BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Application of	)	
Rocky Mountain Power for Authority to	)	Docket No. 20-035-04
Increase its Retail Electric Utility Service	)	
Rates in Utah and for Approval of its	)	
Proposed Electric Service Schedules and	)	Phase I – Cost of Capital
Electric Service Regulations	)	

DIRECT TESTIMONY OF

J. RANDALL WOOLRIDGE

FOR THE

OFFICE OF CONSUMER SERVICES

AUGUST 20, 2020

PacifiCorp d/b/a Rocky Mountain Power
Docket No. 20-035-04

Direct Testimony of
Dr. J. Randall Woolridge

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<u>List of Exhibits</u>

1   **Q.   PLEASE STATE YOUR FULL NAME, ADDRESS, AND OCCUPATION.**

2   A.   My name is J. Randall Woolridge, and my business address is 120 Haymaker Circle,

3   State College, PA 16801. I am a Professor of Finance and the Goldman, Sachs & Co.

4   and Frank P. Smeal Endowed University Fellow in Business Administration at the

5   University Park Campus of Pennsylvania State University. I am also the Director of

6   the Smeal College Trading Room and President of the Nittany Lion Fund, LLC. A

7   summary of my educational background, research, and related business experience is

8   provided in Appendix A.

9

10   **I.   INTRODUCTION AND SUMMARY OF TESTIMONY**

11

12 **Q.   WHAT IS THE SCOPE OF YOUR TESTIMONY IN THIS PROCEEDING?**

13 A.   I have been asked by the Utah Office of Consumer Services (OCS) to provide an opinion

14   as to the fair rate of return or cost of capital for PacifiCorp d/b/a Rocky Mountain Power

15   ("RMP" or the "Company"), including the market cost of equity capital.

16 **Q.   HOW IS YOUR TESTIMONY ORGANIZED?**

17 A.   First, I summarize my cost of capital recommendation for the Company, and review the

18   primary areas of contention on the Company's position. Second, I provide an overview

19   of capital market conditions and utility authorized ROEs. Third, I discuss the proxy

20   groups that I have used to estimate an equity cost rate for RMP. Fourth, I provide my

21   recommendations on the Company's appropriate capital structure and senior capital cost

22   rates. Fifth, I estimate the equity cost rate for the Company. Finally, I critique RMP's

23   rate of return analysis and testimony. In Appendix A, I provide a summary of my

24   educational and professional background.

25

26   **A. Utility Rate of Return**

27

28   **Q.   WHAT COMPRISES A UTILITY'S "RATE OF RETURN"?**

29   A.   A company's overall rate of return consists of three main categories: (1) capital

30   structure (i.e., ratios of short-term debt, long-term debt, preferred stock and common

31   equity); (2) cost rates for short-term debt, long-term debt, and preferred stock; and

32   (3) common equity cost, otherwise known as ROE.

33   **Q.   WHAT IS A UTILITY'S ROE INTENDED TO REFLECT?**

34   A.   An ROE is most simply described as the allowed rate of profit for a regulated

35   company. In a competitive market, a company's profit level is determined by a variety

36   of factors, including the state of the economy, the degree of competition a company

37   faces, the ease of entry into its markets, the existence of substitute or complementary

38   products/services, the company's cost structure, the impact of technological changes,

39   and the supply and demand for its services and/or products. For a regulated monopoly,

40   the regulator determines the level of profit available to the utility. The United States

41   Supreme Court established the guiding principles for establishing an appropriate level

42   of profitability for regulated public utilities in two cases: (1) *Bluefield*[1] and (2) *Hope*.[2]

43   In those cases, the Court recognized that the fair rate of return on equity should be:

44   (1) comparable to returns investors expect to earn on investments with similar risk;

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[1]   *Bluefield Water Works and Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679
      (1923) ("Bluefield").

[2]   Federal Power Commission v. Hope Natural Gas Co., 320 U.S. 591 (1944) ("Hope").

45   (2) sufficient to assure confidence in the company's financial integrity; and

46   (3) adequate to maintain the company's credit and to attract capital.

47   Thus, the appropriate ROE for a regulated utility requires determining the

48   market-based cost of capital. The market-based cost of capital for a regulated firm

49   represents the return investors could expect from other investments, while assuming

50   no more and no less risk. The purpose of all of the economic models and formulas in

51   cost of capital testimony (including those presented later in my testimony) is to

52   estimate, using market data of similar-risk firms, the rate of return equity investors

53   require for that risk-class of firms in order to set an appropriate ROE for a regulated

54   firm.

55

56   **B. Summary of Positions**

57

58   **Q.   PLEASE REVIEW THE COMPANY'S PROPOSED RATE OF RETURN OR**

59   **COST OF CAPITAL.**

60   A.   RMP witness Ms. Nikki L. Kobliha recommends a capital structure consisting of

61   46.32% long-term debt, 0.01% preferred stock and 53.67% common equity, and long-

62   term debt and preferred stock cost rates of 4.81% and 6.75%. RMP witness Ms. Ann

63   E. Bulkley has recommended a common equity cost rate of 10.20% for RMP. The

64   Company's overall proposed rate of return is 7.70%.

65   **Q.   PLEASE REVIEW YOUR RECOMMENDATIONS REGARDING THE**

66   **APPROPRIATE MARKET-BASED RATE OF RETURN FOR RMP.**

67   A.   I have reviewed the Company's proposed capital structure and overall cost of capital.

68   RMP's proposed capitalization has more equity and less financial risk than the average

69   current capitalizations of electric utilities. I am using a capital structure that is more

70   reflective of the capital structures of electric utility companies. I am using a capital

71   structure consisting of 50.0% debt/preferred stock and 50.00% common equity. To

72   estimate an equity cost rate for the Company, I have applied the Discounted Cash Flow

73   Model ("DCF") and the Capital Asset Pricing Model ("CAPM") to my proxy group

74   of electric utility companies ("Electric Proxy Group"). I have also applied my analysis

75   to Ms. Bulkley's Proxy Group ("Bulkley Proxy Group").   My DCF and CAPM

76   analyses indicate an equity cost rate range of 7.60% to 8.95%.

77   **Q.   WHAT IS YOUR PRIMARY RATE OF RETURN RECOMMENDATION FOR**

78   **RMP?**

79   A.   As noted, my equity cost rate studies indicate of ROE between 7.60% and 8.95%. I

80   believe that this range accurately reflects current capital market data. However, I

81   recognize that this range is below the authorized ROEs for electric utility companies

82   nationally. Therefore, as a primary ROE for RMP, I am recommending 9.0%. This

83   recommendation: (1) gives weight to the higher authorized ROEs for electric utility

84   companies; and (2) recognizes the concept of 'gradualism' in which authorized ROEs

85   are adjusted on a gradual basis to reflect capital market data. Given my recommended

86   capitalization ratios and senior capital cost rates and using RMP's proposed long-term

87   debt and preferred stock rates (4.81% and 6.75%), my primary rate of return or cost

88   of capital recommendation for the Company is 6.91% and is summarized in Table 1

89   and Panel A of Exhibit JRW-1.

90

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92

Table 1
OCS' Primary Rate of Return Recommendation

Capital Source	Capitalization Ratios	Cost Rate	Weighted Cost Rate
Long-Term Debt	49.99%	4.81%	2.40%
Preferred Stock	0.01%	6.75%	0.00%
Common Equity	50.00%	9.00%	4.50%
Total Capital	100.00%		6.91%

93

94 **Q ARE YOU ALSO PROVIDING AN ALTERNATIVE RATE OF RETURN**

95 **RECOMMENDATION FOR RMP?**

96 A. Yes. My alternative rate of return recommendation uses RMP's proposed capital

97 structure of 46.32% long-term debt, 0.01% preferred stock, and 53.67% common

98 equity as well as RMP's proposed long-term debt cost and preferred stock cost rates

99 of 4.81% and 6.75%. With respect to the equity component of my recommendation

100 for rate of return, my alternative ROE recommendation is 8.75%, which is at the high

101 end of my equity cost rate range of 7.60% to 8.95%. Given my alternative

102 capitalization ratios and senior capital cost rates, based on the Company's proposed

103 capital structure, my alternative rate of return or cost of capital recommendation for

104 the Company is 6.92% and is summarized in Table 2 and Panel B of Exhibit JRW-1.

105
106

Table 2
OCS' Alternative Rate of Return Recommendation

Capital Source	Capitalization Ratios	Cost Rate	Weighted Cost Rate
Long-Term Debt	46.32%	4.81%	2.23%
Preferred Stock	0.01%	6.75%	0.00%
Common Equity	53.67%	8.75%	4.70%
Total Capital	100.00%		6.92%

5

107 **Q. PLEASE REVIEW THE COMMISSION'S ORDER IN RMP'S LAST ROE**

108   **CASE.**

109 A.   On August 29, 2014, the Commission approved a settlement between the Company

110   and intervenors in Docket No, 13-035-184. The settlement included a capital structure

111   of 48.55% long-term debt, 0.02% preferred stock, and 51.43% common stock equity, debt

112   and preferred cost rates of 5.20% and 6.75%, and a ROE of 9.80%. The overall rate of

113   return on rate base was 7.57%.[3]

114 **Q. HAVE CAPITAL COSTS INCREASED OR DECREASED SINCE THE**

115   **COMPANY'S LAST RATE CASE?**

116 A.   Interest rates and capital costs have declined since the last case. Figure 1 shows the

117   authorized electric and gas ROEs in Utah and the 30-year Treasury yield. The 30-year

118   Treasury yield averaged about 3.0% between 2012 and 2018. During that time, the

119   authorized ROEs in Utah were in the 9.80% range. However, the economy slowed in

120   2019, and interest rates began to decline. Eventually, the 30-year Treasury yield

121   traded at a record low level below 2.0% in August of 2019, and the Federal Reserve

122   was forced to cut the federal funds rate three times by year-end. These yields

123   continued to decline in 2020, and then the novel coronavirus hit in late February,

124   significantly impacting the world's population and economy. The coronavirus has

125   had a huge impact on the financial markets, with lower interest rates, highly volatile

126   stock prices, and uncertainty about future economic growth. This issue is addressed

127   below. The only recent ROE determination in Utah was for the gas distribution service

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[3] *In the Matter of the Application of Rocky Mountain Power Company for authority to Increase its Retail Electric Utility Service Rates in Utah and for Approval for its Proposed Electric Service Schedules and Electric Service Regulations*, August 29, 2014.

128   of Dominion Energy Utah, which was awarded a 9.5% ROE in a fully-litigated case.

129   The Order in that case was dated February 25, 2020, which is effectively pre-

130   coronavirus.

131   **Figure 1**
132   **Utah Authorized ROEs and 30-Year Treasury Yields**
133   **2010-2020**
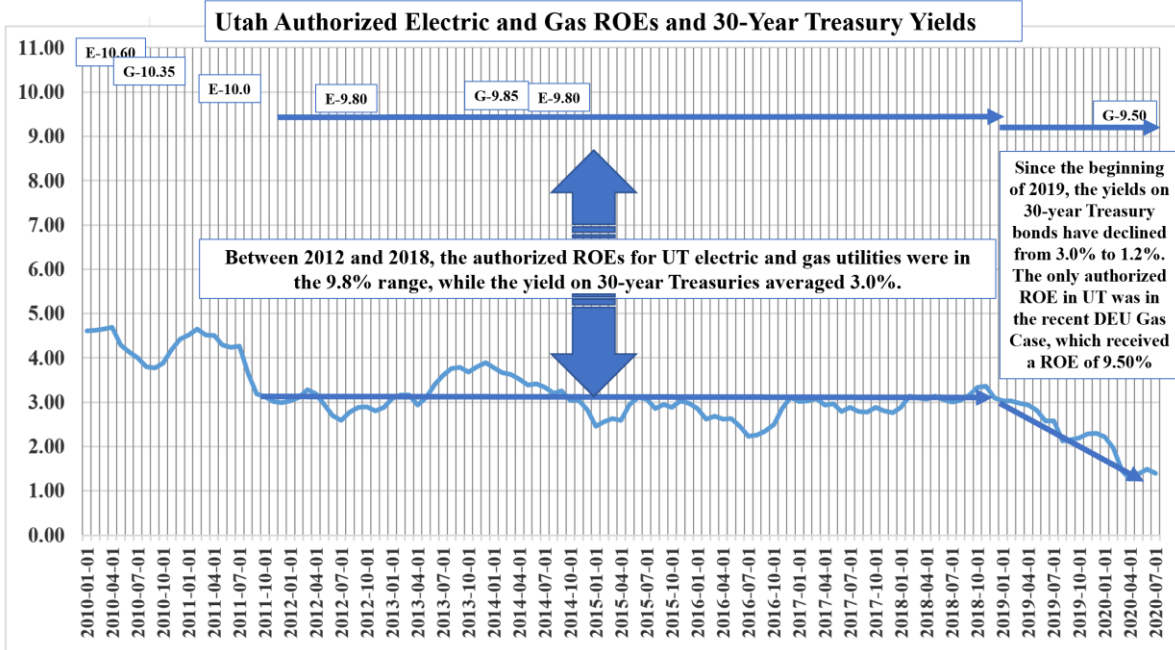
134
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136
137   **C.**   **Primary Rate of Return Issues in this Case**

138

139 **Q.** **PLEASE PROVIDE AN OVERVIEW OF THE PRIMARY ISSUES**

140   **REGARDING RATE OF RETURN IN THIS PROCEEDING.**

141 A. The primary issues related to the Company's rate of return include the following:

142   Capital Structure - The Company has proposed a capital structure that includes a

143   common equity ratio of 53.67%. This capital structure includes a higher common

144   equity ratio and therefore lower financial risk than the Company's parent, Berkshire

145   Hathaway Energy ("BHE"), and the average common equity ratios employed by the

146   two proxy groups (mine and Ms. Bulkley's);

147   Capital Market Conditions – Ms. Bulkley's analyses, ROE results, and

148   recommendations are based on assumptions of higher interest rates and capital costs.

149   However, interest rates and capital costs have remained at low levels in recent years.

150   In 2019, interest rates fell due to slow economic growth and low inflation and, as

151   discussed below, interest rates have fallen even further to record low levels in 2020

152   due to the impact of the novel coronavirus on the world's population and economy.

153   RMP's Investment Risk is Below the Averages of the Two Proxy Groups –RMP's

154   S&P and Moody's credit ratings of A and A3 are better that the averages of the proxy

155   groups, which indicates the Company's investment risk is less than that of the two

156   proxy groups.

157   DCF Approach – Ms. Bulkley and I have both employed the traditional constant-

158   growth DCF model. Ms. Bulkley's has seriously overstated her reported DCF results

159   in four ways: (1) she selectively eliminated low-end DCF results; (2) she has exclusively

160   used the overly optimistic and upwardly biased EPS growth rate forecasts of Wall

161   Street analysts and *Value Line*; (3) she has created her own new version of the DCF

162   model – the projected constant-growth DCF model - in which she projects DCF inputs

163   into the future; and (4) she has claimed that the DCF results underestimate the market-

164   determined cost of equity capital due to high utility stock valuations and low dividend

165   yields. On the other hand, when developing the DCF growth rate that I have used in my

166   analysis, I have reviewed thirteen growth rate measures including historical and

167   projected growth rate measures and have evaluated growth in dividends, book value,

168   and earnings per share. In addition, Ms. Bulkley's errors are magnified by the fact

169   that she has used a small proxy group.

