APPENDIX A. MARKET TO BOOK RATIOS AND THE MARKET-BASED COE

Q. PLEASE EXPLAIN WHY A MARKET TO BOOK RATIO OF SIGNIFICANTLY ABOVE ONE INDICATES THAT THE COST OF EQUITY FOR ELECTRIC UTILITY COMPANIES IS LOWER THAN THE EXPECTED RETURN ON BOOK EQUITY?

A. Calculating the cost of equity (investors' equity return expectations) is more complicated than calculating the return on a rental property, but the same concept applies regarding the relationship between market returns and book returns. If an investor purchases an apartment for $100,000 and expects to receive $500 per month ($500 X 12 = $6,000 per year) in rent, he or she will expect an annual return of 6% ($6,000/$100,000) on their investment. When the investor purchases the apartment, he would record the book value as $100,000 and the market value as $100,000 unless he determined that the purchase price was higher or lower than the market value. If the value of the apartment increases to $350,000, for example, the market to book ratio would increase to approximately 3.5, and therefore, his return on book value would remain at about 6% while his return on the market value of the apartment would decrease to about 1.7%.

In this rental property example, an increasing market value results in a lower expected return on market (1.7%) compared to expected return on book (6%) if the rent price remains constant. Rent prices do not increase to maintain an expected 6% return on book value; they are set by what the rental market reasonably can bear. The same is true of utility stocks. You do not establish an ROE based on a constant return on book (accounting) returns, it is set based on what investors in the market expect that market to return. In the case of a utility stock, an increasing market value results in a lower return on market for the same expected return on book. As this rental property example demonstrates, there is nothing inconsistent about investors expecting a lower return on the market price of an investment than on the book value of an investment. In fact, with market to book ratios of electric utility companies significantly above one it would be surprising if investors expected a return on market equal, or anywhere close, to return on book.

APPENDIX B. FUTURE-ORIENTED "B X R" METHOD

Q. ARE YOU AWARE OF CLAIMS ALLEGING THAT THE "BR" APPROACH TO THE CONSTANT GROWTH DCF MODEL IS FLAWED BECAUSE IT RELIES ON THE VALUE OF THE FUTURE EXPECTED RETURN ON BOOK EQUITY "R" TO ESTIMATE WHAT THE EARNED RETURN ON EQUITY SHOULD BE?

A. Yes. One common criticism is that it is not reasonable for the DCF to indicate a COE (market return) that is different (lower or higher) than the expected return on book equity (accounting). There are multiple reasons why this concern is unfounded:

1. The constant growth form of the equation using "br" is:

   $$k = D/P + (br + sv)$$

   In this equation, "k" is the variable for the COE, and "r" is the future expected return on equity. The COE, "k," is not the same variable as the future expected earned return on equity, "r." In fact, there often is a large difference between the two.

2. The correct value to use for "r" is the return on book equity expected by investors as of the time the stock price and dividend data are used to quantify the D/P term in the equation. Therefore, even if future events occur that may change what investors expect for "r," the computation of the COE "k" remains correct as of the time the computation was made.

3. The ability of a commission's ROE decision to influence future cash flow expectations is not unique to the retention growth DCF approach. The five-year analysts' earnings per share growth rate is a computation that is directly influenced by what earnings per share will be in 5 years. Allowed ROEs

impact earning – higher allowed returns lead to higher earnings growth because the higher allowed returns the more earnings are available for reinvestment.

Q. CAN CHANGES IN THE ACTUAL EARNED RETURNS IMPACT GROWTH ABOVE AND BEYOND WHATEVER GROWTH RESULTS FROM EARNINGS RETENTION?

A. Yes, but large short-term changes in earnings per share caused by a perceived change in the future expected earned returns are unsustainable. The new perceived earned return on book equity should be part of the computation, but the one-time growth spurt to get there is no more indicative of the sustainable growth required in the constant growth DCF formula than the temporary negative growth that occurs when a company has a bad year.

Q. CAN YOU PLEASE SUMMARIZE WHY A FUTURE-ORIENTED "B X R" METHOD IS SUPERIOR TO A FIVE-YEAR EARNINGS PER SHARE GROWTH RATE FORECAST IN PROVIDING A LONG-TERM SUSTAINABLE GROWTH RATE?

A. The primary cause of sustainable earnings growth is the retention of earnings. A company is able to create higher future earnings by retaining a portion of the prior year's earnings in the business and purchasing new business assets with those retained earnings. There are many factors that can cause short-term swings in earnings growth rates, but the long-term sustainable growth is caused by retaining earnings and reinvesting those earnings. Factors that cause short-term swings include anything that causes a company to earn a return on book equity at a rate different from the long-term sustainable rate. Assume, for example, that a particular utility company is regulated so that it is provided with a reasonable opportunity to earn 9% on its equity. Should the company experience an event such as the loss of several key customers, or unfavorable weather conditions, which cause it to earn only 6% on equity in a given year, the drop from a 9% earned return on equity to a 6% earned return on equity would be concurrent with a very large drop in earnings per share. In fact, if a company did not issue any new shares of stock during the year, a drop from a 9% earned return on book equity to a 6% earned return on book equity would result in a 33.3% decline in earnings per share over the period.[111] However, such a drop in earnings would not be an indication of what is a long-term sustainable earnings per share growth rate. If the drop were caused by weather conditions, the drop in earnings would be immediately offset once normal weather conditions return. If the drop were from the loss of some key customers, the company would replace the lost earnings by filing for a rate increase to bring revenues up to the level required for the company to be given a reasonable opportunity to recover its cost of equity.

For the reasons above, changes in earnings per share growth rates that are caused by non-recurring changes in the earned return on book equity are inconsistent with long-term sustainable growth, but changes in earnings per share because of the reinvestment of additional assets is a cause of sustainable earnings growth. The "b x r" term in the DCF equation computes sustainable growth because it measures only the growth which a company can expect to achieve when its earned return on book equity "r" remains in equilibrium. If analysts have sufficient data to be able to forecast varying values of "r" in future years, then a complex, or multi-stage DCF method must be used to accurately

[111] By definition, earned return on equity is earnings divided by book value. Therefore, whatever level of earnings is required to produce earnings of 6% of book would have to be 33.3% lower than the level of earnings required to produce a return on book equity of 9%.

quantify the effect. Averaging growth rates over sub-periods, such as averaging growth over the first five years with a growth rate expected over the subsequent period, will not provide an appropriate representation of the cash flows expected by investors in the future and, therefore, will not provide an acceptable method of quantifying the cost of equity using the DCF method. The choices are either a constant growth DCF, in which one growth rate derived using "b x r" should be used, or a complex DCF method in which the cash flow anticipated in each future year is separately estimated. Ms. Bulkley and Mr. Wall have done neither. Instead, they mechanically adds analysts' five-year earnings per share growth rate to the dividend yield.

Q. WHY ARE ANALYSTS' FIVE-YEAR CONSENSUS GROWTH RATES NOT INDICATIVE OF LONG-TERM SUSTAINABLE GROWTH RATES?

A. Analysts' five-year earnings per share growth rates are earnings per share growth rates that measure earnings growth from the most currently completed fiscal year to projected earnings five years into the future. These growth rates are not indicative of future sustainable growth rates in part because the sources of cash flow to an investor are dividends and stock price appreciation. While both stock price and dividends are impacted in the long run by the level of earnings a company is capable of achieving, earnings growth over a period as short as five years is rarely in synchronization with the cash flow growth from increases in dividends and stock prices. For example, if a company experiences a year in which investors perceive that earnings temporarily dipped below normal trend levels, stock prices generally do not decline at the same percentage that earnings decline, and dividends are usually not cut just because of a temporary decline in a company's earnings. Unless both the stock price and dividends mirror every down swing in earnings, they cannot be expected to recover at the same growth rate that earnings recover. Therefore, growth rates such as five-year projected growth in earnings per share are not indicative of long-term sustainable growth rates in cash flow. As a result, they are not applicable for direct use in the simplified DCF method.

Q. IS THE USE OF FIVE-YEAR EARNINGS PER SHARE GROWTH RATES IN THE DCF MODEL ALSO IMPROPER?

A. Yes. A raw, unadjusted, five-year earnings per share growth rate is usually a poor proxy for either short-term or long-term cash flow growth that an investor expects to receive. When implementing the DCF method, the time value of money is considered by equating the current stock price of a company to the present value of the future cash flows that an investor expects to receive over the entire time that he or they owns the stock. The discount rate required to make the future cash flow stream, on a net present value basis, equal to the current stock price is the cost of equity. The only two sources of cash flow to an investor are dividends and the net proceeds from the sale of stock at whatever time in the future the investor finally sells. Therefore, the DCF method is discounting future cash flows that investors expect to receive from dividends and from the eventual sale of the stock. Five-year earnings growth rate forecasts are especially poor indicators of cash flow growth, even over the five years being measured by the five-year earnings per share growth rate number.

Q. WHY IS A FIVE-YEAR EARNINGS PER SHARE GROWTH RATE A POOR INDICATOR OF THE FIVE-YEAR CASH DIVIDEND GROWTH EXPECTATIONS?

A. The board of directors of a company changes dividend rates based upon long-term earnings expectations combined with the capital needs of a company. Most companies do not decrease dividends simply because a company has a year in which earnings were below sustainable trends, and similarly they do not increase dividends simply because earnings for one year happened to be above long-term sustainable trends. Therefore, over any given five-year period, earnings growth is frequently very different from dividend growth. In order for earnings growth to equal dividend growth, at a minimum, earnings per share in the first year of the five-year earnings growth rate period would have to be exactly on the long-term earnings trend line expected by investors. Since earnings in most years are above or below the trend line, the earnings per share growth rate over most five-year periods is different from what is expected for dividend growth.

Q. WHY IS THE FIVE-YEAR EARNINGS PER SHARE GROWTH RATE A POOR INDICATION OF FUTURE STOCK PRICE GROWTH?

A. If a company happens to experience a year in which earnings decline below what investors believe is consistent with the long-term trend, then the stock price does not drop anywhere near as much as earnings drop. Similarly, if a company happens to experience a year in which earnings are higher than the investor-perceived long-term sustainable trend, the stock price will not increase as much as the earnings. In other words, the P/E ratio of a company will increase after a year in which investors believe earnings are below sustainable levels, and the P/E ratio will decline in a year in which investors believe earnings are higher than expected. Since stock price is one of the important cash flow sources to an investor, a five-year earnings growth rate is a poor indicator of cash flow, both because it is a poor indicator of stock price growth over the five years being examined, and because it is equally a poor predictor of dividend growth over the period.

Q. ARE YOU SAYING THAT ANALYSTS' CONSENSUS EARNINGS PER SHARE GROWTH RATES ARE USELESS AS AN AID TO PROJECTING THE FUTURE?

A. No. Analysts' EPS growth rates are, however, very dangerous if used in a simplified DCF without proper interpretation. While they are not useful if used in their "raw" form, they can be very useful in computing estimates of what earned return on equity investors expect will be sustained in the future, and as such, are useful in developing long-term sustainable growth rates. This is exactly what I do in the application of my Constant Growth DCF Analysis.

APPENDIX C. NON-CONSTANT GROWTH FORM OF THE DCF MODEL

Q. YOUR NON-CONSTANT GROWTH DCF MODEL USES ANNUAL EXPECTED CASH FLOWS. SINCE DIVIDENDS ARE PAID QUARTERLY RATHER THAN ANNUALLY, HOW DOES THIS SIMPLIFICATION IMPACT YOUR RESULTS?

A. I used the annual model because it is easier for observers to visualize what is happening. Modeling cash flows to be annual rather than when they are actually expected to occur causes a small overstatement of the COE.

Q. WHY IS IT A SMALL OVERSTATEMENT OF THE COE IF YOU HAVE MODELED DIVIDENDS TO BE RECEIVED SOME MONTHS AFTER INVESTORS ACTUALLY EXPECT TO RECEIVE THEM?

A. The process of changing from an annual model to a quarterly model would require two changes, not just one. A quarterly model would show dividends being paid sooner and would also show earnings being available sooner. A company that receives its earnings sooner, rather than at the end of the year, has the opportunity to compound them. Since revenues, and therefore earnings, are essentially received every day, a company that is supposed to earn an annual rate of 9.00% on equity would have to earn only 8.62% if the return were compounded daily.[112] This reduction from 9.00% to 8.62% would then be partially offset by the impact of the quarterly dividend payment to bring the result of switching from the simplifying annual model closer to, but still a bit below 9.00%.

[112] (1+.0862/365)^365=1.09=9.00%.

Q. BY USING CASH FLOW EXPECTATIONS AS THE VALUATION PARAMETER, DOES THE NON-CONSTANT DCF MODEL STILL RELY ON EARNINGS?

A. Yes. It relies on an expectation of future cash flows. Future cash flows come from dividends during the time the stock is owned and capital gains from the sale of the stock once it is sold. Since earnings impact both dividends and stock price, the non-constant DCF model still relies on earnings.

