low interest rate environment to conclude that the cost of equity is "lower" and, therefore, the authorized ROE for Empire should be reduced.[70] In recommending an authorized ROE of 9.00 percent for Empire, Mr. Murray defaults to the incorrect concept that authorized ROEs are greater than the actual cost of equity in order to claim that he has at least considered his model results. Ultimately, Mr. Murray cannot rely on his Multi-Stage DCF or CAPM analysis due to the unreasonably low results of those models.

**Q. What are your primary conclusions regarding Mr. Murray's analyses and conclusions?**

A. While I disagree with many assumptions and methodologies relied on by Mr. Murray, as discussed in this section of my Rebuttal Testimony, it is important to recognize that, as was the case with Mr. Chari, because Mr. Murray's models produce results that are 175 to 250 basis points below his recommended ROE of 9.00 percent, it is unreasonable to suggest

[70] Direct Testimony of David Murray, at pp. 30-31.

that he has relied on any of his analyses. Mr. Murray's ROE recommendation is essentially based on his unsupported view of the appropriate allowed ROE for Empire rather than on market data.

**A. Multi-Stage DCF Analysis**

**Q. Please explain how Mr. Murray conducts his Multi-Stage DCF analysis.**

A. Mr. Murray's Multi-Stage DCF analysis includes three stages, the first two of which have defined time horizons, while the third assumes cash flows in perpetuity. In the first stage, Mr. Murray relies on analyst estimates of annual dividends per share ("DPS") and earnings per share ("EPS") which were available for the next three to four years. In the final year of the first stage (i.e., 2025), Mr. Murray calculates the estimated dividend payout ratio based on the analysts' estimated annual DPS and EPS. His second stage then models an equal percentage change in the dividend payout ratio from the end of the first stage until the terminal year (i.e., 2035), where Mr. Murray assumes a payout ratio that retains sufficient earnings to ensure each company in his group maintains a perpetual growth rate of 3.0 percent.[71] Mr. Murray's Multi-Stage DCF results are 7.11 percent to 7.39 percent depending on the proxy group considered.[72]

**Q. Does Mr. Murray's Multi-Stage DCF analysis indicate a higher cost of equity for electric utilities than in January 2020?**

A. Yes. Although I do not agree with Mr. Murray's application of the Multi-Stage DCF model, had he compared the results of his Multi-Stage DCF analysis in the current proceeding to the Multi-Stage DCF analysis he presented in Empire's 2019 rate case, he

[71] Direct Testimony of David Murray, at pp. 30-31.
[72] Direct Testimony of David Murray, DM-D-4-1.

would have concluded that the cost of equity has increased. As shown in Figure 8, the results of his analysis in the current proceeding have increased by more than 60 basis points compared to those in the 2019 Empire electric rate case. Despite the change in his Multi-Stage DCF model results, and his recognition that Betas also have increased for electric utilities, Mr. Murray recommends an ROE of 9.00 percent for Empire, which is 25 basis points *lower* than his 9.25 recommended in Empire's 2019 rate case.

**Figure 8: Comparison of Mr. Murray's Multi-Stage DCF Results**

| Methodology | Empire's 2019 Rate Case | Empire's 2021 Rate Case |
|---|---|---|
| Multi-Stage DCF | 6.5% - 6.75%[73] | 7.11% - 7.39% |

**Q. Are the results of Mr. Murray's Multi-Stage DCF model reasonable?**

A. No. The results of Mr. Murray's Multi-Stage DCF analysis are so low as to be unreasonable and are not even remotely reflective of the cost of equity for a vertically-integrated electric utility such as Empire. Not a single jurisdiction has authorized an ROE for an integrated electric utility as low as the results of Mr. Murray's Multi-Stage DCF model. The *Hope* and *Bluefield* decisions, which Mr. Murray acknowledges are legal standards to be upheld, require the authorized return to be just and reasonable, as well as comparable to other returns available to investors in companies with similar risk. Mr. Murray's Multi-Stage DCF results clearly violate this standard.

[73] Docket No. ER-2019-0374, Direct Testimony of David Murray, January 15, 2020, at p. 35.