170   <u>CAPM Approach</u> – The CAPM approach requires an estimate of the risk-free interest

171   rate, beta, and the market or risk premium. There are three issues with Ms. Bulkley's

172   CAPM analysis: (1) her long-term projected (3.20%) 30-year Treasury yields are well

173   in excess of current market yields; (2) she has employed the Empirical CAPM

174   ("ECAPM") version of the CAPM, which makes inappropriate adjustments to the risk-

175   free rate and the market risk premium; and (3) most significantly, she has computed a

176   market risk premium of 12.49%. The 12.49% market risk premium is much larger

177   than: (1) indicated by historic stock and bond return data; and (2) found in the

178   published studies and surveys of the market risk premium. In addition, I demonstrate

179   that the 12.49% market risk premium is based on totally unrealistic assumptions of

180   future economic and earnings growth and stock returns. To compute her market risk

181   premium, Ms. Bulkley has applied the DCF to the S&P 500 and employed analysts'

182   three-to-five-year earnings per share ("EPS") growth-rate projections as a growth rate

183   to compute an expected market return and market risk premium. As I demonstrate

184   later in my testimony, the EPS growth-rate projection used for the S&P 500 and the

185   resulting expected market return and market risk premium include totally unrealistic

186   assumptions regarding future economic and earnings growth and stock returns.

187   As I highlight in my testimony, there are three commonly-used procedures for

188   estimating a market risk premium – historic returns, surveys, and expected return

189   models. I have used a market risk premium of 6.00%, which: (1) factors in all three

190   approaches – historic returns, surveys, and expected return models – to estimate a

191   market premium; and (2) employs the results of many studies of the market risk

192   premium.   As I note, the 6.00% figure reflects the market risk premiums: (1)

193   determined in recent academic studies by leading finance scholars; (2) employed by

194   leading investment banks and management consulting firms; and (3) found in surveys

195   of companies, financial forecasters, financial analysts, and corporate CFOs.

196   <u>Alternative Risk Premium Model</u> - Ms. Bulkley also estimates an equity cost rate

197   using an alternative risks premium model which she calls the Bond Yield Risk

198   Premium ("BYRP") approach. There are two issues with this approach: (1) the base

199   interest rates; and (2) the risk premium. With respect to the base rates, her long-term

200   projected (3.20%) 30-year Treasury rates yield is well in excess of current market yields.

201   The risk premium in her BYRP method is based on the historical relationship between

202   the yields on long-term Treasury yields and authorized ROEs for electric utility

203   companies. There are several issues with this approach: (1) This approach is a gauge

204   of commission behavior and not investor behavior. Capital costs are determined in the

205   market place through the financial decisions of investors and are reflected in such

206   fundamental factors as dividend yields, expected growth rates, interest rates, and

207   investors' assessment of the risk and expected return of different investments; (2) Ms.

208   Bulkley's methodology produces an inflated measure of the risk premium because her

209   approach uses historical authorized ROEs and Treasury yields, and the resulting risk

210   premium is applied to projected Treasury yields; and (3) the risk premium is inflated as

211   a measure of investor's required risk premium, because electric utility companies have

212   been selling at market-to-book ratios in excess of 1.0.[4]   This indicates that the

213   authorized rates of return have been greater than the return that investors require.

214   Expected Earnings Approach - Ms. Bulkley also uses the Expected Earnings approach

215   to estimate an equity cost rate for the Company. Ms. Bulkley computes the expected

216   ROE as forecasted by *Value Line* for her proxy group of electric utilities. As I discuss

217   in my critique of Ms. Bulkley's presentation, the so-called "Expected Earnings"

218   approach does not measure the market cost of equity capital, is independent of most

219   cost of capital indicators, ignores the research on the upward bias in *Value Line*'s

220   earnings projections, and has several other empirical issues. Therefore, the

221   Commission should ignore Ms. Bulkley's "Expected Earnings" approach in

222   determining the appropriate ROE for RMP.

223   Regulatory and Business Risk Factors - Ms. Bulkley also considers several other risk

224   factors in arriving at her 10.20% ROE recommendation. She claims that (1) RMP's

225   higher than average capital expenditures increase its risk relative to the proxy utility

226   companies: (2) RMP's regulatory risk is high due to operating in Utah; (3) RMP's

227   generation ownership and fuel sources makes it riskier than other utilities. Ms.

228   Bulkley's conclusion that these factors make RMP riskier are erroneous. Each of these

229   three factors are risk factors that are already considered in the credit-rating process

230   used by major rating agencies. As I noted above, the S&P and Moody's issuer credit

231   ratings for RMP of A and A3 indicate that the Company is less risky than the electric

232   utilities in the proxy groups. In addition, in terms of Utah regulatory risk, Ms. Bulkley

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[4]   As discussed later in my testimony, a market-to-book ratio in excess of 1.0 indicates that a utility's earned
       ROE is above its cost of equity capital.

233   claims that Utah ROEs are below those of other states. This is erroneous. For

234   example, consider the Commission approved a ROE of 9.50% for the gas distribution

235   operations of Dominion Energy Utah in February of this year. This compares to a

236   national average gas distribution ROE of 9.40% in 2020.[5] In addition, Ms. Bulkley

237   also performs a study which she says supports the Company's proposed capital

238   structure with a common equity ratio of 53.67%. I show that her study is erroneous

239   since she uses the subsidiary operating electric utilities in her study and not the parent

240   holding companies who are the proxy utilities since they have common stock that is

241   traded in the markets.

242

243   **II.   CAPITAL MARKET CONDITIONS AND UTILITY AUTHORIZED ROES**

244

245   **A.   Capital Market Conditions**

246

247   **Q.   PLEASE PROVIDE A SUMMARY OF THE UTILITY CAPITAL MARKET**

248   **INDICATORS IN EXHIBIT JRW-5**

249   A.   Page 1 of Exhibit JRW-5 shows the yields on A rated public utility bonds. These

250   yields declined with interest rates in general in the year 2019, falling from 4.25% to

251   3.25%. They bounced around during the months of March and April, and are currently

252   at 2.90%.

253   Page 2 of Exhibit JRW-5 shows that the average dividend yield for publicly-

254   held electric utilities is just above 3.0% as of year-end 2019. The average earned ROE

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[5]   S&P Global Market Intelligence, RRA *Regulatory Focus*, 2020.

255   and market-to-book ratio for publicly-held electric utilities as of year-end 2019, as

256   shown on page 3 of Exhibit JRW-5, were 10.2% and 2.02X.

257   Page 4 of Exhibit JRW-5 is an updated study of industry betas. I update this

258   study each year, and in my January 2020 update, the average electric, gas and water

259   utility betas were 0.58, 0.67, and 0.70 respectively. However, as discussed below,

260   utility stocks were more volatile than the overall market during March and April 2020

261   when the financial markets were especially volatile. *Value Line* updates betas for

262   companies on a quarterly basis. After their most recent study following the market

263   volatility, I updated my industry beta study and now the average electric, gas and water

264   utility betas were 0.86, 0.85, and 0.78, respectively. As such, this short period when

265   utility stocks were more volatile than the market resulted in a significant increase in

266   utility betas as published by *Value Line*. In fact, the betas of most of the low beta

267   industries increased in the update. Nonetheless, utilities are still among the lowest

268   risk industries as measured by beta. In addition, this issue is discussed later in this

269   testimony, as there are some measurement problems with *Value Line* betas.

270 **Q.**   **PLEASE REVIEW THE FINANCIAL MARKETS IN 2020.**

271 A.   The financial markets began the year in good form – stock prices rose about five

272   percent in the first six weeks of the year and interest rates declined. Then came weeks

273   of chaos. In the middle of February, the spread of the coronavirus went global and the

274   virus became a major risk factor for the world's population and global economy. The

275   coronavirus disease 2019 (COVID-19), has spread to over 180 countries around the

276   world and was officially identified by the World Health Organization as a global

277   pandemic in mid-March.

278   Investors around the world began to focus on the potential economic

279   consequences of the coronavirus in the middle of January.[6] However, the markets

280   largely ignored the impact of the virus until the third week of February. In the

281   following month, the S&P 500 market declined 35% and investors fled to low risk

282   financial assets, most notably long-term Treasury bonds. The yield on the benchmark

283   30-year Treasury bond declined from 2.0% to 1.3%, but even traded as low as 0.9%,

284   an all-time low. Furthermore, the day-to-day volatility of prices in financial markets

285   has been at extremes. The VIX, which is the CBOE volatility index and is known as

286   Wall Street's Fear Index, increased from 15 and traded over 50, a level which has not

287   been seen since the financial crisis in 2008.

288   **Figure 2**
289   **S&P 500, 30-Year Treasury Yields,**
290   **The VIX, and Dow Jones Utilities (DJU**
291   **YTD-2020**
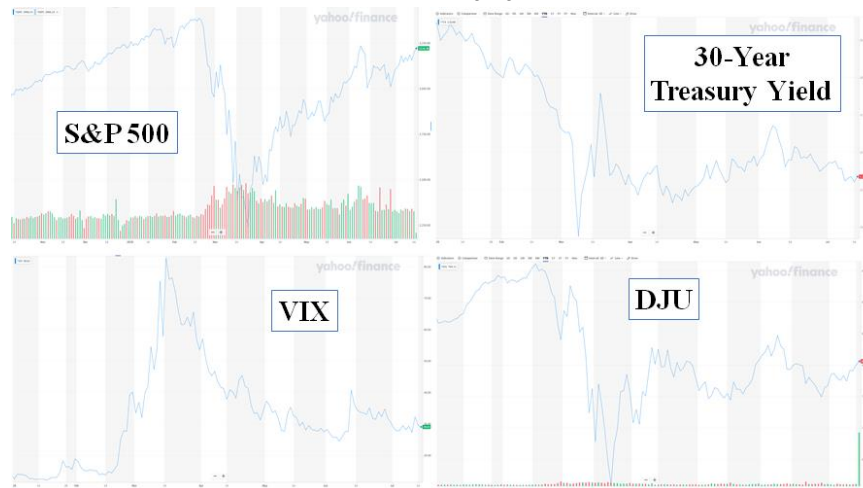
292
293
294   The stock market began its recovery in the third week of March. Despite the

295   ongoing spread of COVID-19 and an economic crisis created by the virus that includes

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6   Akane Otane, "Coronavirus Tests Market's Faith in Global Economy" *Wall Street Journal*, January 28,
     2020.

296   record unemployment, the S&P 500 has come back strong and is within 5% of its

297   previous all-time high in February. The 30-year Treasury yield, which was about 2.0%

298   in mid-February, dropped to record low levels below 1.0% and now has come back to

299   about 1.4%. The VIX, which topped out over 50, is now in the 20-25 range. And

300   utility stocks, which declined with the market by about 35% from Mid-February to

301   mid-March, have come back, but less so than the overall market.

302 **Q.   HOW HAVE UTILITY STOCKS FARED IN THIS MARKET?**

303 A.   Given their regulated nature, utility stocks have traditionally been very low risk and

304   would be expected to outperform the overall market in a downturn. However, these

305   stocks lost that identity in March and April of this year due to the economic crisis

306   brought on by the novel coronavirus. This was recently highlighted in the *Wall Street*

307   *Journal*.[7] The article noted that utility stocks were more volatile than the overall

308   market in March and April, a rare occurrence. The only other time this has happened

309   in the past two years is during a bout of market volatility in February 2018. Investors'

310   concerns appear to be related to several factors unique to public utilities: (1) the

311   potential falling power demand; (2) with the loss of jobs, customers may not be able

312   to pay their bills; (3) a slower economy will result in lower power demand for

313   commercial and industrial customers; and (4) perhaps reflecting the lower demand,

314   wholesale power prices fell 20% in March. The bottom line is that utility investors are

315   not used to the uncertainty associated with events like the coronavirus. The article

316   also noted that, despite these issues, nearly all major U.S. utilities have reaffirmed

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[7]   Anna Hirtenstein – "Safe Utilities Have Been More Volatile Than Broader Stock Market," *Wall Street Journal, June* 14, 2020.

317   their full-year guidance, only CenterPoint has reduced its dividend, and to date, there

318   have not been any credit downgrades from S&P or Moody's. Along these lines, the

319   article also noted that the stability of the earnings is not really an issue with utilities,

320   but that may be hurting utilities now as investors, in the market bounce back, are

321   looking for companies and industries that will recover when the economy rebounds.

322   **Q.   HOW   HAVE   THESE   MARKET   DEVELOPMENTS   IMPACTED**

323   **ESTIMATING   THE   COST   OF   EQUITY   CAPITAL   FOR   A   PUBLIC**

324   **UTILITY?**

325   A.   Traditionally, there are three models used to estimate an equity cost rate for a public

326   utility – the DCF, CAPM, and risk premium models. The issues with using these

327   models in the markets today are summarized below:

328   1.   DCF Model – The ROE from the DCF model is the sum of the dividend yield and

329   expected long-term growth rate. The dividend yield is observable, and dividend yields

330   have increased due to the declined in utility stock prices. However, day-to-day stock

331   prices are volatile, and dividend levels may change. But the big factor is the long-

332   term growth rate. The long-term growth rate is usually based, in part, on analysts'

333   three-to-five-year EPS growth rate estimates. It is likely that these projected growth

334   rates will be lowered at some point due to the significant slowdown in economic

335   growth associated with the coronavirus.

336   2.   CAPM Approach – The CAPM has three components – the risk-free interest rate, beta,

337   and the market risk premium ("MRP"). The impact of the decrease in the risk-free

338   interest rate yield is directly observable, but it can be volatile on a daily basis. Betas

339   are measured using historical returns and, with the inclusion of the recent volatility in

340   utility stocks, utility betas have increased. The highly uncertain element of the CPAM

341   is the impact of the current environment on the market risk premium. The market risk

342   premium is measured as the expected return on the stock market (E(RM)) minus the

343   risk-free rate of interest (RF). The market risk premium increases due to the lower

344   level of the risk-free interest rate. However, the impact of the current environment on

345   the expected stock market return (E(RM)) is uncertain. Historical return and survey

346   approaches to estimating the MRP would not capture the changes over the past several

347   months. And the expected return models would suffer from the same issue as the DCF

348   model. Namely, estimates of the E(R) are uncertain, since these models normally rely,

349   in large part, on analysts' forecasts of three-to-five-year EPS growth rates and, these

350   forecasts would appear to be very difficult to make given the uncertain economic

351   environment. I believe that this is even more true for the S&P 500 as opposed to

352   regulated utilities given the huge impact of the virus on such industries as travel,

353   restaurants, hotels, aviation, autos, and other sectors tied to retail spending.

354   3.   Risk Premium Approach – The ROE from a risk premium approach is the sum of the

355   risk-free interest rate and a risk premium. As noted, the risk-free rate component is

356   directly observable, and is lower in the current environment. The risk premium

357   component of the model is usually computed using historical utility stock and bond

358   returns or historical authorized utility ROEs minus the risk-free interest rate. Since

359   both the stock and bond returns and the authorized ROEs approaches to estimating the

360   risk premium component use historical data and hence do not change with the current

361   environment, the risk premium is not impacted by the current environment. But,

362   whether a risk premium model produces a high or a lower equity cost rate rests on the

363   relationship between the lower level on interest rates relative to the risk premium.