Every dollar of earnings is used for the benefit of stockholders, either in the form of a dividend payment, or earnings reinvested for future growth in earnings and/or dividends. Earnings paid out as a dividend have a different value to investors than earnings retained in the business. Recognizing this difference and properly considering it in the quantification process is a major strength of the DCF model and is why the non-constant DCF model as I have set forth is an improvement over either the price-to-earnings ratio (P/E ratio) or dividend/price (D/P) methods. Comparing the P/E ratios and the dividend yield (D/P) are helpful as a rule of thumb, but they must be used with caution because, among other reasons, two companies with the same dividend yield can have a different COE if they have different retention rates. A DCF model is more reliable than these rules of thumb because it can account for different retention rates, among other factors.

Q. WHY IS THERE A DIFFERENCE TO INVESTORS IN THE VALUE OF EARNINGS PAID OUT AS A DIVIDEND COMPARED TO THE VALUE OF EARNINGS RETAINED IN THE BUSINESS?

A. The return on earnings retained in the business depends upon the opportunities available to that company. If a regulated utility reinvests earnings in needed "used and useful" utility assets, then those reinvested earnings have the potential to earn at whatever return is consistent with ratemaking procedures allowed and the skill of management in prudently operating the system.

When an investor receives a dividend, they can either reinvest it in the same or another company or use it for other things, such as paying down debt or paying living expenses. Although an investor could theoretically use the proceeds from any dividend payments to simply buy more stock in the same company, when an investor increases their investment in a company by purchasing more stock, the transaction occurs at market price. However, when the same investor sees their investment in a company increase because earnings are retained rather than paid as a dividend, the reinvestment occurs at book value. Stated within the context of the DCF terminology: earnings retained in the business earn at the future expected return on book equity "r," and dividends used to purchase new stock earn at the rate "k." When the market price exceeds book value (that is, the market-to-book ratio exceeds 1.0), retained earnings are worth more than earnings paid out as a dividend because "r" will be higher than "k." Conversely, when the market price is below book value, "k" will be higher than "r," meaning that earnings paid out as a dividend earn a higher rate than retained earnings.

Q. IF RETAINED EARNINGS WERE MORE VALUABLE WHEN THE MARKET-TO-BOOK RATIO IS ABOVE 1.0, WHY WOULD A COMPANY WITH A MARKET-TO-BOOK RATIO ABOVE 1.0 PAY A DIVIDEND RATHER THAN RETAIN ALL OF THE EARNINGS?

A. Retained earnings are more valuable than dividends only if there are sufficient opportunities to profitably reinvest those earnings. Regulated utility companies are allowed to earn the cost of capital only on assets that are used and useful in providing utility service. Investing in assets that are not needed may not produce any return at all. For unregulated companies, opportunities to reinvest funds are limited by the demands of the business. For example, how many new computer chips can Intel profitably develop at the same time?

Q. UNDER THE NON-CONSTANT DCF MODEL, IS IT NECESSARY FOR EARNINGS AND DIVIDENDS TO GROW AT A CONSTANT RATE FOR THE MODEL TO BE ABLE TO ACCURATELY DETERMINE THE COST OF EQUITY?

A. No. Because the non-constant form of the DCF model separately discounts each and every future expected cash flow, it does *not* rely on any assumptions of constant growth. The dividend yield can be different from period to period, and growth can bounce around in any imaginable pattern without harming the accuracy of the answer obtained from quantifying those expectations. When the non-constant DCF model is correctly used, the answer obtained is as accurate as the estimates of future cash flow.

APPENDIX D. CAPITAL ASSET PRICING MODEL

<u>Risk Free Rate</u>

Q. WHAT IS YOUR RESPONSE TO ANALYSTS WHO CLAIM THAT THE CAPM MUST BE IMPLEMENTED WITH A LONG-TERM INTEREST RATE (E.G., YIELD ON 30-YEAR TREASURY BOND) AS AN ESTIMATE OF THE RISK-FREE RATE COMPONENT OF THE CAPM?

A. When looking for a security to calculate an estimate of the risk-free rate, it could be argued that it is appropriate to find one with a term or maturity that best matches the life of the asset being financed. In that sense, the 30-year Treasury bond yield can be argued to be ideal for this specific application. However, it is equally important to find a security that has a beta coefficient with the overall market as close to zero as possible, because by the very definition of the risk-free rate in the CAPM model, its movements should have no correlation to the movements of the market. And this is where the problem with the 30-year Treasury bond yield arises, as it has an established non-zero beta. The 3-month Treasury bill yield has a considerably lower beta, and therefore is superior in that respect to the 30-year Treasury bond yield. Neither one is a perfect fit on both fronts, which is why I have chosen to consider both as proxies for the risk-free rate to establish a range for my CAPM results.

Q. HOW DO YOU RESPOND TO ANALYSTS WHO CLAIM THAT THE RISK-FREE RATE SHOULD BE BASED ON INTEREST RATE FORECASTS FROM FIRMS SUCH AS BLUE CHIP FINANCIAL?

A. It is important to recognize that current long-term Treasury bond yields represent a direct observation of investor expectations and there is no need to use "expert" forecasts such as

Blue Chip to determine the appropriate risk-free rate to use in a CAPM analysis or any other cost of equity calculations.

Many economists and forecasters will continue to be quoted in the press prognosticating on possible developments that are truly unpredictable. The Nobel Laureate Economist Daniel Kahneman stated the following regarding forecasting:

> It is wise to take admissions of uncertainty seriously, but declarations of high confidence mainly tell you that an individual has constructed a coherent story in his mind, not necessarily that the story is true.[113]

Historical Beta

Q. PLEASE EXPLAIN HOW YOU CALCULATE HISTORICAL BETAS.

A. I calculate historical betas following the methodology used by Value Line, with some modifications. Specifically, Value Line adheres to the following guidelines:

1. Returns for each security are regressed against returns for the overall market in the following form:

$$\ln (p^{I}_{t} / p^{I}_{t-1}) = a_{I} + B_{I} * \ln (p^{m}_{t} / p^{m}_{t-1})$$

   Where:

   - p^{I}_{t} is the price of the security I at time t
   - p^{I}_{t-1} is the price of the security I one week before time t
   - p^{m}_{t} and p^{m}_{t-1} are the corresponding values of the market index
   - B_I is the regression estimate of Beta for the security against the market index

2. The natural log of the price ratio is used as an approximation of each return and no adjustment is made for dividends paid during the week.

[113] DANIEL KAHNEMAN, *Thinking Fast and Slow*, p. 212(New York: Farrar, Straus, and Giroux, 2011).

3. Weekly returns are calculated on one day of the week, with a stated preference for Tuesdays to minimize the effect of holidays as much as possible.
4. Betas calculated using the regression method above are adjusted as per Blume (1971)[114] using the following formula:

$$\text{Adjusted } B_I = 0.35 + 0.67 * \text{Calculated } B_I$$

There are four differences between my historical beta calculations and Value Line's calculations:

1. The first significant difference is that whereas Value Line uses the New York Stock Exchange Composite Index as the market index, I use the S&P 500 Index.
2. Another important difference is that whereas Value Line calculates weekly returns on one day of the week, with a stated preference for Tuesdays, I calculate weekly returns on all days of the week.
3. Value Line only calculates betas every 3 months in their quarterly company reports, whereas I use the same consistent methodology to calculate betas every week during the most recent 3 complete months (August through October 2023).
4. Value Line always uses a 5-year period for the return regression,[115] whereas I calculate historical betas for periods of 6 months, 2 years, and 5 years, as shown in Chart 15 on page 63.

[114] M. Blume, On the Assessment of Risk, *The Journal of Finance*, Vol. XXVI (March 1971) available at www.stat.ucla.edu/~nchristo/Fiatlux/blume2.pdf..
[115] They offer betas calculated over different time periods on their website, including 3 years and 10 years.

In the following pages, I explain my rationale for making the four modifications above to Value Line's beta calculation methodology.

Q. WHY DO YOU CALCULATE YOUR HISTORICAL BETAS VS. THE S&P 500 INDEX INSTEAD OF THE NEW YORK STOCK EXCHANGE (NYSE) COMPOSITE INDEX, AS VALUE LINE DOES?

A. A critical factor in the calculation of a beta coefficient is the choice of index to represent the overall market. Using exactly the same beta calculation methodology with a different market index will result in different values of beta for a given company or portfolio – sometimes drastically different values. It is easy to jump to the conclusion that this points to a flaw in CAPM theory, as different values of beta would result in a different implied cost of equity. However, another key component of the CAPM, the market risk premium, also depends on the choice of the market index, which in theory would have an offsetting effect on the cost of equity calculation. This points to the most important aspect of selecting a market index for a CAPM analysis, which is to be consistent and use the same index for the calculation of beta as for the calculation of the market risk premium. This is a fundamental concept of the CAPM and using betas based on one index with a market risk premium based on a different index yields invalid results.

As stated above, Value Line calculates its published betas based on the NYSE Composite Index. Most methodologies used to calculate the market risk premium, including those I rely on, are based on the S&P 500 Index, so using them in the CAPM together with Value Line betas exactly as published would yield invalid results.

For this reason, I calculate my historical betas versus the S&P 500 Index, making my CAPM approach entirely consistent.

As an aside related to my option-implied betas, using the S&P 500 Index consistently throughout my CAPM has the added benefit that this index has a much larger number of options traded, which makes the calculation of option-implied betas more reliable.

Q. WHY DO YOU CALCULATE YOUR HISTORICAL BETAS USING WEEKLY RETURNS ON EVERY DAY OF THE WEEK AS OPPOSED TO USING ONLY ONE DAY OF THE WEEK, AS VALUE LINE DOES?

A. Using one day of the week to calculate weekly returns for use in the regression analysis used to calculate historical betas has the unintended effect of generating different values of betas depending on the day of the week that is used. To clarify, if one were to use Value Line's precise methodology for calculating a 5-year historical beta for a given company using weekly returns calculated on Tuesdays, the resulting beta value would be different than the resulting value if one were to use the same exact methodology, but using weekly returns calculated on Wednesdays, or any other day of the week. Even though 5-year historical betas should in theory be quite stable and should not change very much from one day to the next, calculating returns on only one day of the week results in differences that can be significant and make no sense conceptually.

I only became aware of this side-effect recently, but it is easy to understand why it happens. Even though there is some correlation due to some overlap, the set of weekly returns calculated on Mondays is a completely different set of numbers than the set of weekly returns calculated on Tuesdays. As a result, there are five 5-year betas that can result from Value Line's methodology, and even though the Monday beta for a given company will change slowly from week to week, the change between the Monday beta and the Tuesday beta, calculated just one trading day apart, can be quite significant.

Since I became aware of this undesirable effect, I began calculating my historical betas based on an all-encompassing set of weekly returns calculated on every trading day in the beta calculation period. This methodology has the effect of averaging out the five possible betas that could result from using only one day of the week for the return calculations,[116] as Value Line does. In this way, a 5-year beta calculated on any two consecutive trading days would only change minimally, as it should.

Using a daily calculation of weekly returns could be criticized for the resulting overlap in a weekly return from Monday to Monday with that from Tuesday to Tuesday. However, given that the overlap is consistent and equal for the net effect of every trading day, no trading day is given undue weight in the regression. Even though the effect of each trading day appears 5 times in the weekly return data, there are also 5 times the total number of weekly returns in the overall set used in the regression, so any individual trading day has the same relative weight than in Value Line's methodology. The fact that the resulting beta value of this aggregate approach turns out to be a sort of average of the five possible values that would result from Value Line's methodology on different days of the week is the final confirmation that this is the superior approach for calculating a historical beta based on weekly returns.

Using a daily calculation of weekly returns has the added marginal benefit of providing more data pairs to be used in historical beta calculations for shorter periods, such

[116] The resulting beta is not a direct arithmetic or geometric average of the other five betas, but rather a regression based on the union of all five possible sets of weekly returns.

as for 6-month historical betas, where instead of 25 return pairs, the regression is performed on 117 return pairs.

Q. ARE THERE ADDITIONAL BENEFITS TO DOING YOUR OWN HISTORICAL BETA CALCULATIONS?

A. Doing my own historical beta calculations using Value Line's established methodology allows me to see how beta values change from week to week and to use the most up-to-date beta calculations instead of relying on stale beta values that can be more than 3 months old.

Q. HOW MANY DATA POINT PAIRS ARE NECESSARY TO ESTABLISH A STATISTICALLY SIGNIFICANT CORRELATION BETWEEN TWO VARIABLES IN A REGRESSION ANALYSIS, SUCH AS THE ONE USED TO ESTABLISH BETA COEFFICIENTS?

A. Establishing a minimum number is somewhat subjective, though various authorities on statistics argue the number is between 3 and 8 data pairs. While one can broadly correctly generalize that the more data point pairs one uses, the more certain one can be about the significance of the results of any correlation analysis, this is very different from stating that one cannot achieve statistical significance with a relatively low number of data pairs. In fact, it is important to realize that one can achieve statistical significance with less than 10 data pairs, and that even hundreds of data pairs do not guarantee statistical significance. For precisely this reason, statisticians have developed a tool that helps determine statistical significance based on the number of data pairs in a regression analysis.