**Q. Please summarize Mr. Murray's opinion as to the difference between authorized ROEs and the cost of equity.**

A. Mr. Murray attempts to reconcile the difference between the results of his ROE estimation models and his recommendation by suggesting that average allowed ROEs have been greater than the cost of equity. According to Mr. Murray, the results of the modern financial models must be reconciled with the principles of *Hope* and *Bluefield*, which require the return to be just and reasonable and commensurate with the return available to investors in assets of similar risk.[74] Thus, Mr. Murray develops a zone of reasonableness based on recent authorized returns and prior Commission guidance.

**Q. Do you agree with Mr. Murray that allowed ROEs overstate the actual cost of equity for electric utilities?**

A. No, I do not. Mr. Murray's position is solely reliant on the assumption that he has used reasonable inputs in the Multi-Stage DCF model, the results of which he does not use in setting his recommended ROE for Empire. Mr. Murray's specification of and reliance on the Multi-Stage DCF model to estimate the cost of equity is, however, incorrect for several reasons. First, Mr. Murray and I agree that utility share prices are inversely related to interest rates.[75] As interest rates increase, the share prices of utility stocks will decline. A decline in share prices will result in an increased cost of equity estimate from the DCF model. Therefore, Mr. Murray's Multi-Stage DCF results are likely understating the forward-looking cost of equity for Empire.

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[74] Direct Testimony of David Murray, at pp. 16-17.
[75] Direct Testimony of David Murray, at p. 21.

Second, Mr. Murray references equity analyst reports as support for the inputs in his Multi-Stage DCF model such as the long-term growth rate of 3.0 percent. However, valuations of utilities are based on projected earnings growth rates, which are in turn based in part on the ROEs that are authorized for the operating subsidiaries of the utility. As noted above, a decline in the valuation of a utility would result in an increase in the DCF results. Had Mr. Murray assumed a long-term growth rate greater than 2.5 percent to 3.5 percent, he would have arrived at a higher estimate of the cost of equity for Empire.

**Q. Do you agree with the long-term growth rate used in Mr. Murray's Multi-Stage DCF model?**

A. No, I do not. Mr. Murray relies on a long-term growth rate range of 2.5 percent to 3.5 percent, which he notes is based on his review of historical growth rate data from the Moody's electric utility index, a sample of electric utility companies whose data is available from Value Line, and reports from equity analysts.[76] According to Mr. Murray, these long-term growth rates are based on the perpetual growth rates relied on by Evercore ISI and Wells Fargo in the calculation of their Dividend Discount Model ("DDM") for regulated utilities.[77] Mr. Murray's long-term growth rate assumption of 3.0 percent is not consistent with the stock prices that he relies on to calculate his Multi-Stage DCF model. In fact, the basis for the current valuation of utilities is the expectation that utilities will sustain current EPS growth rates in the range of 5.0 to 6.0 percent for the foreseeable future. If equity analysts expected the long-term growth rate to decline to a range of 2.5 percent to 3.5 percent, then they would undoubtedly reduce their price targets for these companies.

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[76] Direct Testimony of David Murray, at p. 29.
[77] Durgesh Chopra, et al., "Reshuffling the Deck – Changing Ratings," Evercore ISI, April 19, 2020, at p. 16.

In addition, the perpetual growth rate of 3.0 percent that Mr. Murray uses in his Multi-Stage DCF model is not consistent with the historical EPS and DPS growth rates for electric utilities generally and for the Empire proxy group companies specifically. Figure 9 demonstrates that the average historical EPS growth rate for the 18 companies in my electric proxy group from 2010-2021 has been 5.42 percent, while the average historical DPS growth rate for these same companies has been 4.73 percent. These growth rates are significantly higher than the perpetual growth rate used by Mr. Murray of 3.0 percent.

**Figure 9: Historical EPS and DPS Growth Rates for Electric Utilities**

| | No. of Companies | EPS Growth [1] | DPS Growth [1] |
|---|---|---|---|
| U.S. All Electric Companies [2] | 36 | 4.09% | 5.17% |
| Empire Proxy Group | 18 | 5.42% | 4.73% |
| AVERAGE | | 4.76% | 4.95% |

Notes

[1] TTM EPS/DPS % CAGR over the time period 2010 Q3 - 2021 Q3 (latest reported quarter). Companies with negative or zero EPS or DPS in 2021, or negative values in the starting year as reported by Bloomberg Professional, were excluded from this calculation.

[2] As covered by Value Line at 2021 Q3. FirstEnergy was excluded from the analysis due to declines as a result of anomalous events.