364   **Q.   PLEASE SUMMARIZE YOUR OBSERVATIONS ON THE APPLICATION**

365   **OF THE DCF, CAPM, AND RISK PREMIUM MODELS TO ESTIMATE THE**

366   **COST OF EQUITY CAPITAL IN THE CURRENT FINANCIAL MARKET.**

367   A.   The changes in the financial markets due to the coronavirus have resulted in different

368   signals concerning a utility's equity cost rate. A lower equity cost rate is indicated by

369   lower interest rates (CAPM and risk premium) and lower economic growth (DCF and

370   CAPM). A higher equity cost rate is suggested by lower stock prices (higher dividend

371   yield in DCF). But also the great level of uncertainty about economic growth provides

372   mixed signals for the DCF and CAPM models. In the end, the developments in the

373   markets in recent months have some positive and some negative effects on the DCF,

374   CAPM, and risk premium equity cost rate results.

375   **Q.   CAN YOU ADDRESS THE FORECASTS OF HIGHER INTEREST RATES**

376   **AND CAPITAL COSTS USED BY MS BULKLEY?**

377   A.   As noted, Ms. Bulkley has used the interest rates forecasts of economists in her CAPM

378   and BYRP equity cost rate approaches and in her discussion of capital market

379   conditions. On this topic, it is important to note that economists have consistently

380   forecast higher interest rates over the past decade, and they have consistently been

381   wrong. This is supported by the following: (1) After the announcement of the end of

382   Quantitative Easing III ("QEIII") program in 2014, all the economists in Bloomberg's

383   interest rate survey forecasted interest rates would increase in 2014, and 100% of the

384   economists were wrong;[8] (2) *Bloomberg* reported that the Federal Reserve Bank of

385   New York has gone as far as stopping the use of interest rate estimates of professional

386   forecasters in its interest rate model;[9] (3) A study entitled "How Interest Rates Keep

387   Making People on Wall Street Look Like Fools," which evaluated economists'

388   forecasts for the yield on ten-year Treasury bonds at the beginning of the year for the

389   last ten years,[10] demonstrated that economists consistently predict that interest rates

390   will go higher, and interest rates have not fulfilled the predictions; and (4) A study that

391   tracked economists' forecasts for the yield on ten-year Treasury bonds on an ongoing

392   basis from 2010 until 2015.[11] The results of this study, which was entitled "Interest

393   Rate Forecasters Are Shockingly Wrong Almost All of the Time," demonstrate how

394   economists continually forecast that interest rates are going up, and they do not.

395   More recently, in an end-of-decade financial markets review series in the *Wall*

396   *Street Journal*, Gregory Ip highlighted how economists' forecasts of higher interest

397   rates over the 2010s continued to be erroneous. He provided evidence that economists

398   forecast that short-term and long-term interest rates would go up, and these forecasts

399   were consistently wrong. The article provides insights as to why the longest economic

400   expansion on record that has resulted in a record-breaking stock market run and a 50-

401   year low unemployment rate, was coupled with inflation that consistently ran below

---

[8]   Ben Eisen, "Yes, 100% of economists were dead wrong about yields, *Market Watch*," October 22, 2014**.**

[9]   Susanne Walker and Liz Capo McCormick, "Unstoppable $100 Trillion Bond Market Renders Models Useless," *Bloomberg.com* (June 2, 2014). http://www.bloomberg.com/news/2014-06-01/the-unstoppable-100-trillion-bond-market-renders-models-useless.html.

[10]   Joe Weisenthal, "How Interest Rates Keep Making People on Wall Street Look Like Fools," Bloomberg.com, March 16, 2015. http://www.bloomberg.com/news/articles/2015-03-16/how-interest-rates-keep-making-people-on-wall-street-look-like-fools.

[11]   Akin Oyedele, "Interest Rate Forecasters Are Shockingly Wrong Almost All of the Time," *Business Insider*, July 18, 2015. http://www.businessinsider.com/interest-rate-forecasters-are-wrong-most-of-the-time-2015-7.

402   the Fed's 2% target and record low interest rates.[12] The bottom line – over the past

403   decade - economists have consistently forecasted higher interest rates, and they have

404   consistently been wrong!

405 **Q.   WHAT DO YOU RECOMMEND THE COMMISSION DO REGARDING THE**

406 **FORECASTS OF HIGHER INTEREST RATES AND CAPITAL COSTS?**

407 A.   I suggest that the Commission set an equity cost rate based on current market cost rate

408   indicators and not speculate on the future direction of interest rates. As the studies

409   discussed above indicate, economists are always predicting that interest rates are going

410   up, and yet they are almost always wrong. Obviously, investors are well aware of the

411   consistently wrong forecasts of higher interest rates, and therefore place little weight on

412   such forecasts. Investors would not be buying long-term Treasury bonds or utility stocks

413   at their current yields if they expected interest rates to suddenly increase, thereby

414   producing higher yields and negative returns. For example, consider a utility that pays a

415   dividend of $2.00 with a stock price of $50.00. The current dividend yield is 4.0%. If,

416   as Ms. Bulkley suggests, interest rates and required utility yields increase, the price of

417   the utility stock would decline. In the example above, if higher return requirements led

418   the dividend yield to increase from 4.0% to 5.0% in the next year, the stock price would

419   have to decline to $40, which would be a -20% return on the stock. Obviously, investors

420   would not buy the utility stock with an expected return of -20% due to higher dividend

421   yield requirements.

422   In sum, it is practically impossible to accurately forecast rates and prices of

---

[12]   Gregory Ip, "Economists Got it Wrong for a Decade. They're Trying to Figure Out Why," *Wall Street Journal*, (December 14, 2019). P. C1.

423   investments that are determined in the financial markets, such as interest rates, and prices

424   for stocks and commodities. For interest rates, I have never seen a study that suggests

425   one forecasting service is consistently better than others or that interest rate forecasts are

426   consistently better than just assuming the current interest rate will be the rate in the future.

427   As discussed above, investors would not be buying long-term Treasury bonds or utility

428   stocks at their current yields if they expected interest rates to suddenly increase, thereby

429   producing higher yields and negative returns.

430

431   **B.   Authorized ROEs**

432

433   **Q.   PLEASE DISCUSS THE TREND IN AUTHORIZED ROES FOR ELECTRIC**

434   **AND GAS COMPANIES.**

435   A.   Over the past five years, a period during which we have witnessed historically low

436   interest rates, authorized ROEs for electric utility and gas distribution companies have

437   slowly declined to reflect the low capital cost environment. In Figure 3, I have

438   graphed the quarterly authorized ROEs for electric and gas companies from 2000 to

439   2020. There is clearly a downward trend in the data. On an annual basis, these

440   authorized ROEs for electric utilities have declined from an average of 10.01% in

441   2012, 9.8% in 2013, 9.76% in 2014, 9.58% in 2015, 9.60% in 2016, 9.68% in 2017,

442   9.56% in 2018, 9.64% in of 2019, and 9.47% in the first half of 2020, according to

443   Regulatory Research Associates.[13]

444
445

---

[13]   S&P Global Market Intelligence, RRA *Regulatory Focus*, 2020.

446
447
448

Figure 3
Authorized ROEs for Electric Utility and Gas Distribution Companies
2000-2020
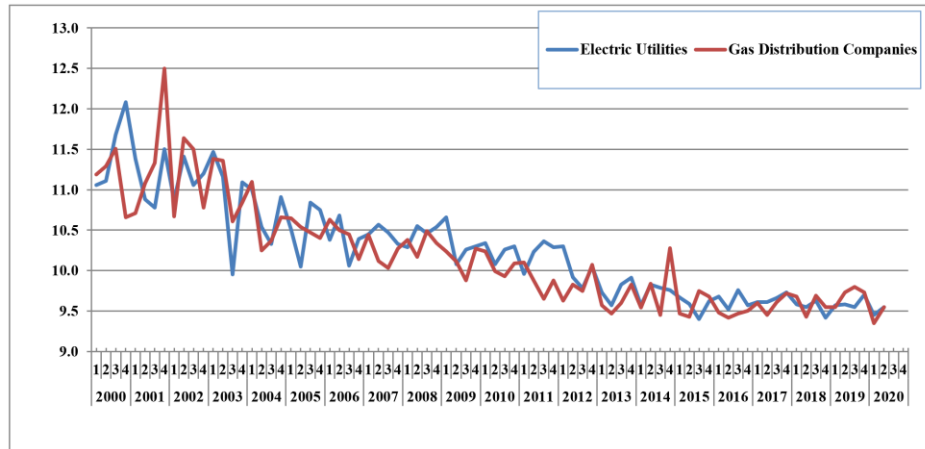
449
450

451 **Q.   DO YOU BELIEVE THAT YOUR ROE RECOMMENDATION MEETS *HOPE***

452   **AND *BLUEFIELD* STANDARDS?**

453 A.   Yes, I do. As previously noted, according to the *Hope* and *Bluefield* decisions, returns

454   on capital should be: (1) comparable to returns investors expect to earn on other

455   investments of similar risk; (2) sufficient to assure confidence in the company's

456   financial integrity; and (3) adequate to maintain and support the company's credit and

457   to attract capital. As provided in response to OCS 2.28, the Company has earned an

458   average ROE over the past three fiscal years of just over 9.00% in UT, ID, WY, and

459   OR.[14] The Company's S&P and Moody's credit ratings of A and A3 are two notches

460   and one notch above the average of my Electric Proxy Group and Ms. Bulkley's Proxy

461   Group. While my recommendation is below the average authorized ROEs for electric

462   utility companies, it reflects the downward trend in authorized and earned ROEs of

463   electric utility companies. Therefore, I do believe that my ROE recommendation

---

[14]   The Company does not have separate reporting for its CA operations. See Company response to OCS 2.28.

464   meets the criteria established in the *Hope* and *Bluefield* decisions.

465 **Q.** **ARE UTILITIES ABLE TO ATTRACT CAPITAL WITH THE LOWER**

466   **ROES?**

467 A. Yes. Figure 4 shows the annual amounts of debt and equity capital raised by public

468   utility companies over the past decade. Electric utility and gas distribution companies

469   have taken advantage of the low interest rate and capital cost environment of recent

470   years and raised records amount of capital in the markets. In fact, in each of 2018 and

471   2019, public utilities have raised a total of over $100 billion in debt and equity.

472   Clearly, even with lower ROEs, utilities are able to attract record amounts of capital.

Figure 4
Debt and Equity Capital Raised by Public Utilities
2010-2019
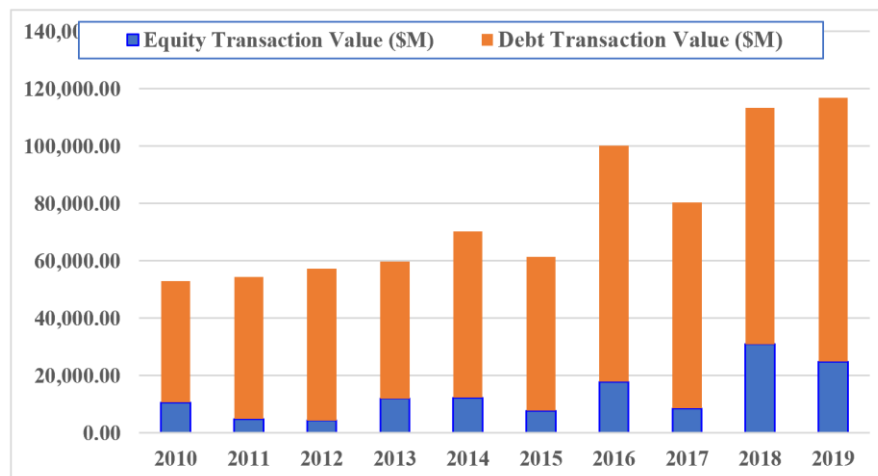
Source: S&P Global Market Intelligence, S&P Cap IQ, 2020.

473

474   **III. PROXY GROUP SELECTION**

475

476 **Q.** **PLEASE DESCRIBE YOUR APPROACH TO DEVELOPING A FAIR RATE**

477   **OF RETURN RECOMMENDATION FOR RMP.**

478   A.   To develop a fair rate of return recommendation for the Company (market cost of

479   equity), I have evaluated the return requirements of investors on the common stock of

480   a proxy group of publicly-held electric utility companies.

481   **Q.   PLEASE DESCRIBE YOUR PROXY GROUP OF ELECTRIC COMPANIES.**

482   A.   The selection criteria for my Electric Proxy Group include the following:

483   1.   At least 50% of revenues from regulated electric operations as indicated in the

484   most recent SEC 10-K Report;

485   2.   Listed as an U.S.-based Electric Utility by *Value Line Investment Survey*;

486   3.   An investment grade issuer credit rating by Moody's and/or S&P;

487   4.   Has paid a cash dividend in the past six months, with no cuts or omissions;

488   5.   Not involved in an acquisition of another utility, the target of an acquisition,

489   or in the sale or spin-off of utility assets, in the past six months; and

490   6.   Analysts' long-term EPS growth rate forecasts available from Yahoo, Reuters,

491   and/or Zacks.

492   My Electric Proxy Group includes twenty-nine companies. Summary financial

493   statistics for the proxy group are listed in Panel A of page 1 of Exhibit JRW-2.[15] The

494   median operating revenues and net plant among members of the Electric Proxy Group

495   are $6,338.0 million and $23,661.5 million, respectively. The group receives 83% of

496   its revenues from regulated electric operations, has BBB+ and Baa1 issuer credit

497   ratings from S&P and Moody's respectively, a current average common equity ratio

498   of 44.0%, and an earned return on common equity of 10.3%.

---

[15]   In my testimony, I present financial results using both mean and medians as measures of central tendency.
       However, due to outliers among means, I have used the median as a measure of central tendency.

499   **Q.   PLEASE DESCRIBE MS. BULKLEY'S PROXY GROUP OF ELECTRIC**

500   **UTILITY COMPANIES.**

501   A.   The Bulkley Proxy Group consists of twenty electric utility companies. Summary

502   financial statistics for the proxy group are listed on Panel B of page 1 of Exhibit JRW-

503   2. The median operating revenues and net plant among members of the Bulkley Proxy

504   Group are $4,397.8 million and $16,613.6 million, respectively. The group receives

505   80% of revenues from regulated electric operations, has an average BBB+ issuer credit

506   rating from S&P and an average Baa1 long-term rating from Moody's, a current

507   common equity ratio of 43.6%, and an earned return on common equity of 10.7%.

508   **Q.   HOW DOES THE INVESTMENT RISK OF THE COMPANY COMPARE TO**

509   **THAT OF THE TWO PROXY GROUPS?**

510   A.   I believe that bond ratings provide a good assessment of the investment risk of a

511   company. Page 1 of Exhibit JRW-2 also shows S&P and Moody's issuer credit ratings

512   for the companies in the two groups. RMP's issuer credit rating is A according to S&P

513   and A3 according to Moody's. RMP's S&P rating (A) is two notches above the

514   average S&P rating for the Electric and Bulkley Proxy Groups (BBB+). RMP's

515   Moody's rating of A3 is one notch above the average Moody's rating for the Electric

516   and Bulkley Proxy Groups (Baa1). As such, I believe that RMP is less risky than the

517   Electric and Bulkley Proxy Groups.

518 **Q.** **HOW DOES THE INVESTMENT RISK OF THE TWO PROXY GROUPS**

519   **COMPARE BASED ON THE VARIOUS RISK METRICS PUBLISHED BY**

520   ***VALUE LINE*?**

521 **A.** On page 2 of Exhibit JRW-2, I have assessed the riskiness of the two proxy groups

522   using five different risk measures from *Value Line*. These measures include Beta,

523   Financial Strength, Safety, Earnings Predictability, and Stock Price Stability.[16] These

524   risk measures suggest that the two proxy groups are similar in risk. The comparisons

525   of the risk measures include Beta (0.86 vs. 0.88), Financial Strength (A vs. A), Safety

526   (1.8 vs. 1.9), Earnings Predictability (76 vs. 82), and Stock Price Stability (88 vs. 89).