A "table of critical values" of Pearson's correlation, which can be readily found online[117] or in most statistics books, tells a statistician that for 25 data point pairs (implying N-2=23 "degrees of freedom"), a correlation, or beta, coefficient of 0.505 or higher will occur *by chance* with a probability of only 0.01.[118] As explained in more detail in the text regarding how to use the table of critical values,[119] any beta coefficient above this level, and certainly above the 0.796 3-month average for the recent 6-month betas for my RFC Electric Proxy Group, by definition are considered statistically significant. The threshold for statistical significance for 117 data point pairs (implying 115 "degrees of freedom"), is so low that it is not even included in the table of critical values. The maximum "degrees of freedom" listed is 100, with an already very low threshold of 0.254.

Historical Blended Beta

Q. HOW DID YOU DECIDE ON THE RELATIVE WEIGHTS YOU ALLOCATE TO EACH COMPONENT OF YOUR HISTORICAL BLENDED BETAS? IS THERE ANY ACADEMIC SUPPORT FOR YOUR APPROACH?

A. I am not aware of any academic study specifically focused on the optimal relative weight of historical betas to predict future betas. However, the authors of the paper I relied upon for guidance on the calculation of my option-implied betas did attempt to quantify the predictive power of 6-month option-implied ("forward-looking") betas as well as that of 6-month ("180-day"), 1-year, and 5-year historical betas by back-testing historical predictions with actual *expost* results, or "realized" betas, for the 30 companies in the Dow

[117] University of Connecticut, *r Critical Value Table*, available at: https://researchbasics.education.uconn.edu/r_critical_value_table/#

[118] In fact, many researchers use a more lenient "alpha level" of 0.05 for determinations of statistical significance.

[119] University of Connecticut, *Statistical Significance: Is there a relationship (difference) or isn't there a relationship (difference)?* available at https://researchbasics.education.uconn.edu/statistical_significance

Jones Index. In addition to using each of the betas above independently, they also measured the predictive power of a "mixed" beta consisting of a simple average of the six-month option-implied beta and the 6-month historical beta.

Their conclusions for predicting 6-month future betas are as follows:

> The forward-looking beta outperforms the other methods ten times, and the same is true for the 180-day historical beta. The mixed beta is the best performer in seven cases, and the 1-year historical beta in three cases. The 5-year historical beta is always outperformed by at least one other method, and it often ranks last. The 180-day historical beta clearly dominates the two other historical methods.[120]

Their conclusions for predicting 1-year and 2-year future betas are as follows:

> Somewhat unexpectedly, the performance of the forward-looking beta compared to that of the 180-day historical beta is much better [for the one-year prediction] than [for the six-month prediction], and this conclusion carries over to [the two-year prediction]. The mixed beta also perform [sic] well. It is perhaps not surprising that the performance of the 180-day historical beta [for the one- and two-year predictions] is poorer than [for the six-month prediction], because the horizons used in the construction of realized betas are no longer equal to 180 days. What is harder to explain is why the correlation between realized beta and forward-looking beta is in many cases higher [for the one- and two-year predictions] than [for the six-month prediction]. Finally, it is also interesting that the 1-year and 5-year historical betas do not perform well [for the one-and two-year predictions]. In summary, [for the one-year prediction] either the forward-looking beta or the mixed beta is the best performer in nineteen out of thirty cases. [For the two-year prediction], this the case twenty-two times out of thirty.[121]

Their conclusions strongly support the use of 6-month historical betas, 6-month option-implied betas, and/or an average of the two as predictors of future betas 6 months, 1 year, or 2 years into the future. Therefore, considering a historical blended beta in conjunction with option-implied betas to calculate the cost of equity is consistent with

[120] Peter Christoffersen, Kris Jacobs, and Gregory Vainberg, *Forward-Looking Betas*, p. 16 (April 25, 2008) available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=891467.
[121] Peter Christoffersen, Kris Jacobs, and Gregory Vainberg, *Forward-Looking Betas*, p. 17 (April 25, 2008) available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=891467..

research findings that coming historical and option-implied betas is the best predictor of future betas.

I decided on the composition of my historical blended betas primarily based on the conclusions of the authors above. Though the predictive power of longer-term historical betas seems to be quite reduced, it is not zero, so in an effort to preserve the effect of longer-term market trends in my historical blended betas, I chose incorporate 5-year historical betas.

Market Risk Premium

Q. WHICH CUMULATIVE PROBABILITY DID YOU USE TO ESTIMATE THE OPTION-IMPLIED GROWTH OF THE S&P 500 IN THE CALCULATION OF YOUR MARKET RISK PREMIUM AND WHY?

A. I used a cumulative probability of 50.0% in the calculation of my option-implied growth for the S&P 500, which results in a value of 7.64% as of October 31, 2023 and a value of 7.50% for the weighted average of the 3 months ending on that date. As stated above, a cumulative probability of 50% represents the median of the probability distribution, or in this case the option-implied market consensus, which is why I have chosen to use this level.

As a matter of fact, using the same probability distribution derived from the options market described above, one can also calculate the cumulative probability implied by a given cost of capital. For instance, using the same risk-free rates and betas for the RFC Electric Proxy Group in my CAPM analysis, Ms. Bulkley and Mr. Wall's mid-point CAPM COE result of 10.92%[122] implies an average market risk premium of 6.5%, an average

[122] Ms. Bulkley and Mr. Wall's Direct Testimony, page 47, lines 18-19. (10.92% = (10.41% + 11.43%)/2)

overall market return of 11.7%, average growth for the S&P 500 of 10.1%, and a cumulative probability of 58.0%. In other words, to achieve the required market growth of 10.1%, reality would have to exceed 58.0% of the scenarios investors currently see as plausible for the market in aggregate, considerably more than the median market consensus at 50%. To put this into perspective, it is important to note that values on the tails of the probability function get increasingly separated, requiring an ever-increasing growth rate for every additional percentage in the cumulative probability, and making it impossible to ever arrive at 100%.

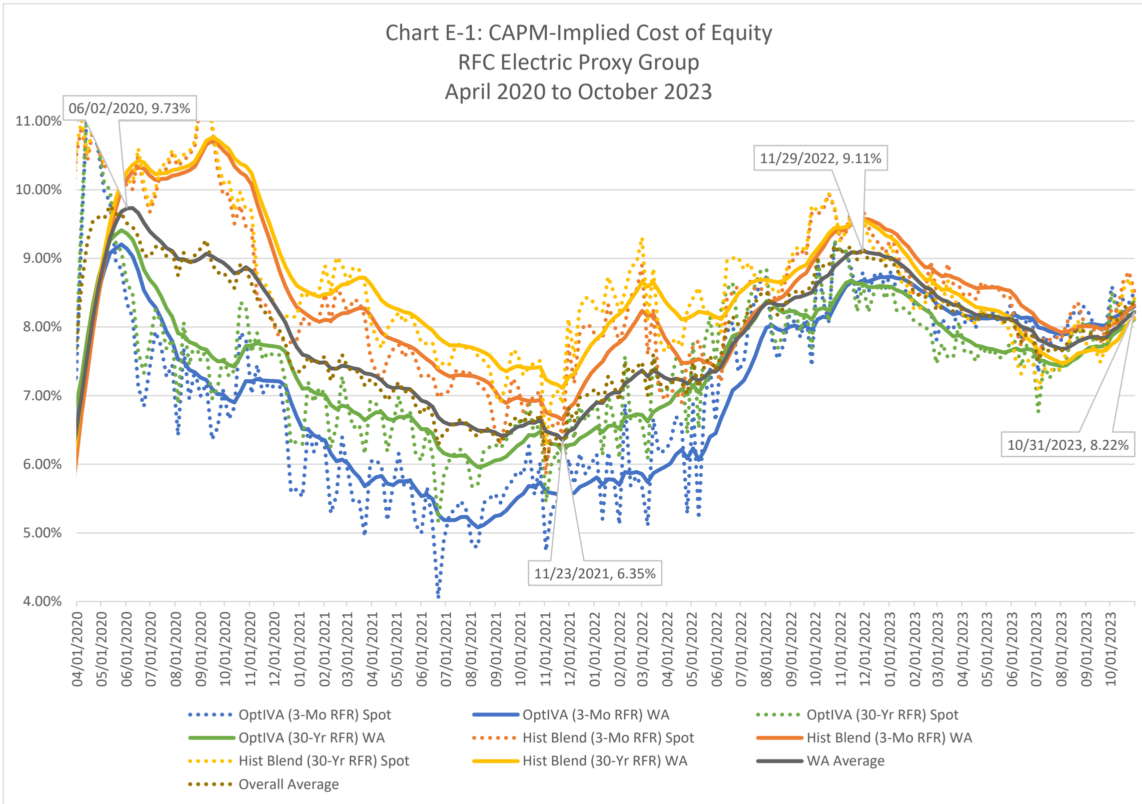
Using exactly the same methodology using the betas of the RFC Electric Proxy Group, my recommended 8.45% ROE implies an average market risk premium of 4.1%, an average overall market return of 9.3%, average growth for the S&P 500 of 7.7%, and a cumulative probability of 50.7%.

Q. ARE THE CUMULATIVE PROBABILITIES YOU REFER TO IN THIS CASE DIRECTLY COMPARABLE TO THE CUMULATIVE PROBABILITIES YOU HAVE USED OR REFERRED TO IN PRIOR TESTIMONIES YOU HAVE FILED?

A. In late 2020, after significant efforts related to the complexities in processing extremely large volumes of option data, I was finally able to use option-implied volatility and option-implied skewness to come up with a log-normal function that approximates the probability distribution of the possible trajectories for the S&P 500 implied by the options market as of any given day, as explained above. All of the testimonies I have filed since then, starting in 2021, have used this complete and superior approach along with a cumulative probability of 50%, representing the median of the probability distribution, or the option-implied market consensus, to estimate expected market growth. Any references to cumulative probability in these testimonies are directly comparable.

Prior to incorporating skewness into the approximation, I used a normal function to estimate the same probability distribution referred to above. Using a normal distribution as an approximation is a simplification used commonly in economics, including in the Black-Scholes formula for a single option. However, unlike a skewed log-normal function, a normal function has the same median and mean, meaning that when applied in this case, the option-implied market consensus of this simplified approximation implies market growth of 0%. As a result, before using log-normal functions, I had to resort to finding an adequate level of cumulative probability above 50% to estimate market growth, which is admittedly somewhat subjective. To be conservative, I often used a cumulative probability of 68.3%, which is the probability found within one standard deviation of the mean of a normal distribution, which I understood would lead to a conservatively high estimate for market growth. It is important to point out that the cumulative probabilities of the simplified normal function approximation I used in cases before 2021 cannot be directly compared to the cumulative probabilities of the superior log-normal function approximation, which takes skewness into account. The considerably improved approximation based on a log-normal function eliminates all subjectivity in arriving at the implied market consensus and allows a much better measure of implied cumulative probabilities of deviations from that market consensus.

APPENDIX E. CAPM-IMPLIED COST OF EQUITY FOR RFC ELECTRIC PROXY GROUP OVER TIME SINCE ONSET OF COVID PANDEMIC



Notes regarding the content of this chart:

- *The information in this chart is the property of Rothschild Financial Consulting ("RFC") and may not be used for any purpose without the express written consent of RFC. Even when the underlying data are publicly available from another source, the results of analyses performed by RFC and the way of presenting the data are and remain the property of RFC.*

- *The data presented herein may not agree 100% with past recommendations by RFC for numerous reasons, including differences in the underlying proxy group and the fact that this chart represents only results based on the CAPM, whereas RFC usually bases recommendations on the CAPM and other models, such as various forms of the DCF.*

APPENDIX F. RESUME OF AARON L. ROTHSCHILD

SUMMARY

Financial professional providing U.S. public utility commissions financial tools and expert testimony to assist in rate setting for regulated utility companies (e.g., regulated electric distribution providers, natural gas pipelines). Relevant experience includes developing and applying methodologies that directly measure investors' equity return expectations based on stock option prices, applied mathematics research for utility industry as an affiliate of the New England Complex Systems Institute, and serving as Head of Business Analysis for a major U.S. telecom firm in Asia Pacific.