**Q. What is the effect of Mr. Murray's long-term growth rate assumption on his Multi-Stage DCF results?**

A. Mr. Murray has acknowledged in previous testimony on behalf of Staff that the "[c]ost of equity estimates using multi-stage DCF methodologies are **extremely sensitive** to the assumed perpetual growth rate".[78] As I have demonstrated above, investors expect the long-term growth rate for Mr. Murray's proxy group to exceed by a significant amount the range of 2.50 percent to 3.50 percent that he has relied on in his Multi-Stage DCF model. If Mr. Murray were to assume a long-term growth rate more consistent with current earnings growth projections, he would have obtained a much higher ROE estimate for the proxy group.

**Q. Please summarize your conclusions regarding Mr. Murray's Multi-Stage DCF analysis.**

A. My conclusion is that Mr. Murray's Multi-Stage DCF model does not provide reasonable estimates of the cost of equity for electric utilities such as Empire and produces results that are much lower than recently authorized ROEs for integrated electric utilities. Mr. Murray seems to agree, and he abandons his Multi-Stage DCF analysis due to the unreasonably low results. Despite his lack of confidence in his own model results, Mr. Murray suggests that these results generally support a lower overall ROE for Empire. It stands to reason that if the results of the model are unreliable and cannot be used to estimate the ROE, then they also cannot be used to compare historical model results from other proceedings to recently authorized ROEs.

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[78] File No. ER-2014-0258, Staff Cost of Service Report (December 5, 2014), at p. 34.

**B. Capital Asset Pricing Model**

**Q. Please summarize Mr. Murray's CAPM analysis**

A. Mr. Murray develops three separate CAPM analyses. The first uses a risk-free rate based on the average monthly yield on the 20-year Treasury bond since January 1, 2021,[79] recalculated Betas for the electric utility proxy group, and a MRP of 6.00 percent, which Mr. Murray states is "similar to historical spreads and estimates provided by sources, such as Duff & Phelps".[80] The second CAPM analysis uses a risk-free rate based on the monthly average yield on the 30-year Treasury bond since January 1, 2021,[81] and the same Betas and market risk premium as in the first CAPM analysis. His third CAPM analysis uses the normalized risk-free rate reported by Duff & Phelps, recalculated Betas for the electric utility proxy group, and a MRP of 5.50 percent as reported by Duff & Phelps.[82] The results of Mr. Murray's CAPM analyses range from 6.66 percent to 7.03 percent.[83] Ultimately, Mr. Murray concludes that his CAPM analyses support a cost of equity range of 6.5 percent to 7.0 percent.[84]

**Q. Do you agree with the risk-free rate that Mr. Murray uses in his CAPM analysis?**

A. While I do not specifically dispute the normalized risk-free rate of 2.50 percent that Mr. Murray relies on in one of his CAPM analyses, I do not agree with Mr. Murray's reliance on the monthly 20-year and 30-year Treasury Bond yields in his other CAPM analyses. The cost of equity is being estimated for the forward-looking period when the Company's

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79 DM-D-5-1.
80 DM-D-6-1 note for Column 3.
81 DM-D-6-2.
82 DM-D-6-3 note for Column 1 cites to the D&P Most Recent Guidance on Normalized Risk-free Rate as of June 30, 2020.
83 DM-D-6-1, DM-D-6-2, DM-D-6-3.
84 Direct Testimony of David Murray, at p. 35.

rates will be in effect. Therefore, it is also important to consider, as I have in my Direct Testimony, forecast interest rates that are expected to prevail during the period during which the Company's rates will be in effect. As discussed in Section VI of my Rebuttal Testimony, the economy is in the expansion phase of the business cycle, which means government bond yields are expected to increase over the near-term and, in fact, have increased since the low was reached in August 2020. Considering the demonstrated increases in the bond yields since August 2020 and the forward-looking nature of the analysis, Mr. Murray should have placed primary weight on the normalized risk-free rate of 2.50 percent from Duff & Phelps.