527   On balance, these measures suggest that the two proxy groups are similar in risk.

528

529   **IV.   CAPITAL STRUCTURE RATIOS AND DEBT COST RATES**

530

531 **Q.** **PLEASE DESCRIBE RMP'S PROPOSED CAPITAL STRUCTURE.**

532 **A.** The Company has proposed a capital structure consisting of 46.32% long-term debt,

533   0.01% preferred stock and 53.67% common equity, and a long-term debt and

534   preferred stock cost rates of 4.81% and 6.75%. This is shown in Panel A of page 1 of

535   Exhibit JRW-3.

536 **Q.** **WHAT   ARE   THE   COMMON   EQUITY   RATIOS   IN   THE**

537   **CAPITALIZATIONS OF THE TWO PROXY GROUPS?**

538 **A.** As shown in page 1 of Exhibit JRW-2, the average common equity ratios of the Electric

539   and Bulkley Proxy Groups are 44.0% and 43.6%, respectively. As such, RMP's

---

[16]   These metrics are defined on page 3 of Exhibit JRW-2.

540   proposed capitalization from investor-provided capital has more equity and a little less

541   financial risk than the average current capitalizations of the electric utility companies

542   in the proxy groups.

543 **Q.   IS IT APPROPRIATE TO USE THE COMMON EQUITY RATIOS OF THE**

544   **PARENT HOLDING COMPANIES OR SUBSIDIARY OPERATING**

545   **UTILITIES FOR COMPARISON PURPOSES WITH RMP'S PROPOSED**

546   **CAPITALIZATION?**

547 A.   It is appropriate to use the common equity ratios of the utility holding companies because

548   the holding companies are publicly-traded and their stocks are used in the cost of equity

549   capital studies. The equities of the operating utilities are not publicly-traded and hence

550   their stocks cannot be used to compute the cost of equity capital for RMP.

551 **Q.   IS IT APPROPRIATE TO INCLUDE SHORT-TERM DEBT IN THE**

552   **CAPITALIZATION IN COMPARING THE COMMON EQUITY RATIOS OF**

553   **THE HOLDING COMPANIES WITH RMP COMPANY'S PROPOSED**

554   **CAPITALIZATION?**

555 A.   Yes. In comparing the common equity ratios of the holding companies with RMP's

556   recommendation, it is appropriate to include short-term debt when computing the holding

557   company common equity ratios. That is because short-term debt, like long-term debt, has

558   a higher claim on the assets and earnings of the company and requires timely payment of

559   interest and repayment of principal. In addition, the financial risk of a company is based

560   on total debt, which includes both short-term and long-term debt. This is why credit

561   rating agencies use total debt in assessing the leverage and financial risk of companies.

562   **Q.   INCLUDING SHORT-TERM DEBT, HOW DO RMP'S PROPOSED CAPITAL**

563   **STRUCTURE RATIOS COMPARE TO ITS RECENT CAPITALIZATION**

564   **RATIOS AS WELL AS TO THOSE OF ITS PARENT, BERKSHIRE**

565   **HATHEWAY ENERGY?**

566   A.   Panel B of page 1 of Exhibit JRW-3 provides RMP's and BHE's average quarterly

567   capitalization ratio over the 2018-20 time period. The quarterly data are provided on

568   page 2 of Exhibit JRW-3. The Company's and BHE's average common equity ratio with

569   short-term debt were 51.79 and 42.40%. In this case, RMP proposes a 53.67% equity

570   ratio.

571   **Q.   PLEASE DISCUSS THE ISSUE OF PUBLIC UTILITY HOLDING**

572   **COMPANIES SUCH AS BHE USING DEBT TO FINANCE THE EQUITY IN**

573   **SUBSIDIARIES SUCH AS THE COMPANY.**

574   A.   Moody's published an article on the use of low-cost, debt financing by public utility

575   holding companies to increase their ROEs. The summary observations included the

576   following:

577   U.S. utilities use leverage at the holding-company level to invest in other
578   businesses, make acquisitions and earn higher returns on equity. In some cases,
579   an increase in leverage at the parent can hurt the credit profiles of its regulated
580   subsidiaries.[17]
581

582   This financial strategy has traditionally been known as double leverage.

583   Moody's defined double leverage in the following way:

584   Double leverage is a financial strategy whereby the parent raises debt but
585   downstreams the proceeds to its operating subsidiary, likely in the form of an
586   equity investment. Therefore, the subsidiary's operations are financed by debt
587   raised at the subsidiary level and by debt financed at the holding-company

---

[17]   Moody's Investors' Service, "High Leverage at the Parent Often Hurts the Whole Family," May 11, 2015, p.1.

588   level. In this way, the subsidiary's equity is leveraged twice, once with the
589   subsidiary debt and once with the holding-company debt. In a simple
590   operating-company / holding-company structure, this practice results in a
591   consolidated debt-to-capitalization ratio that is higher at the parent than at the
592   subsidiary because of the additional debt at the parent.[18]
593

594   Moody's goes on to discuss the potential risk to utilities of the strategy, and

595   specifically notes that regulators could take it into consideration in setting authorized

596   ROEs.

597   **"Double leverage" drives returns for some utilities but could pose risks**
598   **down the road.** The use of double leverage, a long-standing practice whereby
599   a holding company takes on debt and downstreams the proceeds to an
600   operating subsidiary as equity, could pose risks down the road if regulators
601   were to ascribe the debt at the parent level to the subsidiaries or adjust the
602   authorized return on capital.[19]

603
604   Q.   **PLEASE DISCUSS THE SIGNIFICANCE OF THE AMOUNT OF EQUITY**

605   **THAT IS INCLUDED IN A UTILITY'S CAPITAL STRUCTURE.**

606   A.   A utility's decision as to the amount of equity capital it will incorporate into its capital

607   structure involves fundamental trade-offs relating to the amount of financial risk the

608   firm carries, the overall revenue requirements its customers are required to bear

609   through the rates they pay, and the return on equity that investors will require.

610   Q.   **PLEASE DISCUSS A UTILITY'S DECISION TO USE DEBT VERSUS**

611   **EQUITY TO MEET ITS CAPITAL NEEDS.**

612   A.   Utilities satisfy their capital needs through a mix of equity and debt. Because equity

613   capital is more expensive than debt, the issuance of debt enables a utility to raise more

614   capital for a given commitment of dollars than it could raise with just equity. Debt is,

---

18   *Ibid.* p. 5.
19   *Ibid.* p. 1.

615   therefore, a means of "leveraging" capital dollars. However, as the amount of debt in

616   the capital structure increases, financial risk increases and the risk of the utility, as

617   perceived by equity investors also increases. Significantly for this case, the converse

618   is also true. As the amount of debt in the capital structure decreases, the financial risk

619   decreases. The required return on equity capital is a function of the amount of overall

620   risk that investors perceive, including financial risk in the form of debt.

621 **Q.   WHY IS THIS RELATIONSHIP IMPORTANT TO THE UTILITY'S**

622 **CUSTOMERS?**

623 A.   Just as there is a direct correlation between the utility's authorized return on equity

624   and the utility's revenue requirements (the higher the return, the greater the revenue

625   requirement), there is a direct correlation between the amount of equity in the capital

626   structure and the revenue requirements that customers are called on to bear. Again,

627   equity capital is more expensive than debt. Not only does equity command a higher

628   cost rate, it also adds more to the income tax burden that ratepayers are required to

629   pay through rates. As the equity ratio increases, the utility's revenue requirements

630   increase and the rates paid by customers increase. If the proportion of equity is too

631   high, rates will be higher than they need to be. For this reason, the utility's

632   management should pursue a capital acquisition strategy that results in the proper

633   balance in the capital structure.

634 **Q.   HOW HAVE UTILITIES TYPICALLY STRUCK THIS BALANCE?**

635 A.   Due to regulation and the essential nature of its output, a regulated utility is exposed

636   to less business risk than other companies that are not regulated. This means that a

637   utility can reasonably carry relatively more debt in its capital structure than can most

638   unregulated companies. Thus, a utility should take appropriate advantage of its lower

639   business risk to employ cheaper debt capital at a level that will benefit its customers

640   through lower revenue requirements.

641 **Q.**   **GIVEN THAT RMP HAS PROPOSED AN EQUITY RATIO THAT IS**

642   **HIGHER THAN (1) THE AVERAGE COMMON EQUITY RATIO OF OTHER**

643   **ELECTRIC UTILITY COMPANIES; AND (2) THE COMMON EQUITY**

644   **RATIO OF ITS PARENT COMPANY, BHE, WHAT SHOULD THE**

645   **COMMISSION DO IN THIS RATEMAKING PROCEEDING?**

646 A.   When a regulated utility's actual capital structure contains a high equity ratio, the

647   options are: (1) to impute a more reasonable capital structure that is comparable to the

648   average of the proxy group used to determine the cost of equity and to reflect the

649   imputed capital structure in revenue requirements; or (2) to recognize the downward

650   impact that an unusually high equity ratio will have on the financial risk of a utility

651   and authorize a common equity cost rate lower than that of the proxy group.

652 **Q.**   **PLEASE ELABORATE ON THIS "DOWNWARD IMPACT."**

653 A.   As I stated earlier, there is a direct correlation between the amount of debt in a utility's

654   capital structure and the financial risk that an equity investor will associate with that

655   utility. A relatively lower proportion of debt translates into a lower required return on

656   equity, all other things being equal. Stated differently, a utility cannot expect to "have

657   it both ways." Specifically, a utility cannot propose to maintain an unusually high

658   equity ratio and not expect to have the resulting lower risk reflected in its authorized

659   return on equity. The fundamental relationship between lower risk and the appropriate

660   authorized return should not be ignored.

661   **Q.   GIVEN THIS DISCUSSION, PLEASE DISCUSS YOUR PRIMARY CAPITAL**

662   **STRUCTURE RECOMMENDATION FOR RMP.**

663   A.   My primary capital structure recommendation is presented in Panel C of Exhibit JRW-

664   3. As previously noted, RMP's proposed capital structure consists of more common

665   equity and less financial risk than any of the other proxy electric companies.

666   Therefore, in my primary rate of return recommendation, I am recommending a capital

667   structure that includes a common equity ratio of 50.0%. This capital structure includes

668   a common equity ratio that is about halfway between RMP's proposed capital

669   structure of 53.67% and the average 2019 common equity ratio of 44.0% of the

670   Electric Proxy Group. As shown in Panel B of Exhibit JRW-5, in this capital structure,

671   I have grossed up the percentage amounts of long-term debt and preferred stock so

672   that they collectively total 50.0% and reduced the amount of common equity from

673   53.67% to 50.0%.

674   **Q.   ON PAGES 78-81 OF HER TESTIMONY AND IN EXHIBIT RMP__(AEB-11),**

675   **MS. BULKLEY ATTEMPTS TO JUSTIFY THE COMPANY'S PROPOSED**

676   **CAPITAL STRUCTURE BY COMPARING RMP'S PROPOSED 53.67%**

677   **COMMON EQUITY RATIO TO THE AVERAGE EQUITY RATIO OF THE**

678   **OPERATING   UTILITIES   OWNED   BY   THE   PROXY   HOLDING**

679   **COMPANIES. IS THIS THE APPROPRIATE COMPARISON?**

680   A.   No. Contrary to Ms. Bulkley's assertions, the appropriate comparison when it comes

681   to common equity ratios is between the common equity ratio as proposed by the

682   Company and the average common equity ratios for the holding companies in the

683   proxy groups. The reason is that both Ms. Bulkley and myself use the holding

684   companies to estimate a cost of equity capital for the Company. That is because the

685   holding companies have common stock outstanding and so we can apply DCF and

686   CAPM equity cost rate approaches. Therefore, it is their common equity ratio that is

687   appropriate for comparison purposes, since it is their common equity ratio which

688   reflects their financial risk. The common equity ratios of the operating utilities are

689   higher and therefore they are subject to less financial risk.

690   **Q.**   **MS. KOBLIHA SUGGESTS THAT THE COMPANY'S PROPOSED**

691   **COMMON EQUITY RATIO IS NEEDED TO SUPPORT THE COMPANY'S**

692   **CREDIT RATINGS. PLEASE COMMENT.**

693   A.   On page 12 of her testimony, Ms. Kobliha makes a very broad statement that the

694   Company's proposed capital structure is consistent with the Company's current credit

695   ratings. However, she provide no evidence to support the statement. In addition, she

696   makes no capital structure and/or credit rating comparisons with other electric utilities or

697   RMP's parent, BHE. I have demonstrated that: (1) RMP's S&P and Moody's credit

698   ratings are superior to the average of the two electric proxy groups; and (2) RMP's

699   proposed capital structure includes a much higher common equity ratio and hence lower

700   financial risk than the average of the two proxy groups and RMP's parent, BHE.

701   **Q.**   **WHAT IS THE CAPITAL STRUCTURE IN YOUR ALTERNATIVE RATE**

702   **OF RETURN RECOMMENDATION?**

703   A.   In my alternative rate of return recommendation, I am using the Company's proposed

704   capital structure consisting of 46.32% long-term debt, 0.01% preferred stock and

705   53.67% common equity. Since this capital structure includes more common equity

706   and less financial risk than other electric utilities, I am using my calculated estimate

707   of the cost of equity capital, 8.75%, as the ROE in my alternative cost of capital

708   recommendation. Due to the lower financial risk, my alternative ROE is lower than

709   my primary recommendation of 9.0%.

710 **Q.** **ARE YOU USING THE COMPANY'S PROPOSED LONG-TERM DEBT**

711   **COST AND PREFERRED STOCK RATES?**

712 **A.** Yes.

713

714   **IV.   THE COST OF COMMON EQUITY CAPITAL**

715

716   **A. DCF Analysis**

717
718 **Q.** **PLEASE DESCRIBE THE THEORY BEHIND THE TRADITIONAL DCF**

719   **MODEL.**

720 A. According to the DCF model, the current stock price is equal to the discounted value

721   of all future dividends that investors expect to receive from investment in the firm. As

722   such, stockholders' returns ultimately result from current as well as future dividends.

723   As owners of a corporation, common stockholders are entitled to a *pro rata* share of

724   the firm's earnings. The DCF model presumes that earnings that are not paid out in

725   the form of dividends are reinvested in the firm so as to provide for future growth in

726   earnings and dividends. The rate at which investors discount future dividends, which

727   reflects the timing and riskiness of the expected cash flows, is interpreted as the

728   market's expected or required return on the common stock. Therefore, this discount

729   rate represents the cost of common equity. Algebraically, the DCF model can be

730   expressed as:

$$P = \frac{D_1}{(1+k)^1} + \frac{D_2}{(1+k)^2} + \dots \frac{D_n}{(1+k)^n}$$

where P is the current stock price, D_n is the dividend in year n, and k is the cost of

common equity.

Q.   IS THE DCF MODEL CONSISTENT WITH VALUATION TECHNIQUES EMPLOYED BY INVESTMENT FIRMS?

A.   Yes. Virtually all investment firms use some form of the DCF model as a valuation

technique. One common application for investment firms is called the three-stage

DCF or dividend discount model ("DDM"). The stages in a three-stage DCF model

are presented in Exhibit JRW-6, Page 1 of 1. This model presumes that a company's

dividend payout progresses initially through a growth stage, then proceeds through a

transition stage, and finally assumes a maturity (or steady-state) stage. The dividend-

payment stage of a firm depends on the profitability of its internal investments which,

in turn, is largely a function of the life cycle of the product or service.

1.   Growth stage: Characterized by rapidly expanding sales, high profit

margins, and an abnormally high growth in earnings per share. Because of

highly profitable expected investment opportunities, the payout ratio is low.

Competitors are attracted by the unusually high earnings, leading to a decline

in the growth rate.

2.   Transition stage: In later years, increased competition reduces profit

margins and earnings growth slows.   With fewer new investment

opportunities, the company begins to pay out a larger percentage of earnings.