EXPERIENCE

Rothschild Financial Consulting, Ridgefield, CT **November 2001- present**
Independent consulting firm specializing in utility sector
President

- Provide financial expert testimony (e.g., rate of return and M&A) to regulators, policy makers, foundations, and consumer groups in utility rate case proceedings, including representing the California Public Advocates Office and the Wild Tree Foundation in the ongoing California water and energy cost of capital proceedings
- Developed cost of equity models that have been adopted by the Public Service Commission of South Carolina in 2020 (decision upheld by the South Carolina Supreme Court in September 2021) and the Connecticut Public Utilities Regulatory Authority in September 2021
- Developing market-based cost of equity methodology in ongoing regulated natural gas pipeline case before the Federal Energy Regulatory Commission (FERC), including proposing replacing equity analyst earnings per-share forecasts (IBES, Value Line) with options-implied growth expectations to determine authorized return on equity (ROE)
- Present at utility regulation conferences (NARUC/NASUCA and MARC) regarding rate of return, power purchase agreements, complex systems science, and subsidy auctions

360 Networks, Hong Kong **January 2001 - October 2001**
Pioneer of the fiber optic telecommunications industry
Senior Manager

- Business development and investment evaluation
- Negotiated landing rights and formed local partnerships in Korea, Japan, Singapore, and Hong Kong for $1 billion undersea cable project
- Structured fiber optic bandwidth swapping agreement with Enron and Global Crossing
- Established relationships with Hong Kong based Investment Bankers to communicate Asia Pacific objectives and accomplishments to Wall Street

Dantis, Chicago, IL **July 2000- December 2000**
Start-up managed data-hosting services provider
Director

- Built capital raise valuation models and negotiated with potential investors
- Team raised $100M from venture capital firm through valuation negotiations and internal strategic analysis

MFS, MCI-WorldCom, Chicago, Hong Kong, Tokyo **September 1996- July 2000**
American Telecommunications Company
Head of Business Analysis for Japan operations

- Managed staff of 5 business development analysts
- Raised $80M internally for Japanese national fiber network expansion plan by conducting an investment evaluation and presenting findings to CEO of international operations in London, UK
- Built financial model for local fiber optic investment evaluation that was used by business development offices in Oak Brook, IL and Sydney, Australia

EDUCATION

Vanderbilt University, Nashville, TN **1994-1996**
MBA, Finance

- Completed business plan for Nextlink Communications in support of their national fiber optic network expansion, including identifying opportunities from passage of Telecom Act of 1996
- Developed analytical framework to evaluate predictability of rare events
- Provided financial and accounting analysis to Chicago's consumer advocate, the Citizens Utility Board (CUB) as a summer intern

Clark University, Worchester, MA **1990 - 1994**
BA, Mathematics

APPENDIX G. TESTIFYING EXPERIENCE OF AARON L. ROTHSCHILD

Filed Rate of Return Testimonies:

California
- Liberty Utilities, Application A.23-05-004, Rate of Return, August 2023
- San Gabriel Water Company, Application 23-05-001, Rate of Return, August 2023
- Suburban Water Company, Application 23-05-003, Rate of Return, August 2023
- Great Oaks Water Company, Application 23-05-002, Rate of Return, August 2023
- Incumbent Local Exchange Carriers (ILECs), Application 22-09-003, Rate of Return, May 2023
- Pacific Gas and Electric Company, Application 22-04-008, Rate of Return, August 2022
- Southern California Edison, Application 22-04-009, Rate of Return, August 2022
- San Diego Gas & Electric Company, Application 22-04-012, Rate of Return, August 2022
- California American Water Company, Application 21-05-001, Rate of Return, January 2022
- California Water Service Company, Application 21-05-002, Rate of Return, January 2022
- Golden State Water Company, Application 21-05-003, Rate of Return, January 2022
- San Jose Water Company, Application 21-05-004, Rate of Return, January 2022
- Southern California Edison, Application 21-08-013, Rate of Return/Cost of Capital Mechanism, January 2022
- San Diego Gas & Electric Company, Application 21-08-014, Rate of Return/Cost of Capital Mechanism, January 2022
- Pacific Gas and Electric Company, Application 21-08-015, Rate of Return/Cost of Capital Mechanism, January 2022
- Pacific Gas and Electric Company, Application 21-01-004, Securitization, February 2021
- Pacific Gas and Electric Company, Application 20-04-023, Securitization, October 2020
- Southern California Edison, Application 20-07-008, Securitization, September 2020
- San Diego Gas & Electric Company, Application 19-04-017, Rate of Return, August 2019
- Southern California Gas Company, Application 19-04-016, Rate of Return, August 2019
- Pacific Gas and Electric Company, Application 19-04-015, Rate of Return, August 2019
- Southern California Edison, Application 19-04-014, Rate of Return, August 2019
- Liberty Utilities, Application A.18-05-006, Rate of Return, August 2018
- San Gabriel Water Company, Application 18-05-005, Rate of Return, August 2018
- Suburban Water Company, Application 18-05-004, Rate of Return, August 2018
- Great Oaks Water Company, Application 18-05-001, Rate of Return, August 2018
- California Water Service Company, Application 17-04-006, Rate of Return, August 2017
- California American Water Company, Application 17-04-003, Rate of Return, August 2017
- Golden State Water Company, Application 17-04-002, Rate of Return, August 2017
- San Jose Water Company, Application 17-04-001, Rate of Return, August 2017

Colorado
- Public Service Company of Colorado, Docket No. 11AL-947E, Rate of Return, March 2012

Connecticut
- United Illuminating Company, Docket No. 22-08-08, Rate of Return, December 2022
- Aquarion Water Company of Connecticut, Docket No. 22-07-01, Rate of Return, October 2022
- Eversource and United Illuminating, Docket No. 17-12-03RE11, Rate of Return / Interim Rate Reduction, April 2021
- United Water Connecticut, Docket No. 07-05-44, Rate of Return, November 2008
- Valley Water Systems, Docket No. 06-10-07, Rate of Return, May 2007

Delaware
- Tidewater Utilities, Inc., PSC Docket No. 11-397, Rate of Return, April 2012

District of Columbia
- Washington Gas Light Company, Formal Case No. 1169, Rate of Return, May 2023

Florida
- Florida Power & Light (FPL), Docket No. 070001-EI, October 2007
- Florida Power Corp., Docket No. 060001 Fuel Clause, September 2007

New Jersey
- Aqua New Jersey, Inc., BPU Docket No. WR11120859, Rate of Return, April 2012

Maryland
- Delmarva Power & Light, Case No. 9317, Rate of Return, June 2013
- Columbia Gas of Maryland, Case No. 9316, Rate of Return, May 2013
- Potomac Electric Power Company, Case No. 9286, Rate of Return, March 2012
- Delmarva Power & Light, Case No. 9285, Rate of Return, March 2012

North Dakota
- Montana-Dakota Utilities Co., Case No. PU-20-379, Rate of Return, January 2021
- Otter Tail Power Company, Case No. PU-17-398, Rate of Return, May 2018
- Montana-Dakota Utilities Co., Case No. PU-15-90, Rate of Return, August 2015
- Northern States Power, Case No. PU-400-04-578, Rate of Return, March 2005

Pennsylvania
- UGI Utilities, Inc. – Electric Division, Docket No. R-2022-3037368, Rate of Return, April 2023
- Pennsylvania American Water Company, Docket No. R-2022-3031672 and R-2022-3031673, Rate of Return, July 2022
- UGI Utilities, Inc. – Electric Division, Docket No. R-2021-3023618, Rate of Return, May 2021
- Pennsylvania American Water Company, Docket No. P-2021-3022426, Rate of Return, February 2021
- Audubon Water Company, Docket No. R-2020-3020919, Rate of Return, November 2020
- Pennsylvania American Water Company, Docket No. R-2020-3019369 and R-2020-3019371, Rate of Return, September 2020
- Twin Lakes Utilities, Inc., Docket No. R-2019-3010958, Rate of Return, October 2019
- City of Lancaster Sewer Fund, Docket No. R-2019-3010955, Rate of Return, October 2019
- Community Utilities of Pennsylvania Inc. Wastewater Division, Docket No. R-2019-3008948, Rate of Return, July 2019

- Community Utilities of Pennsylvania Inc. Water Division, Docket No. R-2019-3008947, Rate of Return, July 2019
- Newtown Artesian Water Company, Docket No. R-20019-3006904, Rate of Return, May 2019
- Hidden Valley Utility Services, L.P. – Wastewater Division, Docket No. R-2018-3001307, Rate of Return, September 2018
- Hidden Valley Utility Services, L.P. – Water Division, Docket No. R-2018-3001306, Rate of Return, September 2018
- The York Water Company, Docket No. R-2018-3000019, Rate of Return, August 2018
- SUEZ PA Pennsylvania, Inc., Docket No. R-2018-000834, Rate of Return, July 2018
- UGI Utilities, Inc. – Electric Division, Docket No. R-2017-2640058, Rate of Return, April 2018
- Wellsboro Electric Company, Docket No. R-2016-2531551, Rate of Return, December 2016
- Citizens' Electric Company of Lewisburg, PA, Docket No. R-2016-2531550, Rate of Return, December 2016
- Columbia Gas of Pennsylvania, Inc., Docket No. R-2016-2529660, Rate of Return, June 2016
- Columbia Gas of Pennsylvania, Inc., Docket No. R-2015-2468056, Rate of Return, June 2015
- Pike County Light & Power Company, Docket No. R-2013-2397353 (gas), Rate of Return, April 2014
- Pike County Light & Power Company, Docket No. R-2013-2397237 (electric), Rate of Return, April 2014
- Columbia Water Company, Docket No. R-2013-2360798, Rate of Return, August 2013
- Peoples TWP LLC, Docket No. R-2013-2355886, Rate of Return, July 2013
- City of Dubois – Bureau of Water, Docket No. R-2013-2350509, Rate of Return, July 2013
- City of Lancaster – Sewer Fund, Docket No. R-2012-2310366, Rate of Return, December 2012
- Wellsboro Electric Company, Docket No. R-2010-2172665, Rate of Return, September 2010
- Citizens' Electric Company of Lewisburg, PA, Docket No. R-2010-2172662, Rate of Return, September 2010
- T.W. Phillips Gas and Oil Company, Docket No. R-2010-2167797, Rate of Return, August 2010
- York Water Company, Docket No. R-2010-2157140, Rate of Return, August 2010
- Joint Application of The Peoples Natural Gas Company, Dominion Resources, Inc. and Peoples Hope Gas Company LLC, Docket No. A-2008-2063737, Financial Analysis, December 2008
- York Water Company, Docket No. R-2008-2023067, Rate of Return, August 2008

South Carolina

- Duke Energy Progress, LLC., Docket No. 2023-89-E, Securitization, September 2023
- Dominion Energy South Carolina, Inc., Docket No. 2023-170-G, Rate of Return, July 2023
- Duke Energy Progress, LLC., Docket No. 2022-254-E, Rate of Return, December 2022
- Daufuskie Island Utility Company, Inc., Docket No. 22-142-WS, Rate of Return, September 2022
- Piedmont Natural Gas Company, Inc., Docket No. 22-89-G, Rate of Return, July 2022
- Kiawah Island Utility, Inc., Docket No. 2021-324-WS, Rate of Return, February 2022
- Palmetto Wastewater Reclamation, Inc., Docket No. 2021-153-S, Rate of Return, September 2021
- Dominion Energy South Carolina, Inc., Docket No. 2020-125-E, Rate of Return, November 2020
- Palmetto Utilities, Inc., Docket No. 2019-281-S, Rate of Return, May 2020
- Palmetto Utilities, Inc., Docket No. 2019-281-S, Accounting, May 2020
- Blue Granite Water Company, Docket No. 2019-290-WS, Rate of Return, January 2020

Tennessee

- Kingsport Power Company D/B/A AEP Appalachian Power, Docket No. 21-00107, Rate of Return, March 2022

Vermont

- Central Vermont Public Service Corp., Docket No. 7321, Rate of Return, September 2007

Wisconsin

- American Transmission Company, LLC, ITC, Midwest, LLC, Case No. 19-CV-3418, financial and regulatory analysis regarding requested temporary injunction to halt the construction in Wisconsin of the proposed Cardinal-Hickory Creek transmission line, October 2021

Exhibit ALR-1

OVERALL COST OF CAPITAL
Liberty Utilities (Granite State Electric) Corp.

	Ratios		Cost Rate		Weighted Cost Rate
					[D]
Long-Term Debt	53.88%	[A]	6.03%	[B]	3.25%
Short-Term Debt	0.00%	[B]	0.00%	[B]	0.00%
Preferred Equity	0.00%	[B]	0.00%	[B]	0.00%
Common Equity	46.12%	[A]	8.45%	[C]	3.90%
	100.00%				**7.15%**

RECOMMENDED RANGES

		Low		High
Proxy Group Cost of Equity Range		8.31%		8.60%
Proxy Group Cost of Equity			8.45%	
Based on RFC Capital Structure Recommendation				
Capital Structure Risk Adjustment	[E]		0.00%	
Adjusted Recommended Cost of Equity Range		**8.31%**		**8.60%**
Company Specific Cost of Equity Recommendation			**8.45%**	
Cost of Capital Range		7.08%		7.21%
Based on Ms. Bulkley and Mr. Wall's Capital Structure Recommendation				
Capital Structure Risk Adjustment	[F]		-0.36%	
Adjusted Recommended Cost of Equity Range		**7.95%**		**8.24%**
Company Specific Cost of Equity Recommendation			**8.10%**	
Cost of Capital Range		7.09%		7.25%
Comprehensive Cost of Capital Range				
Cost of Debt Range		6.03%		0.00%
Common Equity Ratio Range		46.12%		44.13%
Comprehensive Cost of Capital Range		7.08%		3.80%

Sources:
[A] Recommendation based on Proxy Group capital structures
[B] Direct Testimony of K. M. Jardin and D. Dane, page 24, Table 2 (Year 1).
[C] Company Specific Cost of Equity Recommendation based on RFC Capital Structure Recommendation
[D] Ratios times Cost Rate
[E] Not applicable because of recommended Capital Structure within Proxy Group range.
[F] Based on estimate of 0.04% change in Cost of Equity for each 1% difference in Common Equity Ratio compared to the Proxy Group (Exhibit ALR-1 vs. Exhibit ALR-5, page 4).