**Q. What Beta coefficients does Mr. Murray rely on?**

A. Mr. Murray calculates raw Beta coefficients for the companies in his electric utility proxy group using a template provided by S&P Market Intelligence, and then attempts to adjust those Betas using the Blume formula. That analysis suggests a Beta of 0.780 to 0.824, depending on the proxy group.[85]

**Q. What is your response to Mr. Murray's recalculation of the Beta coefficients?**

A. Mr. Murray has consistently relied on Value Line as the source of his Beta coefficients in his CAPM analysis for many years. He offers no explanation as to why he has decided not to rely on Value Line and to instead recalculate his own estimates of Beta in this proceeding. In addition, while Mr. Murray indicates that he calculated the Beta coefficients for his proxy group companies based on Value Line's approach, his electric proxy group average Beta of 0.824 is much lower than the electric proxy group average Value Line Beta

[85] DM-D-5-1, DM-D-5-2, and DM-D-5-3.

coefficient of 0.90 as of November 30, 2021, as shown in Figure 5 of my Rebuttal Testimony. There is no evidence that Beta coefficients for electric utilities have moderated in recent months, as Mr. Murray claims.

**Q. What is your concern with Mr. Murray's MRP estimates?**

A. Given the current low yields on Treasury bonds and the inverse relationship between interest rates and the MRP, Mr. Murray's range of MRPs from 5.50 percent to 6.00 percent is understated. First, from a practical standpoint, the results of his CAPM analysis are significantly below any return that has been authorized by any U.S. regulatory jurisdiction in at least 40 years. The primary reason for the unreasonably low results from Mr. Murray's CAPM analysis is his selection of the MRP. Based on historical data from Duff & Phelps, the market risk premium from 1926-2020 was 7.25 percent.[86] The historical income-only return on government bonds used to calculate the historical MRP over this period was approximately 4.91 percent, while the 30-day average risk-free rate on long-term government bonds as of October 31, 2021 was 2.03 percent. Because interest rates on long-term government bonds are well below the historical average of 4.91 percent, the inverse relationship between interest rates and the MRP implies that the MRP should be well above the long-term historical average of 7.25 percent. However, the MRP range used by Mr. Murray of 5.50 percent to 6.00 percent suggests that the forward-looking MRP is 125 to 175 basis points *lower* than the historical average, which is unsupportable.

[86] The market risk premium from 1926-2020 is calculated as the average return on large company stocks from 1926-2020 minus the average income only return on long-term government bonds from 1926-2020 (i.e., 12.16 percent – 4.91 percent = 7.25 percent). Source: Duff & Phelps, Valuation Handbook: Guide to Cost of Capital, 2021.

**Q. Do you have any other concerns with the MRPs relied on by Mr. Murray?**

A. Yes. As shown in Figure 10, the implied market returns for the MRPs cited by Mr. Murray range from 7.98 percent to 8.09 percent. These returns are unreasonably low especially when compared to the recent historical returns for large company stocks. As shown in Figure 11, the actual average market return for large company stocks from 2015 to 2020 was 13.45 percent, as reported by Duff & Phelps. Therefore, the range of implied market returns considered by Mr. Murray is well below recent actual returns for the broad market.

**Figure 10: Mr. Murray's Implied Market Total Returns[87]**

| Source | Implied MRP | Risk-Free Rate | Implied Market Return |
|---|---|---|---|
| Historical MRP & 20-year Treasury Bond yield | 6.00% | 1.98% | 7.98% |
| Historical MRP & 30-year Treasury Bond yield | 6.00% | 2.09% | 8.09% |
| Duff & Phelps MRP and Normalized Risk-free Rate | 5.50% | 2.50% | 8.00% |

[87] Source: DM-D-6-1 through DM-D-6-3.

**Figure 11: Duff & Phelps – Actual Total Returns for Large Company Stocks – 2015-2020**[88]

| Year | Large Company Stock Total Return |
|---|---|
| 2015 | 1.38% |
| 2016 | 11.96% |
| 2017 | 21.83% |
| 2018 | -4.38% |
| 2019 | 31.49% |
| 2020 | 18.40% |
| **Average** | **13.45%** |

**Q. What is your conclusion regarding Mr. Murray's CAPM analysis?**

A. My conclusion is that Mr. Murray's CAPM results of 6.66 percent to 7.03 percent are not reasonable estimates of the cost of equity for Empire. Similar to his Multi-Stage DCF analysis, flawed input assumptions in Mr. Murray's CAPM have resulted in the incorrect conclusion that the cost of equity is well below recently authorized ROEs for vertically-integrated electric utilities. In particular, Mr. Murray's CAPM analysis fails to take into consideration the inverse relationship between interest rates and the MRP. As such, the results of Mr. Murray's CAPM analysis are not representative of the forward-looking cost of equity for Empire in this proceeding.