755   3.   Maturity (steady-state) stage: Eventually, the company reaches a

756   position where its new investment opportunities offer, on average, only

757   slightly attractive ROEs. At that time, its earnings growth rate, payout ratio,

758   and ROE stabilize for the remainder of its life.   The constant-growth DCF

759   model is appropriate when a firm is in the maturity stage of the life cycle.

760

761   In using this model to estimate a firm's cost of equity capital, dividends are

762   projected into the future using the different growth rates in the alternative stages, and

763   then the equity cost rate is the discount rate that equates the present value of the future

764   dividends to the current stock price.

765   **Q.   HOW DO YOU ESTIMATE STOCKHOLDERS' EXPECTED OR REQUIRED**

766   **RATE OF RETURN USING THE DCF MODEL?**

767   A.   Under certain assumptions, including a constant and infinite expected growth rate, and

768   constant dividend/earnings and price/earnings ratios, the DCF model can be simplified

769   to the following:

770
771
772         $$P = \frac{D_1}{k - g}$$
773
774   where D_1 represents the expected dividend over the coming year and g is the expected

775   growth rate of dividends. This is known as the constant-growth version of the DCF

776   model. To use the constant-growth DCF model to estimate a firm's cost of equity,

777   one solves for "k" in the above expression to obtain the following:

778
779
780         $$k = \frac{D_1}{P} + g$$
781

782

783 **Q.   IN YOUR OPINION, IS THE CONSTANT-GROWTH VERSION OF THE**

784 **DCF MODEL APPROPRIATE FOR PUBLIC UTILITIES?**

785 A.   Yes. The economics of the public utility business indicate that the industry is in the

786 maturity or constant-growth stage of a three-stage DCF. The economics include the

787 relative stability of the utility business, the maturity of the demand for public utility

788 services, and the regulated status of public utilities (especially the fact that their returns

789 on investment are effectively set through the ratemaking process). The appropriate

790 DCF valuation procedure for companies in this stage is the constant-growth DCF. In

791 the constant-growth version of the DCF model, the current dividend payment and

792 stock price are directly observable. However, the primary problem and controversy

793 in applying the DCF model to estimate equity cost rates entails estimating investors'

794 expected dividend growth rate.

795 **Q.   WHAT FACTORS SHOULD ONE CONSIDER WHEN APPLYING THE DCF**

796 **METHODOLOGY?**

797 A.   One should be sensitive to several factors when using the DCF model to estimate a

798 firm's cost of equity capital. In general, one must recognize the assumptions under

799 which the DCF model was developed in estimating its components (the dividend yield

800 and the expected growth rate). The dividend yield can be measured precisely at any

801 point in time; however, it tends to vary somewhat over time. Estimation of expected

802 growth is considerably more difficult. One must consider recent firm performance, in

803 conjunction with current economic developments and other information available to

804 investors, to accurately estimate investors' expectations.

805   **Q.   WHAT DIVIDEND YIELDS HAVE YOU REVIEWED?**

806   A.   I have calculated the dividend yields for the companies in the two proxy groups using

807   the current annual dividend and the 30-day, 90-day, and 180-day average stock prices.

808   These dividend yields, as derived from the 30-day, 90-day, and 180-day average stock

809   prices, are provided in Panel A of page 2 of Exhibit JRW-7. Due to changing market

810   conditions in 2020, I am using the dividend yields derived from the 30-day and 90-

811   day average stock prices. For the Electric Proxy Group, the mean and median dividend

812   yields using the 30-day and 90-day average stock prices range from 3.5% to 3.7%.

813   Hence, I am using 3.60%, as the dividend yield for the Electric Proxy Group. The

814   dividend yields for the Bulkley Proxy Group are shown in Panel B of page 2 of Exhibit

815   JRW-7. The mean and median dividend yields range from 3.5% to 3.7% using the 30-

816   day and 90-day average stock prices. Therefore, I am using a dividend yield of 3.60%

817   for the Bulkley Proxy Group.

818   **Q.   PLEASE DISCUSS THE APPROPRIATE ADJUSTMENT TO THE SPOT**

819   **DIVIDEND YIELD.**

820   A.   According to the traditional DCF model, the dividend yield term relates to the dividend

821   yield over the coming period. As indicated by Professor Myron Gordon, who is

822   commonly associated with the development of the DCF model for popular use, this is

823   obtained by: (1) multiplying the expected dividend over the coming quarter by 4, and

824   (2) dividing this dividend by the current stock price to determine the appropriate

825   dividend yield for a firm that pays dividends on a quarterly basis.[20]

---

[20]   *Petition for Modification of Prescribed Rate of Return*, Federal Communications Commission, Docket No.
       79-05, Direct Testimony of Myron J. Gordon and Lawrence I. Gould at 62 (April 1980).

826   In applying the DCF model, some analysts adjust the current dividend for

827   growth over the coming year as opposed to the coming quarter. This can be

828   complicated because firms tend to announce changes in dividends at different times

829   during the year. As such, the dividend yield computed based on presumed growth

830   over the coming quarter as opposed to the coming year can be quite different.

831   Consequently, it is common for analysts to adjust the dividend yield by some fraction

832   of the long-term expected growth rate.

833 Q.   **GIVEN THIS DISCUSSION, WHAT ADJUSTMENT FACTOR DO YOU USE**

834   **FOR YOUR DIVIDEND YIELD?**

835 A.   I adjust the dividend yield by one-half (1/2) of the expected growth so as to reflect

836   growth over the coming year. This is the approach employed by the Federal Energy

837   Regulatory Commission ("FERC").[21] The DCF equity cost rate ("K") is computed as:

838
839    $$K = [(D/P) * (1 + 0.5g)] + g$$
840

841 Q.   **PLEASE DISCUSS THE GROWTH RATE COMPONENT OF THE DCF**

842   **MODEL.**

843 A.   There is debate as to the proper methodology to employ in estimating the growth

844   component of the DCF model. By definition, this component is investors' expectation

845   of the long-term dividend growth rate. Presumably, investors use some combination

846   of historical and/or projected growth rates for earnings and dividends per share and

847   for internal or book-value growth to assess long-term potential.

---

[21] Opinion No. 414-A, *Transcontinental Gas Pipe Line Corp.*, 84 FERC ¶61,084 (1998).

848   **Q.**   **WHAT GROWTH DATA HAVE YOU REVIEWED FOR THE PROXY**

849   **GROUPS?**

850   A.   I have analyzed a number of measures of growth for companies in the proxy groups.

851   I reviewed *Value Line's* historical and projected growth rate estimates for earnings per

852   share ("EPS"), dividends per share ("DPS"), and book value per share ("BVPS"). In

853   addition, I utilized the average EPS growth rate forecasts of Wall Street analysts as

854   provided by Yahoo, Reuters, and Zacks. These services solicit five-year earnings

855   growth rate projections from securities analysts and compile and publish the means

856   and medians of these forecasts. Finally, I also assessed prospective growth as

857   measured by prospective earnings retention rates and earned returns on common

858   equity.

859   **Q.**   **PLEASE DISCUSS HISTORICAL GROWTH IN EARNINGS AND**

860   **DIVIDENDS AS WELL AS INTERNAL GROWTH.**

861   A.   Historical growth rates for EPS, DPS, and BVPS are readily available to investors and

862   are presumably an important ingredient in forming expectations concerning future

863   growth. However, one must use historical growth numbers as measures of investors'

864   expectations with caution. In some cases, past growth may not reflect future growth

865   potential. Also, employing a single growth rate number (for example, for five or ten

866   years) is unlikely to accurately measure investors' expectations, due to the sensitivity

867   of a single growth rate figure to fluctuations in individual firm performance as well as

868   overall economic fluctuations (i.e., business cycles). However, one must appraise the

869   context in which the growth rate is being employed. According to the conventional

870   DCF model, the expected return on a security is equal to the sum of the dividend yield

871   and the expected long-term growth in dividends. Therefore, to best estimate the cost

872   of common equity capital using the conventional DCF model, one must look to long-

873   term growth rate expectations.

874   Internally generated growth is a function of the percentage of earnings retained

875   within the firm (the earnings retention rate) and the rate of return earned on those

876   earnings (the return on equity). The internal growth rate is computed as the retention

877   rate times the return on equity. Internal growth is significant in determining long-term

878   earnings and, therefore, dividends. Investors recognize the importance of internally

879   generated growth and pay premiums for stocks of companies that retain earnings and

880   earn high returns on internal investments.

881   **Q.   PLEASE DISCUSS THE SERVICES THAT PROVIDE ANALYSTS' EPS**

882   **FORECASTS.**

883   A.   Analysts' EPS forecasts for companies are collected and published by several different

884   investment information services, including Institutional Brokers Estimate System

885   ("I/B/E/S"), Bloomberg, FactSet, Zacks, First Call, and Reuters, among others.

886   Reuters publishes analysts' EPS forecasts under different product names, including

887   I/B/E/S, First Call, and Reuters. Bloomberg, FactSet, and Zacks each publish their

888   own set of analysts' EPS forecasts for companies. These services do not reveal (1)

889   the analysts who are solicited for forecasts or (2) the identity of the analysts who

890   actually provide the EPS forecasts that are used in the compilations published by the

891   services. I/B/E/S, Bloomberg, FactSet, and First Call are fee-based services. These

892   services usually provide detailed reports and other data in addition to analysts' EPS

893   forecasts. In contrast, Reuters and Zacks do provide limited EPS forecast data free-

894   of-charge on the Internet. Yahoo finance (http://finance.yahoo.com) lists Reuters as

895   the source of its summary EPS forecasts. Zacks (www.zacks.com) publishes its

896   summary forecasts on its website. Zacks estimates are also available on other

897   websites, such as MSN.money (http://money.msn.com).

898 **Q.   ARE YOU RELYING EXCLUSIVELY ON THE EPS FORECASTS OF WALL**

899   **STREET ANALYSTS IN ARRIVING AT A DCF GROWTH RATE FOR THE**

900   **PROXY GROUP?**

901 A.   No. There are several issues with using the EPS growth rate forecasts of Wall Street

902   analysts as DCF growth rates. First, the appropriate growth rate in the DCF model is

903   the dividend growth rate, not the earnings growth rate. Nonetheless, over the very

904   long term, dividend and earnings will have to grow at a similar growth rate. Therefore,

905   consideration must be given to other indicators of growth, including prospective

906   dividend growth, internal growth, as well as projected earnings growth. Second, a

907   study by Lacina, Lee, and Xu (2011) has shown that analysts' three-to-five year EPS

908   growth rate forecasts are not more accurate at forecasting future earnings than naïve

909   random walk forecasts of future earnings.[22] Employing data over a twenty-year

910   period, these authors demonstrate that using the most recent year's actual EPS figure

911   to forecast EPS in the next 3-5 years proved to be just as accurate as using the EPS

912   estimates from analysts' three-to-five year EPS growth rate forecasts. In the authors'

913   opinion, these results indicate that analysts' long-term earnings growth-rate forecasts

914   should be used with caution as inputs for valuation and cost of capital purposes.

---

[22]   M. Lacina, B. Lee & Z. Xu, *Advances in Business and Management Forecasting (Vol. 8),* Kenneth D.
       Lawrence, Ronald K. Klimberg (ed.), Emerald Group Publishing Limited, pp.77-101.

915   Finally, and most significantly, it is well known that the long-term EPS growth-rate

916   forecasts of Wall Street securities analysts are overly optimistic and upwardly biased.

917   This has been demonstrated in a number of academic studies over the years.[23] Hence,

918   using these growth rates as a DCF growth rate will provide an overstated equity cost

919   rate. On this issue, a study by Easton and Sommers (2007) found that optimism in

920   analysts' growth rate forecasts leads to an upward bias in estimates of the cost of

921   equity capital of almost 3.0 percentage points.[24]

922 **Q.**   **ARE THE PROJECTED EPS GROWTH RATES OF *VALUE LINE* ALSO**

923   **OVERLY OPTIMISTIC AND UPWARDLY BIASED?**

924 A.   Yes. A study by Szakmary, Conover, and Lancaster (2008) evaluated the accuracy of

925   *Value Line*'s three-to-five-year EPS growth rate forecasts using companies in the Dow

926   Jones Industrial Average over a thirty-year time period and found these forecasted

927   EPS growth rates to be significantly higher than the EPS growth rates that these

928   companies subsequently achieved.[25]

929   Szakmary, Conover, and Lancaster (SCL) studied the predicted versus the

930   projected stock returns, sales, profit margins, and earnings per share made by Value

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[23]   The studies that demonstrate analysts' long-term EPS forecasts are overly-optimistic and upwardly biased include: R.D. Harris, "The Accuracy, Bias, and Efficiency of Analysts' Long Run Earnings Growth Forecasts," *Journal of Business Finance & Accounting*, pp. 725-55 (June/July 1999); P. DeChow, A. Hutton, and R. Sloan, "The Relation Between Analysts' Forecasts of Long-Term Earnings Growth and Stock Price Performance Following Equity Offerings," *Contemporary Accounting Research* (2000)*;* K. Chan, L., Karceski, J., & Lakonishok, J., "The Level and Persistence of Growth Rates," *Journal of Finance,* pp. 643−684, (2003); M. Lacina, B. Lee, and Z. Xu, *Advances in Business and Management Forecasting (Vol. 8),* Kenneth D. Lawrence, Ronald K. Klimberg (ed.), Emerald Group Publishing Limited, pp.77-101; and Marc H. Goedhart, Rishi Raj, and Abhishek Saxena, "Equity Analysts, Still Too Bullish," *McKinsey on Finance*, pp. 14-17, (Spring 2010).

[24]   Peter D. Easton & Gregory A. Sommers, *Effect of Analysts' Optimism on Estimates of the Expected Rate of Return Implied by Earnings Forecasts*, 45 J. ACCT. RES. 983–1015 (2007).

[25]   Szakmary, A., Conover, C., & Lancaster, C. (2008). "An Examination of *Value Line*'s Long-Term Projections," *Journal of Banking & Finance*, May 2008, pp. 820-833.

931   Line over the 1969 to 2001 time period. *Value Line* projects variables from a three-

932   year base period (e.g., 2012-2014) to a future three-year projected period (e.g., 2016-

933   18). SCL used the sixty-five stocks included in the Dow Jones Indexes (30 Industrials,

934   20 Transports and 15 Utilities). SCL found that the projected annual stock returns for

935   the Dow Jones stocks were "incredibly overoptimistic" and of no predictive value.

936   The mean annual stock return of 20% for the Dow Jones' stocks *Value Line*'s forecasts

937   was nearly double the realized annual stock return. The authors also found that *Value*

938   *Line*'s forecasts of earnings per share and profit margins were termed "strikingly

939   overoptimistic." *Value Line*'s forecasts of annual sales were higher than achieved

940   levels, but not statistically significant. SCL concluded that the overly-optimistic

941   projected annual stock returns were attributable to *Value Line*'s upwardly-biased

942   forecasts of earnings per share and profit margins

943   **Q.**   **IS IT YOUR OPINION THAT STOCK PRICES REFLECT THE UPWARD**

944   **BIAS IN THE EPS GROWTH RATE FORECASTS?**

945   **A.**   Yes, I do believe that investors are well aware of the bias in analysts' EPS growth-rate

946   forecasts, and therefore stock prices reflect the upward bias.

947   **Q.**   **HOW DOES THAT AFFECT THE USE OF THESE FORECASTS IN A DCF**

948   **EQUITY COST RATE STUDY?**

949   **A.**   According to the DCF model, the equity cost rate is a function of the dividend yield

950   and expected growth rate. Because I believe that investors are aware of the upward

951   bias in analysts' long-term EPS growth rate forecasts, stock prices reflect the bias. But

952   the DCF growth rate needs to be adjusted downward from the projected EPS growth

953   rate to reflect the upward bias in the DCF model.