Exhibit ALR-2

COST OF EQUITY SUMMARY

RFC Electric Proxy Group (17 Companies)

		Low		High
DCF				
Constant Growth - Sustainable Growth	[A]	8.32%		8.58%
Constant Growth - Option-Implied Growth	[B]	8.67%		9.45%
Non-Constant Growth	[C]	8.42%		8.87%
CAPM				
3-Mo. Weighted Average (Aug. to Oct. 2023)				
3-Month Treasury Bill Risk-Free Rate	[D]	8.30%		8.31%
30-Year Treasury Bond Risk-Free Rate	[D]	8.11%		8.13%
Spot (Oct. 31, 2023)				
3-Month Treasury Bill Risk-Free Rate	[E]	8.52%		8.52%
30-Year Treasury Bond Risk-Free Rate	[E]	8.40%		8.40%
Average		**8.39%**		**8.61%**
Outer Quartile Range		**8.31%**		**8.60%**
Proxy Group Cost of Equity			$\boxed{\textbf{8.45\%}}$	

Sources:
[A] Exhibit ALR-3, page 1
[B] Exhibit ALR-3, page 2
[C] Exhibit ALR-3, page 3 and Exhibit ALR-3, page 4
[D] Exhibit ALR-4, page 1
[E] Exhibit ALR-4, page 5

Exhibit ALR-3, page 1

CONSTANT GROWTH DISCOUNTED CASH FLOW (DCF) - INDICATED COST OF EQUITY
RFC Electric Proxy Group (17 Companies)

		Based on Average Market Price For Year Ending 10/31/2023	Based On Market Price As Of 10/31/2023
1 Dividend Yield On Market Price	[A]	3.91%	4.32%
2 Retention Rate:			
a) Market-to-Book Ratio	[A]	1.77	1.58
b) Dividend Yield on Book	[B]	6.90%	6.84%
c) Expected Return on Equity	[C]	10.30%	10.30%
d) Retention Rate	[D]	33.00%	33.58%
3 Reinvestment Growth	[E]	3.40%	3.46%
4 New Financing Growth	[F]	0.93%	0.71%
5 Total Estimate of Investor Anticipated Growth	[G]	4.33%	4.17%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.08%	0.09%
7 Indicated Cost of Equity	**[I]**	**8.32%**	**8.58%**

Sources:
[A] Exhibit ALR-5, page 1
[B] Line 1 x Line 2a
[C] Some of the considerations for determining Future Expected Return on Equity:

	Median	Mean	From
Value Line Expectation	**10.00%**	**10.38%**	Exhibit ALR-5, page 2
Return on Equity to Achieve Zacks Growth	10.20%	10.44%	Exhibit ALR-5, page 3
Average Historical Growth	10.09%	10.46%	
Earned Return on Equity in 2022	9.43%	10.75%	Exhibit ALR-5, page 2
Earned Return on Equity in 2021	10.53%	10.71%	Exhibit ALR-5, page 2
Earned Return on Equity in 2020	10.29%	9.92%	Exhibit ALR-5, page 2

[D] 1 - Line 2b / Line 2c
[E] Line 2c x Line 2d
[F] S x V = (Ext. Fin Rate) x (Line 2a - 1) Ext. Fin. Rate = 1.22% From Exhibit ALR-3, page 5
S = rate of continuous new stock financing
V = fraction of funds raised by sale of stock that increases the book value of existing shareholders' common equity
[G] Line 3 + Line 4
[H] Line 1 x one-half of Line 5
[I] Line 1 + Line 5 + Line 6

Exhibit ALR-3, page 2

CONSTANT GROWTH DISCOUNTED CASH FLOW (DCF) - INDICATED COST OF EQUITY
RFC Electric Proxy Group (17 Companies)

		Based On Weighted Averages As Of 10/31/2023	Based On Spot Market Values As Of 10/31/2023
1 Dividend Yield On Market Price	[A]	3.91%	4.32%
2 Total Estimate of Investor Anticipated Growth	[B]	4.67%	5.02%
3 Increment to Dividend Yield for Growth to Next Year	[C]	0.09%	0.11%
4 Indicated Cost of Equity	**[D]**	**8.67%**	**9.45%**

Sources:
[A] Exhibit ALR-5, page 1
[B] 6-Month Option-Implied Growth
[C] Line 1 x one-half of Line 2
[D] Line 1 + Line 2 + Line 3

Exhibit ALR-3, page 3

NON-CONSTANT GROWTH DISCOUNTED CASH FLOW (DCF) - INDICATED COST OF EQUITY
(BASED ON VALUE LINE FORECASTS AND CLOSING STOCK PRICE)
RFC Electric Proxy Group

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
		Forecasted Dividends per Share					Growth	Book Value	
		2023	2024	2025	2026	2027	2024-27	10/31/23	10/31/27
		[A]	[A]	[B]	[B]	[A]	[B]	[C]	[C]
ALLETE	ALE	$2.71	$2.79	$2.86	$2.93	$3.00	2.45%	$48.75	$53.62
ALLIANT ENERGY	LNT	$1.81	$1.92	$2.04	$2.16	$2.29	6.05%	$26.28	$31.58
AMEREN	AEE	$2.52	$2.65	$2.85	$3.07	$3.30	7.59%	$40.18	$54.98
AMERICAN ELEC. PWR.	AEP	$3.35	$3.52	$3.72	$3.93	$4.16	5.73%	$51.58	$61.34
AVISTA CORP.	AVA	$1.84	$1.92	$2.01	$2.10	$2.20	4.64%	$31.73	$36.86
DUKE ENERGY	DUK	$4.06	$4.14	$4.19	$4.25	$4.30	1.27%	$63.99	$69.45
EDISON INTERNAT'L	EIX	$2.99	$3.14	$3.30	$3.48	$3.66	5.24%	$35.33	$42.34
ENTERGY CORP.	ETR	$4.30	$4.45	$4.63	$4.81	$5.00	3.96%	$62.60	$73.61
EVERSOURCE ENERGY	ES	$2.70	$2.86	$3.05	$3.26	$3.48	6.76%	$45.31	$55.27
EVERGY, INC.	EVRG	$2.49	$2.61	$2.75	$2.90	$3.05	5.33%	$42.56	$47.34
IDA CORP, INC.	IDA	$3.20	$3.40	$3.63	$3.88	$4.15	6.87%	$56.62	$65.74
NEXTERA ENERGY	NEE	$1.87	$2.06	$2.27	$2.49	$2.74	9.98%	$21.78	$29.43
NORTHWESTERN	NWE	$2.56	$2.60	$2.65	$2.71	$2.76	2.01%	$47.01	$51.76
OGE ENERGY CORP.	OGE	$1.66	$1.78	$1.80	$1.83	$1.85	1.29%	$22.20	$25.94
OTTERTAIL CORP.	OTTR	$1.75	$1.81	$1.93	$2.06	$2.20	6.72%	$29.70	$34.14
PORTLAND GENERAL	POR	$1.88	$1.98	$2.10	$2.23	$2.36	6.03%	$33.47	$38.15
XCEL ENERGY	XEL	$2.08	$2.22	$2.36	$2.50	$2.66	6.21%	$31.30	$38.01
Maximum		$4.30	$4.45	$4.63	$4.81	$5.00	9.98%	$63.99	$73.61
Minimum		$1.66	$1.78	$1.80	$1.83	$1.85	1.27%	$21.78	$25.94
Median		$2.52	$2.61	$2.75	$2.90	$3.00	5.73%	$40.18	$47.34
Average		$2.57	$2.70	$2.83	$2.98	$3.13	5.18%	$40.61	$47.62

		[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
		Closing Stock Price		Cash Flow From Buying and Selling Stock (At Closing Price)					
		10/31/2023	10/31/2027	2023	2024	2025	2026	2027	IRR / DCF
		[D]	[E]	[F]	[F]	[F]	[F]	[F]	[G]
ALLETE	ALE	$53.54	$58.88	($52.86)	$2.79	$2.86	$2.93	$61.13	7.69%
ALLIANT ENERGY	LNT	$48.79	$58.62	($48.34)	$1.92	$2.04	$2.16	$60.34	8.73%
AMEREN	AEE	$75.71	$103.58	($75.08)	$2.65	$2.85	$3.07	$106.06	11.66%
AMERICAN ELEC. PWR.	AEP	$75.54	$89.83	($74.70)	$3.52	$3.72	$3.93	$92.95	9.21%
AVISTA CORP.	AVA	$31.69	$36.81	($31.23)	$1.92	$2.01	$2.10	$38.46	10.03%
DUKE ENERGY	DUK	$88.89	$96.47	($87.88)	$4.14	$4.19	$4.25	$99.69	6.73%
EDISON INTERNAT'L	EIX	$63.06	$75.58	($62.31)	$3.14	$3.30	$3.48	$78.33	9.71%
ENTERGY CORP.	ETR	$95.59	$112.40	($94.52)	$4.45	$4.63	$4.81	$116.15	8.83%
EVERSOURCE ENERGY	ES	$53.79	$65.61	($53.12)	$2.86	$3.05	$3.26	$68.22	10.58%
EVERGY, INC.	EVRG	$49.14	$54.66	($48.52)	$2.61	$2.75	$2.90	$56.95	8.25%
IDA CORP, INC.	IDA	$94.71	$109.95	($93.91)	$3.40	$3.63	$3.88	$113.07	7.56%
NEXTERA ENERGY	NEE	$58.30	$78.78	($57.83)	$2.06	$2.27	$2.49	$80.84	11.47%
NORTHWESTERN	NWE	$48.01	$52.86	($47.37)	$2.60	$2.65	$2.71	$54.93	7.90%
OGE ENERGY CORP.	OGE	$34.20	$39.96	($33.79)	$1.78	$1.80	$1.83	$41.35	9.06%
OTTERTAIL CORP.	OTTR	$76.94	$88.43	($76.50)	$1.81	$1.93	$2.06	$90.08	6.00%
PORTLAND GENERAL	POR	$40.02	$45.62	($39.55)	$1.98	$2.10	$2.23	$47.39	8.50%
XCEL ENERGY	XEL	$59.27	$71.97	($58.75)	$2.22	$2.36	$2.50	$73.97	8.81%
Maximum		$95.59	$112.40	($31.23)	$4.45	$4.63	$4.81	$116.15	11.66%
Minimum		$31.69	$36.81	($94.52)	$1.78	$1.80	$1.83	$38.46	6.00%
Median		$58.30	$71.97	($57.83)	$2.61	$2.75	$2.90	$73.97	8.81%
Average		$61.60	$72.94	($60.96)	$2.70	$2.83	$2.98	$75.29	**8.87%**

Sources:
[A] Value Line: Most current data available at time of schedule preparation. 2027 data is VL forecast for 2026-28.
[B] Straight line interpolation based on Value Line data, assuming constant dividend growth for 2024-27.
[C] Straight line interpolation based on Value Line data, assuming constant book value growth for 2024-27.
[D] EOD Data: Market Data as of October 31, 2023.
[E] Stock Price projected assuming constant Market to Book Ratio (Exhibit ALR-5, page 1) and using VL projected Book Value.
[F] Cash Flow from purchasing stock on November 1, 2023, receiving dividends through 2027, and selling on October 31, 2027.
Negative number in 2023 reflects cash outflow required to purchase stock.
Cash flow sources are 1) dividends and 2) proceeds of stock sale.
1 of 4 dividends assumed received in 2023 and 3 of 4 in 2027 based on purchase and sale date.
[G] Total return on equity to investor who purchased, held, and sold stock as described above,
assuming Value Line projections of Dividends and Book Value are correct and
assuming Stock Price grows at same rate as Book Value.
DCF result is an Internal Rate of Return computation made using the "IRR" function built into Microsoft Excel
based on projected cash flows from 2023 to 2027.