[88] Source: Duff and Phelps, Cost of Capital Navigator.

**C. Risk Premium Methodology**

**Q. Please summarize Mr. Murray's Risk Premium analysis.**

A. Mr. Murray uses recent average yields on Moody's A and Baa-rated utility bonds of 3.1 percent to 3.35 percent and an estimated risk premium of 3.0 percent to 4.0 percent. Mr. Murray selects the low end of the risk premium range of 3.0 percent because he contends that investors view utilities as bond "surrogates/substitutes."[89] This results in a Risk Premium estimate of 6.10 percent to 6.35 percent. Mr. Murray also notes that the yield on Liberty's long-term bonds issued in 2020 was 2.03 percent, which when combined with the 3.0 percent risk premium, results in a ROE estimate of 5.03 percent.[90] While Mr. Murray reports the result of this analysis, his recommended ROE of 9.00 percent is 265 to 290 basis points higher than his Risk Premium approach.

**Q. Do you agree with this methodology?**

A. As discussed in my response to Mr. Chari, Mr. Murray's risk premium approach relies on historical estimates of the equity risk premium and does not take into consideration the effect of current market conditions on the equity risk premium. There are a number of studies which have shown that the MRP is inversely related to the level of interest rates. For example, in a March 1998 article titled *Interest Rate Risk and Utility Risk Premia During 1982-93* in Managerial and Decision Economics, Dr. S. Keith Berry used a

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[89] Direct Testimony of David Murray, at p. 35.
[90] *Ibid*.

regression approach to analyze the relationship between authorized returns on equity for regulated utilities and utility bond yields. The author found that there was an inverse relationship between utility risk premia and interest rates.[91] Similarly, in a Spring 1986 article in Financial Management, Dr. Robert S. Harris also showed that there was an inverse relationship between utility risk premia and interest rates.[92]

Moreover, adding a risk premium based on a historical average interest rate level to the current yield on Liberty' long-term bonds, which is significantly below historical averages, results in a vastly understated estimate of the current cost of equity for Empire. Finally, the use of the current yield on Liberty's long-term bonds does not reflect the expectation of rising interest rates. As such, this methodology is not reflective of investors' forward-looking return requirements.

**D. Conclusions**

**Q. Please summarize your conclusions about the way in which Mr. Murray arrives at his recommended ROE for Empire.**

A. While I have responded to each of the methodologies presented by Mr. Murray, it is important to recognize that his ROE recommendation is not based on the results of any of these models. Instead, Mr. Murray's ROE recommendation is based on his establishment of a "zone of reasonableness" of 8.50 percent to 9.25 percent. Nothing in Mr. Murray's testimony supports the range of reasonableness from which he selects his ROE recommendation. Mr. Murray states that he has developed his range based on recently

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[91] S. Keith Berry, Interest Rate Risk and Utility Risk Premia during 1982-93, Managerial and Decision Economics, Vol. 19, No. 2 (March, 1998), at p. 7.

[92] Robert S. Harris, Using Analysts' Growth Forecasts to Estimate Shareholders Required Rates of Return, Financial Management, Spring 1986, at p. 66.

authorized ROEs for electric utilities. Notably, none of Mr. Murray's ROE estimation models result in ROEs that fall within this established range. While Mr. Murray discards his ROE analyses for the purposes of setting his recommended ROE for Empire, he asks the Commission to rely on the results of his models to conclude that the cost of capital for utilities remains low. Further, he suggests that these model results somehow support his recommended ROE of 9.00 percent. Reliance on his mis-specified models has resulted in Mr. Murray understating the cost of equity for Empire. If Mr. Murray had used reasonable inputs in his models, he would have concluded, as Staff Witness Chari did, that the cost of equity for electric utilities has increased, not decreased, since the 2019 Empire electric rate case. As a result, I do not believe it is reasonable to rely on Mr. Murray's final recommended ROE.