954   **Q.   PLEASE DISCUSS THE HISTORICAL GROWTH OF THE COMPANIES IN**

955   **THE PROXY GROUPS, AS PROVIDED BY *VALUE LINE*.**

956   A.   Page 3 of Exhibit JRW-7 provides the 5- and 10-year historical growth rates for EPS,

957   DPS, and BVPS for the companies in the three proxy groups, as published in the *Value*

958   *Line Investment Survey*. The median historical growth measures for EPS, DPS, and

959   BVPS for the Electric Proxy Group, as provided in Panel A, range from 4.0% to 5.5%,

960   with an average of the medians of 4.5%. For the Bulkley Proxy Group, as shown in

961   Panel B of page 3 of Exhibit JRW-7, the historical growth measures in EPS, DPS, and

962   BVPS, as measured by the medians, range from 4.0% to 5.5%, with an average of the

963   medians of 4.9%.

964   **Q.   PLEASE SUMMARIZE *VALUE LINE'S* PROJECTED GROWTH RATES**

965   **FOR THE COMPANIES IN THE PROXY GROUPS.**

966   A.   *Value Line's* projections of EPS, DPS, and BVPS growth for the companies in the

967   proxy groups are shown on page 4 of Exhibit JRW-7. As stated above, due to the

968   presence of outliers, the medians are used in the analysis. For the Electric Proxy

969   Group, as shown in Panel A of page 4 of Exhibit JRW-7, the medians range from 4.0%

970   to 5.5%, with an average of the medians of 4.8%. The range of the medians for the

971   Bulkley Proxy Group, shown in Panel B of page 4 of Exhibit JRW-7, is from 4.0% to

972   5.5%, with an average of the medians of 4.6%.

973   Also provided on page 4 of Exhibit JRW-7 are the prospective sustainable

974   growth rates for the companies in the two proxy groups as measured by *Value Line*'s

975   average projected return on shareholders' equity and retention rate. As noted above,

976   sustainable growth is a significant and a primary driver of long-run earnings growth.

977   For the Electric Proxy Group and Bulkley Proxy Group, the median prospective

978   sustainable growth rates are 3.4% and 3.4%, respectively.

979 **Q.** **PLEASE ASSESS GROWTH FOR THE PROXY GROUPS AS MEASURED**

980   **BY ANALYSTS' FORECASTS OF EXPECTED 5-YEAR EPS GROWTH.**

981 A. Yahoo and Zacks collect, summarize, and publish Wall Street analysts' long-term EPS

982   growth rate forecasts for the companies in the proxy groups. These forecasts are

983   provided for the companies in the proxy groups on page 5 of Exhibit JRW-7. I have

984   reported both the mean and median growth rates for the groups. Because there is

985   considerable overlap in analyst coverage between the two services, and not all of the

986   companies have forecasts from the different services, I have averaged the expected five-

987   year EPS growth rates from the two services for each company to arrive at an expected

988   EPS growth rate for each company. The mean/median of analysts' projected EPS

989   growth rates for the Electric Proxy Group and Bulkley Proxy Group are 4.9%/5.3%

990   and 5.4%/5.5%, respectively.[26]

991 **Q.** **PLEASE SUMMARIZE YOUR ANALYSIS OF THE HISTORICAL AND**

992   **PROSPECTIVE GROWTH OF THE PROXY GROUPS.**

993 A. Page 6 of Exhibit JRW-7 shows the summary DCF growth rate indicators for the proxy

994   groups.

995   The historical growth rate indicators for my Electric Proxy Group imply a

996   baseline growth rate of 4.5%. The average of the projected EPS, DPS, and BVPS

997   growth rates from *Value Line* is 4.8%, and *Value Line*'s projected sustainable growth

---

[26] Given the variation in the measures of central tendency of analysts' projected EPS growth rates for the proxy groups, I have considered both the means and medians figures in the growth rate analysis.

998   rate is 3.4%. The projected EPS growth rates of Wall Street analysts for the Electric

999   Proxy Group are 4.0% and 5.0% as measured by the mean and median growth rates.

1000   The overall range for the projected growth rate indicators (ignoring historical growth)

1001   is 3.4% to 5.3%. Giving primary weight to the projected EPS growth rate of Wall

1002   Street analysts, I believe that 5.0% is the appropriate growth rate for the Electric Proxy

1003   Group. This growth rate figure is at the upper end of the range of historic and projected

1004   growth rates for the Electric Proxy Group.

1005   For the Bulkley Proxy Group, the historical growth rate indicators indicate a

1006   growth rate of 4.9%. The average of the projected EPS, DPS, and BVPS growth rates

1007   from *Value Line* is 4.6%, and *Value Line*'s projected sustainable growth rate is 3.4%.

1008   The projected EPS growth rates of Wall Street analysts are 5.4% and 5.6% as

1009   measured by the mean and median growth rates. The overall range for the projected

1010   growth rate indicators is 3.4% to 5.6%. Again, giving primary weight to the projected

1011   EPS growth rate of Wall Street analysts, I believe that the appropriate DCF growth

1012   rate is in the 5.0% to 5.5% range. I will use the midpoint of this range, 5.25%, as the

1013   DCF growth rate for the Bulkley Proxy Group. Similar to the Electric Proxy Group,

1014   this growth rate figure is clearly in the upper end of the range of historic and projected

1015   growth rates for the Bulkley Proxy Group.

1016 Q.   **BASED ON THE ABOVE ANALYSIS, WHAT ARE YOUR INDICATED**

1017   **COMMON EQUITY COST RATES FROM THE DCF MODEL FOR THE**

1018   **PROXY GROUPS?**

1019 A.   My DCF-derived equity cost rates for the groups are summarized on page 1 of Exhibit

1020   JRW-7 and in Table 3 below.

1021
1022

Table 3
DCF-derived Equity Cost Rate/ROE

	Dividend Yield	1 + ½ Growth Adjustment	DCF Growth Rate	Equity Cost Rate
Electric Proxy Group	3.60%	1.02500	5.00%	8.70%
Bulkley Proxy Group	3.60%	1.02625	5.25%	8.95%

1023

1024   The result for my Electric Proxy Group is the 3.60% dividend yield, times the

1025   one and one-half growth adjustment of 1.0250, plus the DCF growth rate of 5.00%,

1026   which results in an equity cost rate of 8.70%. The result for the Bulkley Proxy Group

1027   is 8.95%, which includes a dividend yield of 3.60%, an adjustment factor of 1.02625,

1028   and a DCF growth rate of 5.25%.

1029

1030   **C.   Capital Asset Pricing Model**

1031
1032   Q.   **PLEASE DISCUSS THE CAPM.**

1033   A.   The CAPM is a risk premium approach to gauging a firm's cost of equity capital.

1034   According to the risk premium approach, the cost of equity is the sum of the interest

1035   rate on a risk-free bond (R_f) and a risk premium (RP), as in the following:

1036 $$k \quad = \quad R_f \quad + \quad RP$$

1037   The yield on long-term U.S. Treasury securities is normally used as R_f. Risk premiums

1038   are measured in different ways. The CAPM is a theory of the risk and expected returns

1039   of common stocks. In the CAPM, two types of risk are associated with a stock: firm-

1040   specific risk or unsystematic risk, and market or systematic risk, which is measured

1041   by a firm's beta. The only risk that investors receive a return for bearing is systematic

1042   risk.

1043   According to the CAPM, the expected return on a company's stock, which is

1044   also the equity cost rate (K), is expressed as:

1045 $$K = (R_f) + \beta * [E(R_m) - (R_f)]$$

1046   Where:

1047   • *K* represents the estimated rate of return on the stock;
1048   • $E(R_m)$ represents the expected rate of return on the overall stock market.
1049   Frequently, the S&P 500 is used as a proxy for the "market";
1050   • (R_f) represents the risk-free rate of interest;
1051   • $[E(R_m) - (R_f)]$ represents the expected equity or market risk premium—the
1052   excess rate of return that an investor expects to receive above the risk-free rate
1053   for investing in risky stocks; and
1054   • *Beta*—(ß) is a measure of the systematic risk of an asset.

1055   To estimate the required return or cost of equity using the CAPM requires three

1056   inputs: the risk-free rate of interest (R_f), the beta (ß), and the expected equity or market

1057   risk premium $[E(R_m) - (R_f)]$. R_f is the easiest of the inputs to measure – it is represented

1058   by the yield on long-term U.S. Treasury bonds. ß, the measure of systematic risk, is a

1059   little more difficult to measure because there are different opinions about what

1060   adjustments, if any, should be made to historical betas due to their tendency to regress

1061   to 1.0 over time. And finally, the most difficult input to measure is the expected equity

1062   or market risk premium $(E(R_m) - (R_f))$. I will discuss each of these inputs below.

1063   **Q.   PLEASE DISCUSS EXHIBIT JRW-8.**

1064   A.   Exhibit JRW-8 provides the summary results for my CAPM study. Page 1 shows the

1065   results, and the following pages contain the supporting data.

1066   **Q.   PLEASE DISCUSS THE RISK-FREE INTEREST RATE.**

1067   A.   The yield on long-term U.S. Treasury bonds has usually been viewed as the risk-free

1068   rate of interest in the CAPM. The yield on long-term U.S. Treasury bonds, in turn, has

1069   been considered to be the yield on U.S. Treasury bonds with 30-year maturities.

1070   Q.   **WHAT RISK-FREE INTEREST RATE ARE YOU USING IN YOUR CAPM?**

1071   A.   As shown on page 2 of Exhibit JRW-8, the yield on 30-year U.S. Treasury bonds has

1072   been in the 1.3% to 4.0% range over the 2013–2020 time period. The current 30-year

1073   Treasury yield is near the bottom of this range. Given the recent range of yields, I

1074   have chosen to use a yield toward the middle of the range as my risk-free interest rate.

1075   Therefore, I am using 2.50% as the risk-free rate, or R_f, in my CAPM. This rate is

1076   consistent with Duff & Phelps, who are also using 2.50% (see page 7 of Exhibit JRW-

1077   8.)[27].

1078   Q.   **DOES   YOUR   2.50%   RISK-FREE   INTEREST   RATE   TAKE   INTO**

1079   **CONSIDERATION FORECASTS OF HIGHER INTEREST RATES?**

1080   A.   No; it does not. As I stated before, forecasts of higher interest rates have been

1081   notoriously wrong for a decade. My 2.50% risk-free interest rate takes into account

1082   the range of interest rates in the past and effectively synchronizes the risk-free rate

1083   with the market risk premium. The risk-free rate and the market risk premium are

1084   interrelated in that the market risk premium is developed in relation to the risk-free

1085   rate. As discussed below, my market risk premium is based on the results of many

1086   studies and surveys that have been published over time. Therefore, my risk-free

1087   interest rate of 2.50% is effectively a normalized risk-free rate of interest.

1088   Q.   **WHAT BETAS ARE YOU EMPLOYING IN YOUR CAPM?**

---

[27]   https://www.duffandphelps.com/insights/publications/cost-of-capital.

1089   A.   Beta (ß) is a measure of the systematic risk of a stock. The market, usually taken to be

1090   the S&P 500, has a beta of 1.0. The beta of a stock with the same price movement as

1091   the market also has a beta of 1.0. A stock with price movement greater than that of the

1092   market, such as a technology stock, is riskier than the market and has a beta greater

1093   than 1.0. A stock with below average price movement, such as that of a regulated

1094   public utility, is less risky than the market and has a beta less than 1.0. Estimating a

1095   stock's beta involves running a linear regression of a stock's return on the market

1096   return.

1097   As shown on page 3 of Exhibit JRW-8, the slope of the regression line is the

1098   stock's ß. A steeper line indicates that the stock is more sensitive to the return on the

1099   overall market. This means that the stock has a higher ß and greater-than-average

1100   market risk. A less steep line indicates a lower ß and less market risk.

1101   Several online investment information services, such as Yahoo and Reuters,

1102   provide estimates of stock betas. Usually these services report different betas for the

1103   same stock. The differences are usually due to: (1) the time period over which ß is

1104   measured; and (2) any adjustments that are made to reflect the fact that betas tend to

1105   regress to 1.0 over time.

1106   Q.   **PLEASE DISCUSS THE RECENT CHANGE IN BETAS.**

1107   A.   I have traditionally used the betas as provided in the *Value Line Investment Survey*.

1108   As discussed above, the betas for utilities recently increased significantly as a result

1109   of the volatility of utility stocks during the stock market meltdown associated with

1110   the novel coronavirus in March. Utility betas as measured by *Value Line* have been

1111   in the 0.55 to 0.70 range for the past ten years. But utility stocks were much more

1112   volatile relative to the market in March and April of this year, and this resulted in an

1113   increase of above 0.30 to the average utility beta.

1114   *Value Line* defines their computation of beta as:[28]

1115
1116   Beta - A relative measure of the historical sensitivity of a stock's price to
1117   overall fluctuations in the New York Stock Exchange Composite Index. A
1118   Beta of 1.50 indicates a stock tends to rise (or fall) 50% more than the New
1119   York Stock Exchange Composite Index. The ''Beta coefficient'' is derived
1120   from a regression analysis of the relationship between weekly percent-age
1121   changes in the price of a stock and weekly percentage changes in the NYSE
1122   Index over a period of five years. In the case of shorter price histories, a
1123   smaller time period is used, but two years is the minimum. The Betas are
1124   adjusted for their long-term tendency to converge toward 1.00. Value Line
1125   then adjusts these Betas to account for their long-term tendency to converge
1126   toward 1.00.
1127

1128   However, there are several issues with *Value Line* betas:

1129   1. *Value Line* betas are computed using weekly returns, and the volatility of utility

1130   stocks during March was impacted by using weekly and not monthly returns. Yahoo

1131   Finance uses five years of monthly returns to compute betas, and Yahoo Finance's

1132   betas for utilities are lower than *Value Lin*e's'

1133   2. *Value Line* betas are computed using the New York Stock Exchange Index as the

1134   market. While about 3,000 stocks trade on the NYSE, most technology stocks are

1135   traded on the NASDAQ or over-the-counter market and not the NYSE. Technology

1136   stocks, which make up about 25% of the S&P 500, tend to be more volatile. If they

1137   were traded on the NYSE, they would increase the volatility of the measure of the

1138   market and thereby lower utility betas.

1139   3. Major vendors of CAPM betas such as Merrill Lynch, *Value Line*, and Bloomberg

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[28]   www.valueline.com

1140   publish adjusted betas. The so-called Blume adjustment cited by *Value Line* adjusts betas

1141   calculated using historical returns data to reflect the tendency of stock betas to regress

1142   toward 1.0 over time, which means that the Betas of typical low beta stocks tend to

1143   increase toward 1.0, and the betas of typical high beta stocks tend to decrease toward

1144   1.0.[29]

1145   The Blume adjustment procedure is:

1146   Regressed Beta = .67 * (Observed Beta) + 0.33

1147   For example, suppose a company has an observed past beta of 0.50. The regressed

1148   (Blume-adjusted) beta would be:

1149   Regressed Beta = .67 * (0.50) + 0.33 = 0.67

1150   Blume offered two reasons for betas to regress toward 1.0. First, he suggested it may be

1151   by-product of management's efforts to keep the level of firm's systematic risk close to

1152   that of the market. He also speculated that it results from the management's efforts to

1153   diversify through investment projects.