Exhibit ALR-3, page 4

NON-CONSTANT GROWTH DISCOUNTED CASH FLOW (DCF) - INDICATED COST OF EQUITY

(BASED ON VALUE LINE FORECASTS AND LTM AVERAGE STOCK PRICE)

RFC Electric Proxy Group

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
		Forecasted Dividends per Share					Growth	LTM Avg. Book Value		LTM Avg. Stock Price		Cash Flow From Buying and Selling Stock (At LTM Average Price)					
		2023	2024	2025	2026	2027	2024-27	2023	2027	10/31/23	10/31/27	2023	2024	2025	2026	2027	IRR / DCF
		[A]	[A]	[B]	[B]	[A]	[B]	[C]	[C]	[D]	[E]	[F]	[F]	[F]	[F]	[F]	[G]
ALLETE	ALE	$2.71	$2.79	$2.86	$2.93	$3.00	2.45%	$47.76	$52.53	$58.37	$64.20	($57.69)	$2.79	$2.86	$2.93	$66.45	7.24%
ALLIANT ENERGY	LNT	$1.81	$1.92	$2.04	$2.16	$2.29	6.05%	$25.55	$30.69	$51.34	$61.68	($50.88)	$1.92	$2.04	$2.16	$63.40	8.53%
AMEREN	AEE	$2.52	$2.65	$2.85	$3.07	$3.30	7.59%	$39.94	$54.64	$81.08	$110.92	($80.45)	$2.65	$2.85	$3.07	$113.40	11.43%
AMERICAN ELEC. PWR.	AEP	$3.35	$3.52	$3.72	$3.93	$4.16	5.73%	$48.91	$58.16	$84.85	$100.90	($84.01)	$3.52	$3.72	$3.93	$104.02	8.68%
AVISTA CORP.	AVA	$1.84	$1.92	$2.01	$2.10	$2.20	4.64%	$31.35	$36.42	$37.91	$44.04	($37.45)	$1.92	$2.01	$2.10	$45.69	9.00%
DUKE ENERGY	DUK	$4.06	$4.14	$4.19	$4.25	$4.30	1.27%	$62.75	$68.11	$94.75	$102.82	($93.73)	$4.14	$4.19	$4.25	$106.05	6.44%
EDISON INTERNAT'L	EIX	$2.99	$3.14	$3.30	$3.48	$3.66	5.24%	$35.59	$42.65	$65.80	$78.86	($65.05)	$3.14	$3.30	$3.48	$81.61	9.49%
ENTERGY CORP.	ETR	$4.30	$4.45	$4.63	$4.81	$5.00	3.96%	$61.66	$72.50	$103.94	$122.21	($102.87)	$4.45	$4.63	$4.81	$125.96	8.45%
EVERSOURCE ENERGY	ES	$2.70	$2.86	$3.05	$3.26	$3.48	6.76%	$44.69	$54.51	$69.96	$85.34	($69.29)	$2.86	$3.05	$3.26	$87.95	9.30%
EVERGY, INC.	EVRG	$2.49	$2.61	$2.75	$2.90	$3.05	5.33%	$42.08	$46.81	$56.15	$62.47	($55.53)	$2.61	$2.75	$2.90	$64.75	7.55%
IDA CORP, INC.	IDA	$3.20	$3.40	$3.63	$3.88	$4.15	6.87%	$55.84	$64.83	$100.53	$116.71	($99.73)	$3.40	$3.63	$3.88	$119.82	7.34%
NEXTERA ENERGY	NEE	$1.87	$2.06	$2.27	$2.49	$2.74	9.98%	$20.69	$27.96	$67.88	$91.73	($67.41)	$2.06	$2.27	$2.49	$93.78	10.95%
NORTHWESTERN	NWE	$2.56	$2.60	$2.65	$2.71	$2.76	2.01%	$45.70	$50.31	$53.61	$59.02	($52.97)	$2.60	$2.65	$2.71	$61.09	7.32%
OGE ENERGY CORP.	OGE	$1.66	$1.78	$1.80	$1.83	$1.85	1.29%	$21.93	$25.63	$36.13	$42.21	($35.71)	$1.78	$1.80	$1.83	$43.60	8.79%
OTTERTAIL CORP.	OTTR	$1.75	$1.81	$1.93	$2.06	$2.20	6.72%	$29.01	$33.35	$72.67	$83.52	($72.23)	$1.81	$1.93	$2.06	$85.17	6.15%
PORTLAND GENERAL	POR	$1.88	$1.98	$2.10	$2.23	$2.36	6.03%	$32.23	$36.74	$44.80	$51.06	($44.33)	$1.98	$2.10	$2.23	$52.83	7.94%
XCEL ENERGY	XEL	$2.08	$2.22	$2.36	$2.50	$2.66	6.21%	$30.68	$37.26	$63.36	$76.94	($62.84)	$2.22	$2.36	$2.50	$78.93	8.56%
Maximum		$4.30	$4.45	$4.63	$4.81	$5.00	9.98%	$62.75	$72.50	$103.94	$122.21	($35.71)	$4.45	$4.63	$4.81	$125.96	11.43%
Minimum		$1.66	$1.78	$1.80	$1.83	$1.85	1.27%	$20.69	$25.63	$36.13	$42.21	($102.87)	$1.78	$1.80	$1.83	$43.60	6.15%
Median		$2.52	$2.61	$2.75	$2.90	$3.00	5.73%	$39.94	$46.81	$65.80	$78.86	($65.05)	$2.61	$2.75	$2.90	$81.61	8.53%
Average		$2.57	$2.70	$2.83	$2.98	$3.13	5.18%	$39.79	$46.65	$67.24	$79.68	($66.60)	$2.70	$2.83	$2.98	$82.03	**8.42%**

Sources:

[A] Value Line: Most current data available at time of schedule preparation. 2027 data is VL forecast for 2026-28.
[B] Straight line interpolation based on Value Line data, assuming constant dividend growth for 2024-27.
[C] Straight line interpolation based on Value Line data, assuming constant book value growth for 2024-27.
[D] EOD Data: Market Data as of October 31, 2023.
[E] Stock Price projected assuming constant Market to Book Ratio (Exhibit ALR-5, page 1) and using VL projected Book Value.
[F] Cash Flow from purchasing stock on November 1, 2023, receiving dividends through 2027, and selling on October 31, 2027.
Negative number in 2023 reflects cash outflow required to purchase stock.
Cash flow sources are 1) dividends and 2) proceeds of stock sale.
1 of 4 dividends assumed received in 2023 and 3 of 4 in 2027 based on purchase and sale date.
[G] Total return on equity to investor who purchased, held, and sold stock as described above,
assuming Value Line projections of Dividends and Book Value are correct and
assuming Stock Price grows at same rate as Book Value.
DCF result is an Internal Rate of Return computation made using the "IRR" function built into Microsoft Excel
based on projected cash flows from 2023 to 2027.

Exhibit ALR-5, page 4

CAPITAL STRUCTURE WITH SHORT TERM DEBT
RFC Electric Proxy Group

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
		% Common Equity					**($ millions)**						**Percentage**			
		2018	**2019**	**2020**	**2021**	**2022**	**Total Debt**	**LT Debt**	**ST Debt**	**Pfd Stock**	**Equity**	**Total Capital**	**LT Debt**	**ST Debt**	**Pfd Stock**	**Equity Ratio**
		[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[B]	[B]	[B]	[B]
ALLETE	ALE	60.1%	61.4%	59.0%	57.8%	59.6%	$ 1,801.3	$ 1,685.9	$ 115.4	$ -	$ 2,487.1	$ 4,288.4	39.3%	2.7%	0.0%	58.0%
ALLIANT ENERGY	LNT	45.7%	47.6%	44.9%	47.1%	45.0%	$ 8,986.0	$ 8,186.0	$ 800.0	$ -	$ 6,697.6	$ 15,683.6	52.2%	5.1%	0.0%	42.7%
AMEREN	AEE	48.8%	47.1%	44.3%	43.3%	43.4%	$ 16,007.0	$ 14,328.0	$ 1,679.0	$ 129.0	$ 11,085.4	$ 27,221.4	52.6%	6.2%	0.5%	40.7%
AMERICAN ELEC. PWR.	AEP	46.8%	43.9%	41.5%	41.7%	42.0%	$ 44,009.0	$ 36,762.0	$ 7,247.0	$ -	$ 26,620.8	$ 70,629.8	52.0%	10.3%	0.0%	37.7%
AVISTA CORP.	AVA	49.5%	50.6%	49.6%	52.5%	49.6%	$ 2,791.5	$ 2,530.0	$ 261.5	$ -	$ 2,489.8	$ 5,281.3	47.9%	5.0%	0.0%	47.1%
DUKE ENERGY	DUK	46.2%	44.1%	44.4%	43.1%	42.0%	$ 72,437.0	$ 69,107.0	$ 3,330.0	$ 1,962.0	$ 51,463.8	$ 125,862.8	54.9%	2.6%	1.6%	40.9%
EDISON INTERNAT'L	EIX	38.3%	39.9%	39.5%	33.2%	30.6%	$ 33,480.0	$ 29,430.0	$ 4,050.0	$ 3,879.0	$ 14,686.7	$ 52,045.7	56.5%	7.8%	7.5%	28.2%
ENTERGY CORP.	ETR	35.9%	37.1%	33.7%	31.7%	35.2%	$ 27,279.0	$ 24,322.0	$ 2,957.0	$ 254.4	$ 13,350.1	$ 40,883.5	59.5%	7.2%	0.6%	32.7%
EVERSOURCE ENERGY	ES	46.9%	46.6%	47.1%	45.3%	43.3%	$ 23,806.0	$ 20,952.0	$ 2,854.0	$ 155.6	$ 16,119.2	$ 40,080.8	52.3%	7.1%	0.4%	40.2%
EVERGY, INC.	EVRG	60.0%	49.4%	48.7%	49.9%	48.0%	$ 10,186.5	$ 10,097.1	$ 89.4	$ -	$ 9,320.4	$ 19,506.9	51.8%	0.5%	0.0%	47.8%
IDA CORP, INC.	IDA	56.4%	58.7%	56.1%	57.2%	56.1%	$ 2,605.6	$ 2,482.4	$ 123.2	$ -	$ 3,172.3	$ 5,777.9	43.0%	2.1%	0.0%	54.9%
NEXTERA ENERGY	NEE	56.0%	49.6%	46.5%	42.2%	41.5%	$ 72,173.0	$ 60,982.0	$ 11,191.0	$ -	$ 43,260.7	$ 115,433.7	52.8%	9.7%	0.0%	37.5%
NORTHWESTERN	NWE	47.8%	47.5%	47.2%	47.8%	51.8%	$ 2,668.5	$ 2,565.4	$ 103.1	$ -	$ 2,757.0	$ 5,425.5	47.3%	1.9%	0.0%	50.8%
OGE ENERGY CORP.	OGE	58.0%	56.4%	51.0%	47.4%	52.4%	$ 4,757.1	$ 4,339.0	$ 418.1	$ -	$ 4,776.5	$ 9,533.6	45.5%	4.4%	0.0%	50.1%
OTTERTAIL CORP.	OTTR	55.3%	53.1%	58.2%	57.4%	58.3%	$ 823.9	$ 823.9	$ -	$ -	$ 1,151.9	$ 1,975.8	41.7%	0.0%	0.0%	58.3%
PORTLAND GENERAL	POR	53.5%	48.7%	46.4%	43.2%	43.0%	$ 3,938.0	$ 3,778.0	$ 160.0	$ -	$ 2,850.1	$ 6,788.1	55.7%	2.4%	0.0%	42.0%
XCEL ENERGY	XEL	43.6%	43.2%	42.6%	41.8%	42.2%	$ 25,610.0	$ 24,015.0	$ 1,595.0	$ -	$ 17,533.4	$ 43,143.4	55.7%	3.7%	0.0%	40.6%
Maximum		60.1%	61.4%	59.0%	57.8%	59.6%	$ 72,437.0	$ 69,107.0	$ 11,191.0	$ 3,879.0	$ 51,463.8	$ 125,862.8	59.5%	10.3%	7.5%	58.3%
Minimum		35.9%	37.1%	33.7%	31.7%	30.6%	$ 823.9	$ 823.9	$ -	$ -	$ 1,151.9	$ 1,975.8	39.3%	0.0%	0.0%	28.2%
Median		48.8%	47.6%	46.5%	45.3%	43.4%	$ 10,186.5	$ 10,097.1	$ 800.0	$ -	$ 9,320.4	$ 19,506.9	52.2%	4.4%	0.0%	42.0%
Average		49.9%	48.5%	47.1%	46.0%	46.1%	$ 20,785.8	$ 18,610.9	$ 2,174.9	$ 375.3	$ 13,519.0	$ 34,680.1	50.6%	4.6%	0.6%	**44.1%**

Sources:
[A] Value Line: Most current data available at time of schedule preparation.
[B] Percentage calculated on Total Capital including Short Term Debt.