## VII. DISALLOWANCE OF ASBURY RETIREMENT COSTS

**Q. Certain witnesses in this proceeding recommend disallowance of costs associated with the Asbury coal plant retirement. Does the Commission's decision on this issue also affect the cost of equity for Empire?**

A. Yes, it does. Staff, for example, recommends that the Commission order all costs and savings associated with the Asbury retirement that were recorded by Empire into regulatory assets and regulatory liabilities pursuant to Commission order be charged or flowed through to customers in rates through a fifteen-year amortization. However, Staff recommends that the balance of the Asbury regulatory asset associated with the unrecovered investment in the unit be excluded from Empire's rate base.[93] Midwest

[93] Staff Cost of Service Report, at p. 137.

Energy Consumers Group witness Greg Meyer does not oppose the recovery of the undepreciated Asbury investment through the creation of a regulatory asset account to be recovered over 13 years, but he recommends that Empire not be allowed to earn a return on the undepreciated Asbury investment.[94] In particular, Mr. Meyer argues that the investment in Asbury is no longer used and useful, and that customers should not be asked to pay for both the replacement asset (the wind farms) and the retired asset (the coal plant).

Company witness Frank Graves addresses the reasonableness of Empire's proposed recovery of Asbury retirement costs in his Direct and Rebuttal Testimony. In my Direct Testimony, I provided examples of how plant retirement costs have been treated elsewhere. My conclusion was that allowing recovery of these types of costs is standard practice in most jurisdictions.[95] If the Commission were to disallow any of these retirement costs, as proposed by Staff and intervenors, Empire would need a higher authorized ROE than what I have recommended in order to compensate investors for the risk associated with not recovering some or all of these legitimate costs. Conversely, if Empire is allowed to recover a return of and on the retired Asbury plant as proposed by the Company, then my ROE and capital structure recommendations are entirely reasonable.

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[94] Direct Testimony of Greg R. Meyer, at pp. 11-12.
[95] Direct Testimony of John J. Reed, at pp. 61-64.

## VIII. CAPITAL STRUCTURE

**Q. Please summarize Staff's position regarding the authorized capital structure for Empire in this case.**

A. Staff recommends that the Commission set Empire's allowed rate of return based on the most economical capital structure, which Staff states is Empire's proposed stand-alone pro forma capital structure of 52.44 percent common equity and 47.56 percent long-term debt.[96] Staff recommends the stand-alone capital structure for Empire because Mr. Chari finds the Company's capital structure to be the most economical as compared to LUCO's and APUC's, as shown in Table 2 of Staff's Cost of Service Report. Mr. Chari indicates that Staff's recommendation is subject to change based on Empire's updated capital structure that will be trued up as of September 30, 2021.[97]

**Q. Please summarize OPC's position with respect to the appropriate capital structure for Empire.**

A. OPC witness Murray recommends that Empire's capital structure be comprised of 47.5 percent common equity and 52.5 percent long-term debt, which Mr. Murray states is consistent with the mix of capital that Empire's immediate parent, Liberty Utilities Co. ("LUCO"), maintained over the test period in the rate case.[98] According to Mr. Murray, the use of the consolidated capital structure is appropriate because it represents the level of

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[96] Staff Cost of Service Report, at p. 6.
[97] Staff Cost of Service Report, at p. 18.
[98] Direct Testimony of David Murray, at p. 4.

debt that LUCO believes is reasonable for its regulated utilities' assets which include Empire. Furthermore, Mr. Murray contends a higher debt level is appropriate for Empire because of the reduction in the Company's business risk due to the Company's use of PISA, which allows for the timely recovery of certain of the Company's electric capital expenditures between rate cases.[99] Mr. Murray is recommending a somewhat higher common equity ratio for Empire in this case compared to his recommendation in the 2019 electric rate case, but a 25 basis point reduction in the authorized ROE for Empire to recognize what he characterizes as the Company's lower business risk due to the adoption of PISA.

**Q. Do you agree with the adjustments Mr. Murray has made to Empire's pro-forma stand-alone capital structure?**

A. No, I do not. Please see the Rebuttal Testimony of Company witness Mr. Mooney for a full response to Mr. Murray's proposed adjustments to Empire's capital structure.