1154   However, there is an issue with using regressed betas for utilities. Specifically,

1155   a study by Michelfelder and Theodossiou investigated whether regressed Betas are

1156   appropriate for utilities.[30] Conceptually, Michelfelder and Theodossiou suggested that

1157   utilities are different from unregulated companies in several areas which may result in

1158   betas not regressing toward 1.0:[31]

1159   Being natural monopolies in their own geographic areas, public utilities
1160   have more influence on the prices of their product (gas and electricity)
1161   than other firms. The rate setting process provides public utilities with

---

[29]   M. Blume, "On the Assessment of Risk," *Journal of Finance*, March 1971.

[30]   Richard A. Michelfelder and Panayiotis Theodossiou, "Public Utility Beta Adjustment and Biased Costs of Capital in Public Utility Rate Proceedings," *The Electricity Journal*, November, 2013.

[31]   *Ibid*, p. 61.

1162   the opportunity to adjust prices of gas and electricity to recover the
1163   rising costs of fuel and other materials used in the transmission and
1164   distribution of electricity and gas.

1165   To test for a regression toward 1.0, the authors used monthly holding period total

1166 returns for 57 publicly traded U.S. public utilities for the period from January 1962 to

1167 December 2007 using 60, 84, 96, and 108 monthly returns over five different non-lapping

1168 periods. They also used alternative time periods and got similar results. The authors

1169 came to the following conclusion from their analysis of the data:[32]

1170   Major vendors of CAPM Betas such as Merrill Lynch, Value Line,
1171   and Bloomberg distribute Blume adjusted betas to investors. We have
1172   shown empirically that public utility betas do not have a tendency to
1173   converge to 1. Short-term Betas of public utilities follow a cyclical
1174   pattern with recent downward trends, then upward structural breaks
1175   with long-term betas following a downward trend.

1176 The authors concluded that utility betas converge to 0.59 as opposed to 1.0. The

1177 implication is that using regressed betas such as those from *Value Line* will result in

1178 an inflated expected return using the CAPM for electric utilities.

1179 **Q.** **GIVEN THIS DISCUSSION, WHAT BETAS ARE YOU USING IN YOUR**

1180 **CAPM?**

1181 A. As shown on page 3 of Exhibit JRW-8, the median *Value Line* beta for both the

1182 Electric and Bulkley Proxy Groups is 0.85. At this point, until I have studied utility

1183 betas in more depth, I will continue to use *Value Line* betas in my CAPM. I believe

1184 this is a conservative approach at this time.

1185 **Q.** **PLEASE DISCUSS THE MARKET RISK PREMIUM.**

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[32] *Ibid*, p. 67.

1186   A.   The market risk premium is equal to the expected return on the stock market (e.g., the

1187   expected return on the S&P 500, $E(R_m)$ minus the risk-free rate of interest (R_f)). The

1188   market risk premium is the difference in the expected total return between investing

1189   in equities and investing in "safe" fixed-income assets, such as long-term government

1190   bonds. However, while the market risk premium is easy to define conceptually, it is

1191   difficult to measure because it requires an estimate of the expected return on the

1192   market - $E(R_m)$. As is discussed below, there are different ways to measure $E(R_m)$, and

1193   studies have come up with significantly different magnitudes for $E(R_m)$. As Merton

1194   Miller, the 1990 Nobel Prize winner in economics indicated, $E(R_m)$ is very difficult to

1195   measure and is one of the great mysteries in finance.[33]

1196   **Q.   PLEASE DISCUSS THE ALTERNATIVE APPROACHES TO ESTIMATING**

1197   **THE MARKET RISK PREMIUM.**

1198   A.   Page 4 of Exhibit JRW-8 highlights the primary approaches to, and issues in,

1199   estimating the expected market risk premium. The traditional way to measure the

1200   market risk premium was to use the difference between historical average stock and

1201   bond returns. In this case, historical stock and bond returns, also called *ex post* returns,

1202   were used as the measures of the market's expected return (known as the *ex ante* or

1203   forward-looking expected return). This type of historical evaluation of stock and bond

1204   returns is often called the "Ibbotson approach" after Professor Roger Ibbotson, who

1205   popularized this method of using historical financial market returns as measures of

1206   expected returns. However, this historical evaluation of returns can be a problem

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[33]   Merton Miller, "The History of Finance: An Eyewitness Account," *Journal of Applied Corporate Finance*,
       2000, p. 3.

1207   because: (1) *ex post* returns are not the same as *ex ante* expectations; (2) market risk

1208   premiums can change over time, increasing when investors become more risk-averse

1209   and decreasing when investors become less risk-averse; and (3) market conditions can

1210   change such that *ex post* historical returns are poor estimates of *ex ante* expectations.

1211   The use of historical returns as market expectations has been criticized in

1212   numerous academic studies as discussed later in my testimony. The general theme of

1213   these studies is that the large equity risk premium discovered in historical stock and

1214   bond returns cannot be justified by the fundamental data. These studies, which fall

1215   under the category "*Ex Ante* Models and Market Data," compute *ex ante* expected

1216   returns using market data to arrive at an expected equity risk premium. These studies

1217   have also been called "Puzzle Research" after the famous study by Mehra and Prescott

1218   in which the authors first questioned the magnitude of historical equity risk premiums

1219   relative to fundamentals.[34]

1220   In addition, there are a number of surveys of financial professionals regarding

1221   the market risk premium, as well as several published surveys of academics on the

1222   equity risk premium. Duke University has published a CFO Survey on a quarterly

1223   basis for over ten years.[35] Questions regarding expected stock and bond returns are

1224   also included in the Federal Reserve Bank of Philadelphia's annual survey of financial

1225   forecasters, which is published as the *Survey of Professional Forecasters*.[36] This

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[34]   Rajnish Mehra & Edward C. Prescott, "The Equity Premium: A Puzzle," *Journal of Monetary Economics,* 145 (1985).

[35]   *The CFO Survey* (https://www.richmondfed.org/cfosurvey).

[36]   Federal Reserve Bank of Philadelphia*, Survey of Professional Forecasters* (February, 2020), https://www.philadelphiafed.org/-/media/research-and-data/real-time-center/survey-of-professional-forecasters/2019/spfq119.pdf?la=en. The Survey of Professional Forecasters was formerly conducted by the American Statistical Association ("ASA") and the National Bureau of Economic Research ("NBER") and

1226   survey of professional economists has been published for almost 50 years. In addition,

1227   Pablo Fernandez conducts annual surveys of financial analysts and companies

1228   regarding the equity risk premiums used in their investment and financial decision-

1229   making.[37]

1230   **Q.   PLEASE PROVIDE A SUMMARY OF THE MARKET RISK PREMIUM**

1231   **STUDIES.**

1232   A.   Derrig and Orr, Fernandez, and Song completed the most comprehensive reviews of

1233   the research on the market risk premium.[38] Derrig and Orr's study evaluated the

1234   various approaches to estimating market risk premiums, discussed the issues with the

1235   alternative approaches, and summarized the findings of the published research on the

1236   market risk premium. Fernandez examined four alternative measures of the market

1237   risk premium – historical, expected, required, and implied. He also reviewed the major

1238   studies of the market risk premium and presented the summary market risk premium

1239   results. Song provided an annotated bibliography and highlighted the alternative

1240   approaches to estimating the market risk premium.

1241   Page 5 of Exhibit JRW-8 provides a summary of the results of the primary risk

1242   premium studies reviewed by Derrig and Orr, Fernandez, and Song, as well as other

1243   more recent studies of the market risk premium. In developing page 5 of Exhibit JRW-

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was known as the ASA/NBER survey. The survey, which began in 1968, is conducted each quarter. The Federal Reserve Bank of Philadelphia, in cooperation with the NBER, assumed responsibility for the survey in June 1990.

[37] Pablo Fernandez, Apellániz, Eduardo & Acín, Javier. (2020). Survey: Market Risk Premium and Risk-Free Rate used for 81 countries in 2020. SSRN Electronic Journal. 10.2139/ssrn.3560869.

[38] *See* Richard Derrig & Elisha Orr, "Equity Risk Premium: Expectations Great and Small," Working Paper (version 3.0), Automobile Insurers Bureau of Massachusetts, (August 28, 2003); Pablo Fernandez, "Equity Premium: Historical, Expected, Required, and Implied," IESE Business School Working Paper, (2007); Zhiyi Song, "The Equity Risk Premium: An Annotated Bibliography," CFA Institute, (2007).

1244   8, I have categorized the types of studies as discussed on page 4 of Exhibit JRW-8. I

1245   have also included the results of studies of the "Building Blocks" approach to

1246   estimating the equity risk premium. The Building Blocks approach is a hybrid

1247   approach employing elements of both historical and *ex ante* models.

1248 **Q.   PLEASE DISCUSS PAGE 5 OF EXHIBIT JRW-8.**

1249 A.   Page 5 of Exhibit JRW-8 provides a summary of the results of the market risk premium

1250   studies that I have reviewed. These include the results of: (1) the various studies of the

1251   historical risk premium, (2) *ex ante* market risk premium studies, (3) market risk

1252   premium surveys of CFOs, financial forecasters, analysts, companies and academics,

1253   and (4) the Building Blocks approach to the market risk premium. There are results

1254   reported for over 30 studies, and the median market risk premium of these studies is

1255   4.83%.

1256 **Q.   PLEASE   HIGHLIGHT   THE   RESULTS   OF   MORE   RECENT   RISK**

1257 **PREMIUM STUDIES AND SURVEYS.**

1258 A.   The studies cited on page 5 of Exhibit JRW-8 include every market risk premium

1259   study and survey I could identify that was published over the past 15 years and that

1260   provided a market risk premium estimate. Many of these studies were published prior

1261   to the financial crisis that began in 2008. In addition, some of these studies were

1262   published in the early 2000s at the market peak. It should be noted that many of these

1263   studies (as indicated) used data over long periods of time (as long as 50 years of data)

1264   and so were not estimating a market risk premium as of a specific point in time (e.g.,

1265   the year 2001). To assess the effect of the earlier studies on the market risk premium,

1266   I have reconstructed page 5 of Exhibit JRW-8 on page 6 of Exhibit JRW-8; however,

1267   I have eliminated all studies dated before January 2, 2010. The median market risk

1268   premium estimate for this subset of studies is 5.13%.

1269   **Q.   PLEASE SUMMARIZE THE MARKET RISK PREMIUM STUDIES AND**

1270   **SURVEYS.**

1271   A.   As noted above, there are three approaches to estimating the market risk premium –

1272   historic stock and bond returns, ex ante or expected returns models, and surveys. The

1273   studies on page 6 of Exhibit JRW-8 can be summarized in the following manners:

1274   Historic Stock and Bond Returns - Historic stock and bond returns suggest a market

1275   risk premium in the 4.40% to 6.43% range, depending on whether one uses arithmetic

1276   or geometric mean returns.

1277   Ex Ante Models - Market risk premium studies that use expected or ex ante return

1278   models indicate a market risk premium in the range of 5.24% to 6.75%.

1279   Surveys - Market risk premiums developed from surveys of analysts, companies,

1280   financial professionals, and academics are lower, with a range from 3.36% to 5.70%.

1281   **Q.   PLEASE HIGHLIGHT THE EX ANTE MARKET RISK PREMIUM STUDIES**

1282   **AND   SURVEYS   THAT   YOU   BELIEVE   ARE   MOST   TIMELY   AND**

1283   **RELEVANT.**

1284   A.   I will highlight several studies/surveys.

1285   Pablo Fernandez conducts annual surveys of financial analysts and companies

1286   regarding the equity risk premiums used in their investment and financial decision-

1287   making.[39] His survey results are included on pages 5 and 6 of Exhibit JRW-8. The

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[39]   Pablo Fernandez, Vitaly Pershin, and Isabel Fernandez Acín, "Market Risk Premium and Risk-Free Rate
       used for 81 countries in 2020: a survey," *IESE Business School,* (Apr. 2020).

1288   results of his 2020 survey of academics, financial analysts, and companies, which

1289   included 4,000 responses, indicated a mean market risk premium employed by U.S.

1290   analysts and companies of 5.6%.[40] His estimated market risk premium for the U.S. has

1291   been in the 5.00%-5.60% range in recent years.

1292   Professor Aswath Damodaran of New York University, a leading expert on

1293   valuation and the market risk premium, provides a monthly updated market risk

1294   premium based on projected S&P 500 EPS and stock price level and long-term interest

1295   rates. His estimated market risk premium, shown graphically in Figure 5, below, for

1296   the past 20 years, has primarily been in the range of 5.0% to 6.0% since 2010. As of

1297   July, 2020, his estimate of the implied market risk premium was 5.65%.[41]
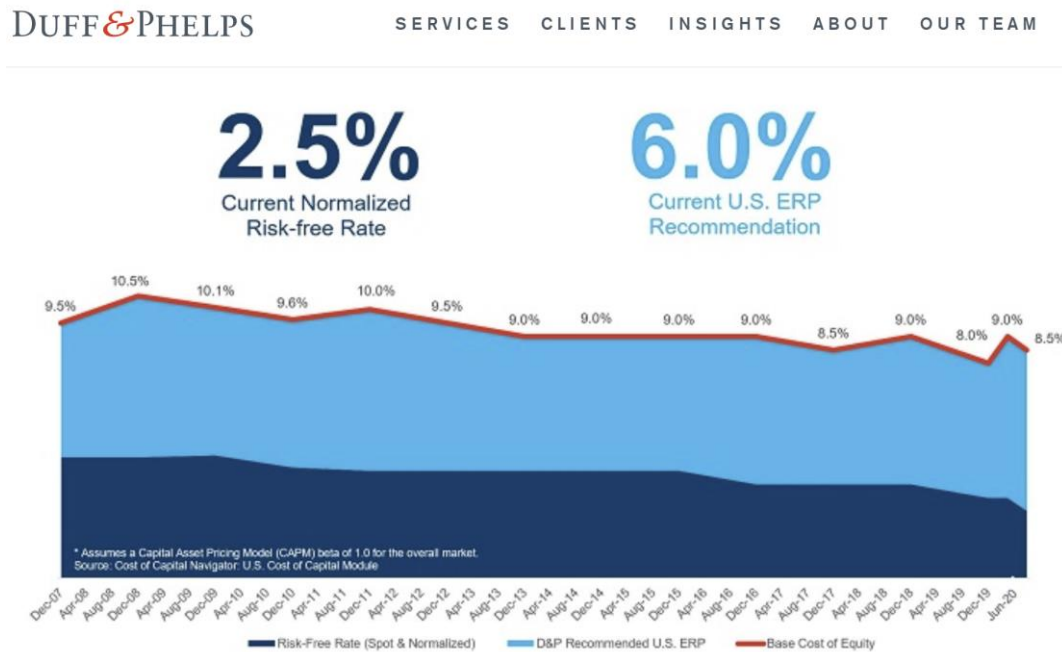
Figure 5
Damodaran Market Risk Premium

Source: http://pages.stern.nyu.edu/~adamodar/

1298

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[40]   *Ibid.* p. 3.