Exhibit ALR-5, page 5

CAPITAL STRUCTURE WITHOUT SHORT TERM DEBT
RFC Electric Proxy Group

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
		% Common Equity					($ millions)						Percentage			
		2018	2019	2020	2021	2022	Total Debt	LT Debt	ST Debt	Pfd Stock	Equity	Total Capital	LT Debt	ST Debt	Pfd Stock	Equity Ratio
		[A]	[A]	[A]	[A]	[A]	[A]	[A]	[B]	[A]	[A]	[A]	[B]	[B]	[B]	[B]
ALLETE	ALE	60.1%	61.4%	59.0%	57.8%	59.6%	$ 1,801.3	$ 1,685.9		$ -	$ 2,487.1	$ 4,173.0	40.4%	0.0%	0.0%	59.6%
ALLIANT ENERGY	LNT	45.7%	47.6%	44.9%	47.1%	45.0%	$ 8,986.0	$ 8,186.0		$ -	$ 6,697.6	$ 14,883.6	55.0%	0.0%	0.0%	45.0%
AMEREN	AEE	48.8%	47.1%	44.3%	43.3%	43.4%	$ 16,007.0	$ 14,328.0		$ 129.0	$ 11,085.4	$ 25,542.4	56.1%	0.0%	0.5%	43.4%
AMERICAN ELEC. PWR.	AEP	46.8%	43.9%	41.5%	41.7%	42.0%	$ 44,009.0	$ 36,762.0		$ -	$ 26,620.8	$ 63,382.8	58.0%	0.0%	0.0%	42.0%
AVISTA CORP.	AVA	49.5%	50.6%	49.6%	52.5%	49.6%	$ 2,791.5	$ 2,530.0		$ -	$ 2,489.8	$ 5,019.8	50.4%	0.0%	0.0%	49.6%
DUKE ENERGY	DUK	46.2%	44.1%	44.4%	43.1%	42.0%	$ 72,437.0	$ 69,107.0		$ 1,962.0	$ 51,463.8	$ 122,532.8	56.4%	0.0%	1.6%	42.0%
EDISON INTERNAT'L	EIX	38.3%	39.9%	39.5%	33.2%	30.6%	$ 33,480.0	$ 29,430.0		$ 3,879.0	$ 14,686.7	$ 47,995.7	61.3%	0.0%	8.1%	30.6%
ENTERGY CORP.	ETR	35.9%	37.1%	33.7%	31.7%	35.2%	$ 27,279.0	$ 24,322.0		$ 254.4	$ 13,350.1	$ 37,926.5	64.1%	0.0%	0.7%	35.2%
EVERSOURCE ENERGY	ES	46.9%	46.6%	47.1%	45.3%	43.3%	$ 23,806.0	$ 20,952.0		$ 155.6	$ 16,119.2	$ 37,226.8	56.3%	0.0%	0.4%	43.3%
EVERGY, INC.	EVRG	60.0%	49.4%	48.7%	49.9%	48.0%	$ 10,186.5	$ 10,097.1		$ -	$ 9,320.4	$ 19,417.5	52.0%	0.0%	0.0%	48.0%
IDA CORP, INC.	IDA	56.4%	58.7%	56.1%	57.2%	56.1%	$ 2,605.6	$ 2,482.4		$ -	$ 3,172.3	$ 5,654.7	43.9%	0.0%	0.0%	56.1%
NEXTERA ENERGY	NEE	56.0%	49.6%	46.5%	42.2%	41.5%	$ 72,173.0	$ 60,982.0		$ -	$ 43,260.7	$ 104,242.7	58.5%	0.0%	0.0%	41.5%
NORTHWESTERN	NWE	47.8%	47.5%	47.2%	47.8%	51.8%	$ 2,668.5	$ 2,565.4		$ -	$ 2,757.0	$ 5,322.4	48.2%	0.0%	0.0%	51.8%
OGE ENERGY CORP.	OGE	58.0%	56.4%	51.0%	47.4%	52.4%	$ 4,757.1	$ 4,339.0		$ -	$ 4,776.5	$ 9,115.5	47.6%	0.0%	0.0%	52.4%
OTTERTAIL CORP.	OTTR	55.3%	53.1%	58.2%	57.4%	58.3%	$ 823.9	$ 823.9		$ -	$ 1,151.9	$ 1,975.8	41.7%	0.0%	0.0%	58.3%
PORTLAND GENERAL	POR	53.5%	48.7%	46.4%	43.2%	43.0%	$ 3,938.0	$ 3,778.0		$ -	$ 2,850.1	$ 6,628.1	57.0%	0.0%	0.0%	43.0%
XCEL ENERGY	XEL	43.6%	43.2%	42.6%	41.8%	42.2%	$ 25,610.0	$ 24,015.0		$ -	$ 17,533.4	$ 41,548.4	57.8%	0.0%	0.0%	42.2%
Maximum		60.1%	61.4%	59.0%	57.8%	59.6%	$ 72,437.0	$ 69,107.0		$ 3,879.0	$ 51,463.8	$ 122,532.8	64.1%	0.0%	8.1%	59.6%
Minimum		35.9%	37.1%	33.7%	31.7%	30.6%	$ 823.9	$ 823.9		$ -	$ 1,151.9	$ 1,975.8	40.4%	0.0%	0.0%	30.6%
Median		48.8%	47.6%	46.5%	45.3%	43.4%	$ 10,186.5	$ 10,097.1		$ -	$ 9,320.4	$ 19,417.5	56.1%	0.0%	0.0%	43.4%
Average		49.9%	48.5%	47.1%	46.0%	46.1%	$ 20,785.8	$ 18,610.9		$ 375.3	$ 13,519.0	$ 32,505.2	53.2%	0.0%	0.7%	**46.1%**

Sources:
[A] Value Line: Most current data available at time of schedule preparation.
[B] Percentage calculated on Total Capital excluding Short Term Debt.

Exhibit ALR-4, page 1

CAPITAL ASSET PRICING MODEL (CAPM) - INDICATED COST OF EQUITY

WEIGHTED - All Inputs Weighted From August to October 2023
RFC Electric Proxy Group

	3-Month Treasury Bill		30-Year Treasury Bond	
	Historical Blended Beta	Forward Beta	Historical Blended Beta	Forward Beta
Risk-Free Rate	5.57%	5.57%	4.73%	4.73%
Beta	0.78	0.78	0.78	0.78
Risk Premium	3.50%	3.50%	4.34%	4.34%
CAPM (Weighted)	8.31%	8.30%	8.13%	8.11%

Exhibit ALR-4, page 2

CAPITAL ASSET PRICING MODEL (CAPM) - RISK-FREE RATE

Spot (Oct. 31, 2023)	
3-Month Treasury Bill	5.59%
30-Year Treasury Bond	5.04%
3-Mo. Weighted Average (Aug. to Oct. 2023)	
3-Month Treasury Bill	5.57%
30-Year Treasury Bond	4.73%

Source: www.treasury.gov

Exhibit ALR-4, page 3

CAPITAL ASSET PRICING MODEL (CAPM) - BETAS
(BASED ON HISTORICAL AND OPTION-IMPLIED RETURNS)
RFC Electric Proxy Group

Betas	08/01/2023	08/08/2023	08/15/2023	08/22/2023	08/29/2023	09/05/2023	09/12/2023	09/19/2023	09/26/2023	10/03/2023	10/10/2023	10/17/2023	10/24/2023	10/31/2023	Average	Time Avg.
Forward (6 months)	0.69	0.69	0.75	0.71	0.83	0.86	0.78	0.79	0.72	0.86	0.83	0.76	0.72	0.80	0.770	0.780
Historical (6 months)	0.62	0.65	0.75	0.76	0.77	0.82	0.79	0.71	0.67	0.77	0.81	0.87	0.89	0.81	0.763	0.796
Historical (2 yrs)	0.73	0.74	0.74	0.74	0.74	0.74	0.73	0.73	0.74	0.74	0.75	0.75	0.75	0.75	0.741	0.744
Historical (5 yrs)	0.80	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.82	0.82	0.82	0.83	0.82	0.812	0.816
Weighting																
Forward (6 months)	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%		
Historical (6 months)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%		
Historical (2 yrs)	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%		
Historical (5 yrs)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%		
Historical Blended Beta	**0.69**	**0.71**	**0.76**	**0.76**	**0.77**	**0.79**	**0.77**	**0.74**	**0.72**	**0.77**	**0.79**	**0.83**	**0.84**	**0.80**	0.766	0.784
Slope	15%															
Points	0.00	1.00	1.15	1.32	1.52	1.75	2.01	2.31	2.66	3.06	3.52	4.05	4.65	5.35		
Time Weight	0.0%	2.9%	3.3%	3.8%	4.4%	5.1%	5.9%	6.7%	7.7%	8.9%	10.2%	11.8%	13.5%	15.6%		

CAPM Betas	Spot (Oct 31, 2023)	Weighted (Aug - Oct 2023)
Forward	0.80	0.78
Historical Blended	0.80	0.78

Note: Historical betas are calculated on Tuesdays, following Value Line's methodology. Forward (option-implied) betas are also calculated on Tuesdays for the sake of compatibility.

Exhibit ALR-4, page 4

CAPITAL ASSET PRICING MODEL (CAPM) - MARKET RISK PREMIUM

WEIGHTED - All Inputs Weighted From August to October 2023

Cumulative Probability	50.00%	
S&P 500 Option-Implied Growth Rate	7.50%	
S&P 500 Dividend Yield	1.57%	
S&P 500 Market Return	9.07%	
	3-Month Treasury Bill	**30-Year Treasury Bond**
Risk-Free Rate	5.57%	4.73%
Option-Implied Market Risk Premium (Weighted)	3.50%	4.34%

Exhibit ALR-4, page 5

CAPITAL ASSET PRICING MODEL (CAPM) - INDICATED COST OF EQUITY

SPOT - All Inputs Based on Last Available Data as of October 31, 2023

RFC Electric Proxy Group

	3-Month Treasury Bill		30-Year Treasury Bond	
	Historical Blended Beta	Forward Beta	Historical Blended Beta	Forward Beta
Risk-Free Rate	5.59%	5.59%	5.04%	5.04%
Beta	0.80	0.80	0.80	0.80
Risk Premium	3.67%	3.67%	4.22%	4.22%
CAPM (Spot)	8.52%	8.52%	8.40%	8.40%

Exhibit ALR-4, page 6

CAPITAL ASSET PRICING MODEL (CAPM) - MARKET RISK PREMIUM

SPOT - All Inputs Based on Last Available Data as of October 31, 2023

Cumulative Probability	50.00%	
S&P 500 Option-Implied Growth Rate	7.64%	
S&P 500 Dividend Yield	1.62%	
S&P 500 Market Return	9.26%	
	3-Month Treasury Bill	**30-Year Treasury Bond**
Risk-Free Rate	5.59%	5.04%
Option-Implied Market Risk Premium (Spot)	3.67%	4.22%

Exhibit ALR-5, page 1

MARKET TO BOOK RATIO AND DIVIDEND YIELD
RFC Electric Proxy Group

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
		Book Value per Share															
		Actual				Estimated			Market Price			Mkt. to Book Ratio		Dividend Rate		Dividend Yield	
		12/31/19	12/31/20	12/31/21	12/31/22	10/31/22	10/31/23	12/31/23	10/31/23	LTM High	LTM Low	10/31/23	LTM Avg.	MRQ	Annual	10/31/23	LTM Avg.
		[A]	[A]	[A]	[A]	[B]	[B]	[A]	[C]	[C]	[C]	[D]	[D]	[A]	[E]	[F]	[F]
ALLETE	ALE	$43.17	$44.04	$45.36	$47.06	$46.77	$48.75	$49.10	$53.54	$67.45	$49.29	1.10	1.22	$0.678	$2.710	5.06%	4.64%
ALLIANT ENERGY	LNT	$21.24	$22.76	$23.91	$24.99	$24.81	$26.28	$26.55	$48.79	$57.52	$45.15	1.86	2.01	$0.453	$1.810	3.71%	3.53%
AMEREN	AEE	$32.73	$35.29	$37.64	$40.11	$39.69	$40.18	$40.20	$75.71	$92.44	$69.71	1.88	2.03	$0.630	$2.520	3.33%	3.11%
AMERICAN ELEC. PWR.	AEP	$39.73	$41.38	$44.49	$46.60	$46.24	$51.58	$52.60	$75.54	$100.32	$69.38	1.46	1.73	$0.830	$3.320	4.40%	3.91%
AVISTA CORP.	AVA	$28.87	$29.31	$30.14	$31.15	$30.98	$31.73	$31.85	$31.69	$45.29	$30.53	1.00	1.21	$0.460	$1.840	5.81%	4.85%
DUKE ENERGY	DUK	$61.20	$59.82	$61.55	$61.51	$61.52	$63.99	$64.50	$88.89	$106.43	$83.06	1.39	1.51	$1.005	$4.020	4.52%	4.24%
EDISON INTERNAT'L	EIX	$36.75	$37.08	$36.57	$35.70	$35.85	$35.33	$35.25	$63.06	$74.92	$56.67	1.79	1.85	$0.738	$2.950	4.68%	4.48%
ENTERGY CORP.	ETR	$51.34	$54.56	$57.42	$61.40	$60.72	$62.60	$62.85	$95.59	$120.78	$87.10	1.53	1.69	$1.070	$4.280	4.48%	4.12%
EVERSOURCE ENERGY	ES	$38.29	$41.01	$42.39	$44.41	$44.07	$45.31	$45.50	$53.79	$87.71	$52.21	1.19	1.57	$0.675	$2.700	5.02%	3.86%
EVERGY, INC.	EVRG	$37.82	$38.50	$40.32	$41.86	$41.60	$42.56	$42.70	$49.14	$65.39	$46.92	1.15	1.33	$0.613	$2.450	4.99%	4.36%
IDA CORP, INC.	IDA	$48.88	$50.73	$52.82	$55.52	$55.06	$56.62	$56.85	$94.71	$112.96	$88.10	1.67	1.80	$0.830	$3.320	3.51%	3.30%
NEXTERA ENERGY	NEE	$18.92	$18.63	$18.95	$19.74	$19.61	$21.78	$22.20	$58.30	$88.61	$47.15	2.68	3.28	$0.468	$1.870	3.21%	2.75%
NORTHWESTERN	NWE	$40.42	$41.10	$43.28	$44.61	$44.38	$47.01	$47.50	$48.01	$61.24	$45.97	1.02	1.17	$0.640	$2.560	5.33%	4.78%
OGE ENERGY CORP.	OGE	$20.69	$18.15	$20.27	$21.95	$21.66	$22.20	$22.25	$34.20	$41.00	$31.25	1.54	1.65	$0.414	$1.656	4.84%	4.59%
OTTERTAIL CORP.	OTTR	$19.46	$21.00	$23.84	$29.24	$28.32	$29.70	$29.80	$76.94	$92.74	$52.60	2.59	2.50	$0.438	$1.750	2.27%	2.41%
PORTLAND GENERAL	POR	$28.99	$29.18	$30.28	$31.13	$30.99	$33.47	$33.95	$40.02	$51.58	$38.01	1.20	1.39	$0.475	$1.900	4.75%	4.24%
XCEL ENERGY	XEL	$25.24	$27.12	$28.70	$30.34	$30.06	$31.30	$31.50	$59.27	$72.99	$53.73	1.89	2.07	$0.520	$2.080	3.51%	3.28%
Maximum		$61.20	$59.82	$61.55	$61.51	$61.52	$63.99	$64.50	$95.59	$120.78	$88.10	2.68	3.28	$1.070	$4.280	5.81%	4.85%
Minimum		$18.92	$18.15	$18.95	$19.74	$19.61	$21.78	$22.20	$31.69	$41.00	$30.53	1.00	1.17	$0.414	$1.656	2.27%	2.41%
Median		$36.75	$37.08	$37.64	$40.11	$39.69	$40.18	$40.20	$58.30	$74.92	$52.21	1.53	1.69	$0.630	$2.520	4.52%	4.12%
Average		$34.93	$35.86	$37.53	$39.25	$38.96	$40.61	$40.89	$61.60	$78.79	$55.70	1.58	1.77	$0.643	$2.573	4.32%	3.91%

Sources:
[A] Value Line: Most current data available at time of schedule preparation.
[B] Straight-line interpolation of Actual and Estimated VL year-end values.
[C] EOD Data: Market Data as of October 31, 2023.
[D] Market Price divided by Book Value per Share.
[E] Most Recent Quarterly Dividend multiplied by 4.
[F] Dividend Rate divided by Market Price.