**Q. Has the Commission previously considered the use of the stand-alone operating company capital structure versus the holding company's consolidated capital structure that Mr. Murray recommends?**

A. Yes, it has. Similar to the current case, in Case Nos. GR-2017-0215 and GR-2017-0216 for Spire Missouri, Mr. Murray, who was the witness for Staff at that time, proposed relying on the consolidated capital structure, and thus using an equity ratio of 45.56 percent.[100] In its decision in that case, the Commission noted that it had previously relied on the

[99] Direct Testimony of David Murray, at p. 3.
[100] In the Matter of the Laclede Gas Company's Request to Increase its Revenue for Gas Service, Missouri Public Service Commission File No. GR-2017-0215, Amended Report and Order, March 17, 2018 at p. 40.

consolidated capital structure for Laclede Gas Company (the Missouri operating company prior to the Spire merger), when the operating company made up almost the entirety of the holding company; but that same capital structure was no longer appropriate in the 2017 case. The Commission explained that, since the merger, the parent company now had five operating utilities in three states in addition to other investments and therefore it was not appropriate to use the consolidated capital structure as the utility-specific capital structure.[101] The Commission reached the same conclusion regarding the use of Spire Missouri's actual capital structure rather than the parent company's capital structure in Spire Missouri's 2021 rate case.[102]

**Q. Do Empire's electric operations represent the vast majority of LUCO's operations?**

A. No. Empire's electric operations in Missouri represented only 34 percent of LUCO's net utility plant as of December 31, 2020.[103] In addition to the electric operations in Missouri, LUCO provides electric, gas, water and wastewater utility service in many jurisdictions across the U.S. As a result, it is not appropriate to apply LUCO's consolidated capitalization as the utility-specific capital structure for Empire's electric operations in Missouri, as Mr. Murray recommends. The use of the Company's actual capital structure is consistent with the Commission's decision in Spire Missouri's 2017 and 2021 rate cases.

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[101] In the Matter of Laclede Gas Company d/b/a Missouri Gas Energy's Request to Increase its Revenues for Gas Service, Missouri Public Service Commission GR-2017-0216, YG-2017-0196, February 21, 2018. 2018 WL 1315107 (Mo.P.S.C.), at p. 19.

[102] In the Matter of Spire Missouri Inc.'s d/b/a Spire Request for Authority to Implement a General Rate Increase for Natural Gas Service Provided in the Company's Missouri Service Areas, Missouri Public Service Commission GR-2021-0108, YG-2021-0133, November 6, 2021, at pp. 88-89.

[103] LUCO's net utility plant as of December 31, 2020, was $4,883 billion, as shown in Consolidated Financial Information of Liberty Utilities Co. for the years ended December 31, 2020 and 2019, at p. 3. Empire District's net utility plant as of December 31, 2020 was $1.663 billion, as shown in Schedule JJR-10.1.

**Q. Is the Company's capital structure consistent with industry norms and therefore reasonable for ratemaking purposes?**

A. Yes, it is. First, I updated Schedule JJR-12, which compared the actual capital structures of the operating companies in my proxy group to the capital structure proposed by Empire. As shown in **Rebuttal Schedule JJR-3**, the average common equity ratios for the operating companies in my proxy group is 53.23 percent. for the eight quarters ending with the second quarter of 2021. I also examined the capital structures that have recently been authorized for the electric operating utilities held by my proxy group. The average authorized equity ratio for these companies is 50.50 percent, which is generally consistent with Empire's proposed common equity ratio of 52.44 percent[104] and well within the range of authorized equity ratios for companies of comparable risk. There is no reason to employ a capitalization that is different from the actual pro forma capital structure that Empire employs to finance its electric utility operations in Missouri.

**Q. Do you agree with Mr. Murray that Empire can increase its leverage due to the reduction in business risk associated with the Company's adoption of PISA?**

A. No, I do not. While the PISA may reduce Empire's business risk on an absolute basis, it does not reduce the Company's risk relative to the proxy group. It is not appropriate to conclude, as Mr. Murray does, that because Empire has a capital cost recovery mechanism that the Company can increase its leverage and therefore its financial risk.

The analysis of the ROE for a regulated utility is based on market data for a proxy group of publicly traded proxy companies that are reasonably comparable to the subject

[104] Balance should be updated to reflect the June 30, 2021 amount of 52.79 percent.

utility. The returns that result from that analysis reflect the risk profile of the proxy group as a whole. In order to determine the appropriate return for the subject company, it is necessary to consider Empire's risks relative to the proxy group companies. Those risks include business risk and financial risk (i.e., the risk related to the capitalization of the company). If the company is determined to have greater risk than the proxy group, then an ROE or equity ratio towards the upper end of the proxy group results is warranted. An increase in the equity ratio adjusts the risk to equity holders because it reduces the leverage in the company's capital structure.

**Q. Does Mr. Murray evaluate his proxy group to determine if the companies have capital cost recovery mechanisms?**

A. No, he does not. Mr. Murray inappropriately concludes that because Empire utilizes PISA to recover a portion of the Company's electric capital expenditures costs, the business risk for the Company is reduced. However, as shown in Schedule JJR-11 of my Direct Testimony, approximately 56 percent of the operating companies held by the proxy group have capital cost tracking mechanisms and 73 percent are allowed to include CWIP in rate base between rate cases. Thus, the use of PISA does not reduce the Company's regulatory risk relative to its peers. Rather, the implementation of PISA moves the Company closer to the risk profile of the operating utilities of the proxy group companies.

**Q. What are your conclusions regarding the capital structure for Empire in this proceeding?**

A. My primary conclusion is that Empire's above average risk relative to the proxy group indicates that the Company's equity ratio should be greater than the proxy group average. The average actual equity ratio for the operating companies in my proxy group is 53.23

percent, which is slightly higher than with the equity ratio proposed by Empire of 52.44 percent. Thus, the Company's proposed equity ratio is conservative when compared to the proxy group considering the business risk of Empire. Conversely, the equity ratio proposed by Mr. Murray of 47.5 percent is well below the average authorized equity ratio for the proxy group and would result in increased financial risk for the Company. If the Commission were to adopt Mr. Murray's capital structure, it would be necessary to authorize a significantly higher ROE than what I have recommended to compensate investors for the higher financial risk of Empire relative to the proxy group.

## IX. SUMMARY AND RECOMMENDATIONS

**Q. Please summarize your conclusions and recommendations regarding the appropriate ROE for Empire in this proceeding.**

A. I continue to support the results of the ROE analysis presented in my Direct Testimony, which results in a reasonable range of ROE for Empire of 9.50 percent to 10.40 percent. While the results of financial models provide a starting point, my ROE recommendation also considers other factors, including company-specific risk factors, capital market conditions and the capital attraction standard. Considering the financial and business risk factors facing Empire, and the expectation that interest rates will continue to increase over the near term as the economy recovers from COVID-19, my recommended ROE of 10.0 percent is reasonable and appropriate.

- Nothing in the other ROE witnesses' testimony has caused me to change my range of results and/or my recommendation.
- Neither Mr. Chari nor Mr. Murray rely on the results of any of their models to develop their respective ROE recommendations of 9.50 percent and 9.00 percent.

- Mr. Chari's reliance on a comparison of his Two-Step DCF results for Empire in this proceeding to those for a similar model at the time of Empire's 2019 rate case does not provide sufficient support for limiting the increase in the ROE recommendation to 25 basis points. Had Mr. Chari simply applied the full difference in the Two-Step DCF results between the current proceeding and Empire's 2019 rate case, he would have arrived at an authorized ROE of 9.71 percent.
- Similarly, Mr. Murray's DCF, CAPM and Risk Premium methods do not support his ultimate recommendation.
- Finally, recently authorized ROEs for vertically-integrated electric companies support a higher ROE for Empire than those recommended by Staff and OPC, and the prospective economic climate, which is becoming very challenging in terms of inflation and interest rates, supports an increase to take Empire to the high end of the peer group range.

**Q. What is your recommendation regarding a reasonable capital structure for Empire?**

A. I support the Company's proposed actual pro forma capital structure of 52.44 percent common equity and 47.56 percent long-term debt.[105] This capital structure represents the manner in which the Company is actually capitalized. Moreover, the proposed equity ratio of 52.44 percent[106] is reasonable when compared to the actual equity ratios of the operating companies held by proxy group, as well as the authorized equity ratios of those companies.

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[105] Balances should be updated to reflect the June 30, 2021 amounts of 52.79 percent common equity and 47.21 percent long-term debt.

[106] Balance should be updated to reflect the June 30, 2021 amount of 52.79 percent common equity.

**Q. Does this conclude your Rebuttal Testimony?**

A. Yes, it does.

**VERIFICATION**

I, John J. Reed, under penalty of perjury, on this 20th day of December, 2021, declare that the foregoing is true and correct to the best of my knowledge and belief.

/s/ John J. Reed