Exhibit ALR-5, page 2

EARNINGS PER SHARE AND RETURN ON EQUITY
RFC Electric Proxy Group

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
		Earnings per Share				**Return on Equity**			
		2019	**2020**	**2021**	**2022**	**2020**	**2021**	**2022**	**VL Future Exp.**
		[A]	[A]	[A]	[A]	[B]	[B]	[B]	[A]
ALLETE	ALE	$3.33	$3.35	$3.23	$3.38	7.68%	7.23%	7.31%	9.00%
ALLIANT ENERGY	LNT	$2.33	$2.47	$2.63	$2.73	11.23%	11.27%	11.17%	12.00%
AMEREN	AEE	$3.35	$3.50	$3.84	$4.14	10.29%	10.53%	10.65%	10.00%
AMERICAN ELEC. PWR.	AEP	$4.08	$4.42	$4.96	$5.09	10.90%	11.55%	11.18%	11.00%
AVISTA CORP.	AVA	$2.97	$1.90	$2.10	$2.12	6.53%	7.06%	6.92%	7.50%
DUKE ENERGY	DUK	$5.06	$5.12	$5.24	$5.27	8.46%	8.63%	8.56%	9.00%
EDISON INTERNAT'L	EIX	$4.70	$4.52	$4.59	$4.63	12.24%	12.46%	12.81%	12.50%
ENTERGY CORP.	ETR	$6.30	$6.90	$6.87	$5.37	13.03%	12.27%	9.04%	8.50%
EVERSOURCE ENERGY	ES	$3.45	$3.64	$3.86	$4.09	9.18%	9.26%	9.42%	10.00%
EVERGY, INC.	EVRG	$2.79	$2.72	$3.83	$3.26	7.13%	9.72%	7.93%	10.00%
IDA CORP, INC.	IDA	$4.61	$4.69	$4.85	$5.11	9.42%	9.37%	9.43%	9.50%
NEXTERA ENERGY	NEE	$1.94	$2.31	$2.55	$2.90	12.30%	13.57%	14.99%	14.50%
NORTHWESTERN	NWE	$3.53	$3.21	$3.50	$3.29	7.88%	8.30%	7.49%	8.00%
OGE ENERGY CORP.	OGE	$2.24	$2.08	$2.36	$2.25	10.71%	12.29%	10.66%	13.00%
OTTERTAIL CORP.	OTTR	$2.17	$2.34	$4.23	$6.78	11.57%	18.87%	25.55%	11.50%
PORTLAND GENERAL	POR	$2.39	$2.75	$2.72	$2.74	9.46%	9.15%	8.92%	9.50%
XCEL ENERGY	XEL	$2.64	$2.79	$2.96	$3.17	10.66%	10.61%	10.74%	11.00%
Maximum		$6.30	$6.90	$6.87	$6.78	13.03%	18.87%	25.55%	14.50%
Minimum		$1.94	$1.90	$2.10	$2.12	6.53%	7.06%	6.92%	7.50%
Median		$3.33	$3.21	$3.83	$3.38	10.29%	10.53%	9.43%	10.00%
Average		$3.40	$3.45	$3.78	$3.90	9.92%	10.71%	10.75%	10.38%

Sources:
[A] Value Line: Most current data available at time of schedule preparation.
[B] Earnings per Share divded by average Book Value. Book Values shown on Exhibit ALR-5, page 1.

Exhibit ALR-5, page 3

RETURN ON EQUITY IMPLIED BY ZACKS GROWTH RATES
RFC Electric Proxy Group

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
		Book Value	EPS	Annual Dividend	Analyst 5 Year	Analyst-Implied Book Value before SV		Analyst-Implied Book Value Incl. SV		Implied EPS	Analyst-Implied
		12/31/22	2022	Rate	Growth Rate	12/31/2026	12/31/2027	12/31/2026	12/31/2027	2027	ROE
		[A]	[A]	[A]	[B]	[C]	[C]	[C]	[C]	[C]	[C]
ALLETE	ALE	$47.06	$3.38	$2.710	8.10%	$50.33	$51.32	$53.19	$54.99	$4.99	9.22%
ALLIANT ENERGY	LNT	$24.99	$2.73	$1.810	6.30%	$29.29	$30.54	$29.54	$30.87	$3.71	12.27%
AMEREN	AEE	$40.11	$4.14	$2.520	6.60%	$47.73	$49.96	$53.93	$58.20	$5.70	10.17%
AMERICAN ELEC. PWR.	AEP	$46.60	$5.09	$3.320	4.80%	$54.57	$56.81	$58.73	$62.28	$6.43	10.63%
AVISTA CORP.	AVA	$31.15	$2.12	$1.840	5.90%	$32.45	$32.82	$35.81	$37.13	$2.82	7.74%
DUKE ENERGY	DUK	$61.51	$5.27	$4.020	6.10%	$67.32	$69.00	$67.32	$69.00	$7.09	10.40%
EDISON INTERNAT'L	EIX	$35.70	$4.63	$2.950	3.70%	$43.07	$45.08	$44.27	$46.66	$5.55	12.21%
ENTERGY CORP.	ETR	$61.40	$5.37	$4.280	5.80%	$66.43	$67.87	$74.12	$77.84	$7.12	9.37%
EVERSOURCE ENERGY	ES	$44.41	$4.09	$2.700	5.00%	$50.70	$52.47	$52.16	$54.37	$5.22	9.80%
EVERGY, INC.	EVRG	$41.86	$3.26	$2.450	4.80%	$45.51	$46.53	$45.51	$46.53	$4.12	8.96%
IDA CORP, INC.	IDA	$55.52	$5.11	$3.320	3.70%	$63.37	$65.51	$67.56	$70.98	$6.13	8.85%
NEXTERA ENERGY	NEE	$19.74	$2.90	$1.870	8.20%	$24.78	$26.30	$25.60	$27.40	$4.30	16.23%
NORTHWESTERN	NWE	$44.61	$3.29	$2.560	5.20%	$47.93	$48.87	$47.93	$48.87	$4.24	8.76%
OGE ENERGY CORP.	OGE	$21.95	$2.25	$1.656	3.70%	$24.55	$25.26	$24.55	$25.26	$2.70	10.83%
OTTERTAIL CORP.	OTTR	$29.24	$6.78	$1.750	NA	NA	NA	NA	NA	NA	NA
PORTLAND GENERAL	POR	$31.13	$2.74	$1.900	6.00%	$35.03	$36.15	$35.23	$36.42	$3.67	10.24%
XCEL ENERGY	XEL	$30.34	$3.17	$2.080	6.10%	$35.41	$36.87	$36.43	$38.21	$4.26	11.42%
Maximum		$61.51	$6.78	$4.280	8.20%	$67.32	$69.00	$74.12	$77.84	$7.12	16.23%
Minimum		$19.74	$2.12	$1.656	3.70%	$24.55	$25.26	$24.55	$25.26	$2.70	7.74%
Median		$40.11	$3.38	$2.520	5.85%	$46.62	$47.70	$46.72	$47.77	$4.65	10.20%
Average		$39.25	$3.90	$2.573	5.63%	$44.90	$46.34	$46.99	$49.06	$4.88	10.44%

Sources:
[A] Value Line: Most current data available at time of schedule preparation.
[B] Zacks: Data as of various dates since November 07, 2023.
[C] Analyst-Implied Book Value and Return on Equity is obtained by escalating both Dividends and Earnings per Share by the stated Analyst Growth Rate and adding Earnings and subtracting Dividends for each projected year.
"SV" = S X V, where S = rate of continuous new stock financing and V = rate of return on common equity investment.

Exhibit ALR-3, page 5

COMMON SHARES OUTSTANDING AND EXTERNAL FINANCING RATE
RFC Electric Proxy Group

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Common Stock Outstanding (Millions of Shares)								Annual Growth Rate		
		2018	2019	2020	2021	2022	2023	2024	2027	2018-22	2022-27	2018-27
		[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[B]	[B]	[B]
ALLETE	ALE	51.5	51.7	52.1	53.2	56.0	58.0	59.0	61.0	2.12%	1.72%	1.90%
ALLIANT ENERGY	LNT	236.1	245.0	249.9	250.5	251.1	255.8	256.0	257.0	1.56%	0.46%	0.95%
AMEREN	AEE	244.5	246.2	253.3	257.7	262.0	267.0	269.0	285.0	1.74%	1.70%	1.72%
AMERICAN ELEC. PWR.	AEP	493.3	494.2	496.6	504.2	513.9	523.0	530.0	550.0	1.03%	1.37%	1.22%
AVISTA CORP.	AVA	65.7	67.2	69.2	71.5	75.0	77.0	78.5	85.0	3.35%	2.55%	2.90%
DUKE ENERGY	DUK	727.0	733.0	769.0	769.0	770.0	770.0	770.0	770.0	1.45%	0.00%	0.64%
EDISON INTERNAT'L	EIX	325.8	362.0	378.9	380.4	382.2	384.0	386.0	390.0	4.07%	0.40%	2.02%
ENTERGY CORP.	ETR	189.1	199.2	200.2	202.7	211.2	214.0	218.0	230.0	2.80%	1.72%	2.20%
EVERSOURCE ENERGY	ES	316.9	329.9	343.0	344.4	348.4	351.5	355.0	360.0	2.40%	0.65%	1.43%
EVERGY, INC.	EVRG	255.3	226.6	226.8	229.3	229.9	230.0	230.0	230.0	-2.59%	0.01%	-1.15%
IDA CORP, INC.	IDA	50.4	50.4	50.5	50.5	50.6	51.0	51.5	53.0	0.07%	0.95%	0.56%
NEXTERA ENERGY	NEE	1,912.0	1,956.0	1,960.0	1,963.0	1,987.0	2,025.0	2,025.0	2,050.0	0.97%	0.63%	0.78%
NORTHWESTERN	NWE	50.3	50.5	50.6	54.1	59.7	62.0	62.0	62.0	4.38%	0.75%	2.35%
OGE ENERGY CORP.	OGE	199.7	200.1	200.1	200.1	200.2	200.2	200.2	200.2	0.06%	0.00%	0.03%
OTTERTAIL CORP.	OTTR	39.7	40.2	41.5	41.6	41.6	41.9	42.0	42.5	1.22%	0.41%	0.77%
PORTLAND GENERAL	POR	89.3	89.4	89.5	89.4	89.3	101.5	102.0	102.0	0.00%	2.70%	1.49%
XCEL ENERGY	XEL	514.0	524.5	537.4	544.0	549.6	551.6	553.0	560.0	1.69%	0.38%	0.96%
Maximum		1,912.0	1,956.0	1,960.0	1,963.0	1,987.0	2,025.0	2,025.0	2,050.0	4.38%	2.70%	2.90%
Minimum		39.7	40.2	41.5	41.6	41.6	41.9	42.0	42.5	-2.59%	0.00%	-1.15%
Median		236.1	226.6	226.8	229.3	229.9	230.0	230.0	230.0	1.56%	0.65%	1.22%
Average		338.9	345.1	351.1	353.3	357.5	362.6	364.0	369.9	1.55%	0.96%	1.22%
								Sustainable Growth [C]				1.22%

Sources:
[A] Value Line: Most current data available at time of schedule preparation.
[B] Annualized Growth Rate calculation.
[C] Estimated Sustainable Growth in Common Stock based on analysis of historical and projected growth rates.