[41]   http://pages.stern.nyu.edu/~adamodar/.
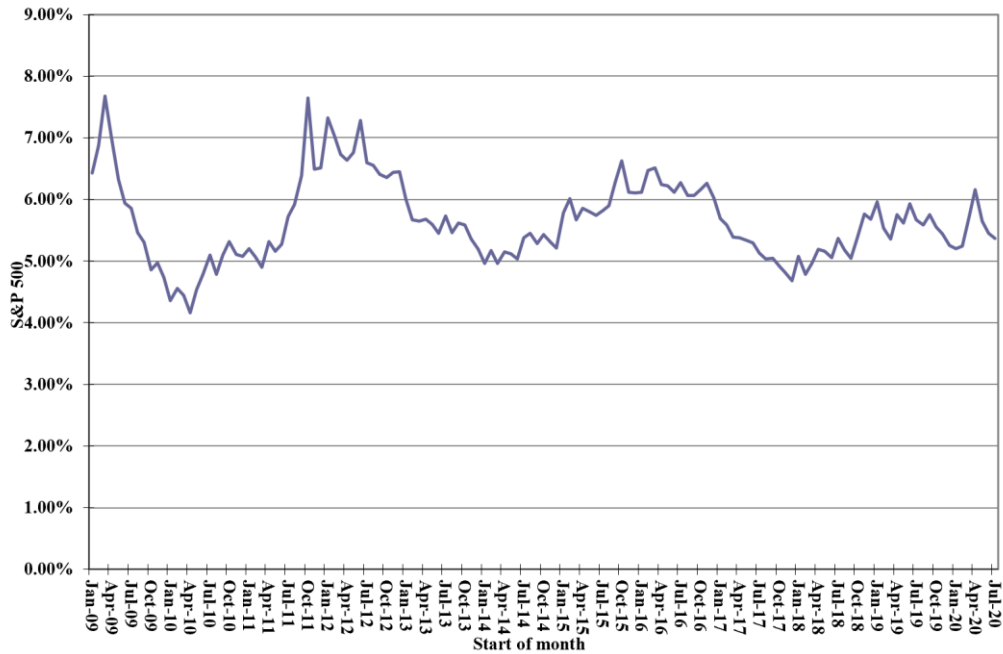
1299   Duff & Phelps, an investment advisory firm, provides recommendations for

1300   the normalized risk-free interest rate and market risk premiums to be used in

1301   calculating the cost of capital data. Its recommendations over the 2008-2020 time

1302   periods are shown on page 7 of Exhibit JRW-8 and are shown graphically in Figure 6.

1303   Over the past decade, Duff & Phelps' recommended normalized risk-free interest rates

1304   have been in the 2.50% to 4.00% and market risk premiums has been in the 5.0% to

1305   6.0% range. Most recently, in the wake of the novel coronavirus in 2020, Duff &

1306   Phelps decreased its recommended normalized risk-free interest rate from 3.0% to

1307   2.50% and increased its market risk premium from 5.00% to 6.00%.[42]

Figure 6
Duff & Phelps
Normalized Risk-Free Rate and Market Risk Premium Recommendations
2007-2020

1308
1309   Source: https://www.duffandphelps.com/insights/publications/cost-of-capital
1310

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[42]   Duff & Phelps, "U.S. Equity Risk Premium Recommendation," (June 30, 2020, https://www.duffandphelps.com/insights/publications/cost-of-capital.

1311

1312   Q.   GIVEN THESE RESULTS, WHAT MARKET RISK PREMIUM ARE YOU

1313   USING IN YOUR CAPM?

1314   A.   The studies on page 6 of Exhibit JRW-8, and more importantly the more timely and

1315   relevant studies just cited, suggest that the appropriate market risk premium in the U.S.

1316   is in the 4.0% to 6.0% range. I will use an expected market risk premium of 6.00%,

1317   which is in the upper end of the range, as the market risk premium. I gave most weight

1318   to the market risk premium estimates of Duff & Phelps, KPMG, the Fernandez survey,

1319   and Damodaran. This is a conservatively high estimate of the market risk premium

1320   considering the many studies and surveys of the market risk premium.

1321   Q.   WHAT EQUITY COST RATE IS INDICATED BY YOUR CAPM ANALYSIS?

1322   A.   The results of my CAPM study for the proxy groups are summarized on page 1 of

1323   Exhibit JRW-8 and in Table 4 below.

1324   **Table 4**
1325   **CAPM-Derived Equity Cost Rate/ROE**
1326 $K = (R_f) + ß * [E(R_m) - (R_f)]$

	Risk-Free Rate	Beta	Equity Risk Premium	Equity Cost Rate
Electric Proxy Group	2.50%	0.85	6.0%	7.6%
Bulkley Proxy Group	2.50%	0.85	6.0%	7.6%

1327

1328   For the Electric Proxy Group, the risk-free rate of 2.50% plus the product of the beta

1329   of 0.85 times the equity risk premium of 6.0% results in a 7.6% equity cost rate. For

1330   the Bulkley Proxy Group, the risk-free rate of 2.50% plus the product of the beta of

1331   0.85 times the equity risk premium of 6.0% results in a 7.6% equity cost rate.

1332

1333

1334   **C.   Equity Cost Rate Summary**

1335

1336   Q.   **PLEASE SUMMARIZE THE RESULTS OF YOUR EQUITY COST RATE**

1337   **STUDIES.**

1338   A.   My DCF analyses for the Electric Proxy Group and Bulkley Proxy Group indicate

1339   equity cost rates of 8.70% and 8.95%, respectively. The CAPM equity cost rates for

1340   the Electric Proxy Group and Bulkley Proxy Group are 7.60% and 7.60%.

1341   **Table 5**
1342   **ROEs Derived from DCF and CAPM Models**

	DCF	CAPM
Electric Proxy Group	8.70%	7.60%
Bulkley Proxy Group	8.95%	7.60%

1343

1344   Q.   **GIVEN THESE RESULTS, WHAT IS YOUR ESTIMATED EQUITY COST**

1345   **RATE FOR THE GROUPS?**

1346   A.   Given these results, I conclude that the appropriate equity cost rate for companies in

1347   the Electric and Bulkley Proxy Groups is in the 7.60% to 8.95% range. However,

1348   because I rely primarily on the DCF model and the results for the Electric Proxy

1349   Group, I am using a figure in the upper end of the range as the equity cost rate.

1350   Therefore, I conclude that the appropriate equity cost rate for the groups is 8.75%.

1351   Q.   **PLEASE   INDICATE   WHY   YOUR   EQUITY   COST   RATE**

1352   **RECOMMENDATION   IS   APPROPRIATE   FOR   THE   ELECTRIC**

1353   **OPERATIONS OF RMP?**

1354 A. There are a number of reasons why an equity cost rate of 8.75% is appropriate and fair

1355 for the Company in this case:

1356 1. I have employed a capital structure that includes more common equity (50.0%)

1357 than the Company's parent, BHE, as well as the average of the companies in the

1358 two proxy groups;

1359 2. As shown in Exhibits JRW-5, capital costs for utilities, as indicated by long-term

1360 bond yields, are still at historically low levels. In addition, given low inflationary

1361 expectations and slow global economic growth, interest rates are likely to remain

1362 at low levels for some time;

1363 3. As shown in Exhibit JRW-5, the electric utility industry is among the lowest risk

1364 industries in the U.S. as measured by beta. As such, the cost of equity capital for

1365 this industry is amongst the lowest in the U.S., according to the CAPM;

1366 4. The investment risk of RMP, as indicated by the Company's S&P and Moody's

1367 issuer credit ratings of A and A3, is below the average for the companies in the

1368 Electric and Bulkley Proxy Groups;

1369 As shown in Figure 3, the authorized ROEs for electric utility and gas

1370 distribution companies have declined in recent years. The authorized ROEs for

1371 electric utilities have declined from 10.01% in 2012, 9.8% in 2013, 9.76% in 2014,

1372 9.58% in 2015, 9.60% in 2016, 9.68% in 2017, 9.56% in 2018, 9.64% in of 2019, and

1373 9.47% in the first half of 2020, according to Regulatory Research Associates.[43] In my

1374 opinion, these authorized ROEs have lagged behind capital market cost rates, or in

1375 other words, authorized ROEs have been slow to reflect low capital market cost rates.

---

[43] S&P Global Market Intelligence, RRA *Regulatory Focus*, 2020.

1376   This has been especially true in recent years as some state commissions have been

1377   reluctant to authorize ROEs below 10%. However, the trend has been towards lower

1378   ROEs, and the norm now is below ten percent. Hence, I believe that my recommended

1379   ROE reflects the low capital cost rates in today's markets, and these low capital cost

1380   rates are finally being recognized by state utility commissions.

1381
1382

1383   **VI.   CRITIQUE OF RMP'S RATE OF RETURN TESTIMONY**

1384

1385   **Q.   PLEASE REVIEW THE COMPANY'S PROPOSED RATE OF RETURN.**

1386   A.   RMP witness Ms. Nikki L. Kobliha recommends a capital structure consisting of

1387   46.32% long-term debt, 0.01% preferred stock and 53.67% common equity, and long-

1388   term debt and preferred stock cost rates of 4.81% and 6.75%. RMP witness Ms. Ann

1389   E. Bulkley has recommended a common equity cost rate of 10.20% for RMP. The

1390   Company's overall proposed rate of return is 7.70%. This is summarized on page 1 of

1391   Exhibit JRW-9.

1392   **Q.   WHAT ARE THE PRIMARY AREAS OF DISAGREEMENT IN**

1393   **ESTIMATING THE RATE OF RETURN OR COST OF CAPITAL IN THIS**

1394   **PROCEEDING?**

1395   A.   The primary issues related to the Company's rate of return include the following:

1396   Capital Structure - The Company has proposed a capital structure that includes a

1397   common equity ratio of 53.67%. This capital structure includes a higher common

1398   equity ratio than the Company's parent, BHE, and the average common equity ratios

1399   employed by the two proxy groups;

1400   <u>Capital Market Conditions</u> – Ms. Bulkley's analyses, ROE results, and

1401   recommendations are based on assumptions of higher interest rates and capital costs.

1402   However, interest rates and capital costs remained at low levels in recent years. In

1403   2019, interest rates fell due to slow economic growth and low inflation and, as

1404   discussed in above, interest rates have fallen even further to record low levels in 2020

1405   due to the impact of the novel coronavirus on the world's population and economy.

1406   <u>RMP's Investment Risk is Below the Averages of the Two Proxy Groups</u> –RMP's

1407   S&P and Moody's credit ratings of A and A3 are better that the averages of the proxy

1408   groups, which indicates the Company is a less risky than the groups.

1409   <u>DCF Approach</u> – Ms. Bulkley and I have both employed the traditional constant-

1410   growth DCF model. Ms. Bulkley's analysis has seriously overstated her reported DCF

1411   results in four ways: (1) she selectively eliminated low-end DCF results; (2) she has

1412   exclusively used the overly optimistic and upwardly biased EPS growth rate forecasts

1413   of Wall Street analysts and *Value Line*; and (3) she has created her own new version

1414   of the DCF model – the projected constant-growth DCF model - in which she projects

1415   DCF inputs into the future; and (4) she has claimed that the DCF results underestimate

1416   the market-determined cost of equity capital due to high utility stock valuations and

1417   low dividend yields.

1418   <u>CAPM Approach</u> – The CAPM approach requires an estimate of the risk-free interest

1419   rate, beta, and the market or risk premium. There are three issues with Ms. Bulkley's

1420   CAPM analysis: (1) her long-term projected (3.20%) 30-year Treasury yields are well

1421   in excess of current market yields; (2) she has employed the Empirical CAPM

1422   ("ECAPM") version of the CAPM, which makes inappropriate adjustments to the risk-

1423   free rate and the market risk premium; and (3) most significantly, she has computed a

1424   market risk premium of 12.49%. The 12.49% market risk premium is much larger

1425   than: (1) indicated by historic stock and bond return data; and (2) found in the

1426   published studies and surveys of the market risk premium. In addition, I demonstrate

1427   that the 12.49% market risk premium is based on totally unrealistic assumptions of

1428   future economic and earnings growth and stock returns. To compute her market risk

1429   premium, Ms. Bulkley has applied the DCF to the S&P 500 and employed analysts'

1430   three-to-five-year earnings per share ("EPS") growth-rate projections as a growth rate

1431   to compute an expected market return and market risk premium. As I demonstrate

1432   later in my testimony, the EPS growth-rate projection used for the S&P 500 and the

1433   resulting expected market return and market risk premium include totally unrealistic

1434   assumptions regarding future economic and earnings growth and stock returns.

1435   Alternative Risk Premium Model - Ms. Bulkley also estimates an equity cost rate

1436   using an alternative risk premium model which she calls the Bond Yield Risk Premium

1437   ("BYRP") approach. There are two issues with this approach: (1) the base interest

1438   rates; and (2) the risk premium. With respect to the base rates, her current long-term

1439   projected (3.20%) 30-year Treasury rates yields are well in excess of current market

1440   yields (1.40%). The risk premium in her BYRP method is based on the historical

1441   relationship between the yields on long-term Treasury yields and authorized ROEs for

1442   electric utility companies. There are several issues with this approach: (1) This

1443   approach is a gauge of commission behavior and not investor behavior. Capital costs

1444   are determined in the market place through the financial decisions of investors and are

1445   reflected in such fundamental factors as dividend yields, expected growth rates,

1446   interest rates, and investors' assessment of the risk and expected return of different

1447   investments; (2) Ms. Bulkley's methodology produces an inflated measure of the risk

1448   premium because her approach uses historical authorized ROEs and Treasury yields, and

1449   the resulting risk premium is applied to projected Treasury yields; and (3) the risk

1450   premium is inflated as a measure of investor's required risk premium, because electric

1451   utility companies have been selling at market-to-book ratios in excess of 1.0. This

1452   indicates that the authorized rates of return have been greater than the return that

1453   investors require.

1454   Expected Earnings Approach - Ms. Bulkley also uses the Expected Earnings approach

1455   to estimate an equity cost rate for the Company. Ms. Bulkley computes the expected

1456   ROE as forecasted by *Value Line* for her proxy group of electric utilities. As I discuss

1457   in my critique of Ms. Bulkley's presentation, the so-called "Expected Earnings"

1458   approach does not measure the market cost of equity capital, is independent of most

1459   cost of capital indicators, ignores the research on the upward bias in *Value Line*'s

1460   earnings projections, and has several other empirical issues. Therefore, the

1461   Commission should ignore Ms. Bulkley's "Expected Earnings" approach in

1462   determining the appropriate ROE for RMP.

1463   Regulatory and Business Risk Factors - Ms. Bulkley also considers several other risk

1464   factors in arriving at her 10.20% ROE recommendation. She claims that: (1) RMP's

1465   higher than average capital expenditures increase its risk relative to the proxy utility

1466   companies: (2) RMP's regulatory risk of high due to operating in Utah; (3) RMP's

1467   generation ownership and fuel sources make it riskier than other utilities. Ms.

1468   Bulkley's conclusion that these factors make RMP riskier are erroneous. Each of these

1469   three factors are risk factors are already considered in the credit-rating process used

1470   by major rating agencies. As I noted above, the S&P and Moody's issuer credit ratings

1471   for RMP of A and A3 indicate that the Company is less risky than the electric utilities

1472   in the proxy groups. In addition, in terms of Utah regulatory risk, Ms. Bulkley claims

1473   that Utah ROEs are below those of other states. This is erroneous. For example, the

1474   Commission approved a ROE of 9.50% for the gas distribution operations of

1475   Dominion Energy of Utah in February of this year. This compares to a national

1476   average gas distribution ROE of 9.40% in 2020.[44]

1477   **Q.   PLEASE REVIEW MS. BULKLEY'S EQUITY COST RATE APPROACHES**

1478   **AND RESULTS.**

1479   A.   Ms. Bulkley has developed a proxy group of electric utility companies and employs DCF,

1480   CAPM, and Bond Yield Risk Premium ("BYRP") equity cost rate approaches. Ms.

1481   Bulkley's equity cost rate estimates for RMP are summarized on page 2 Exhibit JRW-

1482   9. Based on these figures, she concludes that the appropriate equity cost rate is 10.2%

1483   for RMP's electric utility operations.

1484

1485   **A.   DCF Approach**

1486

1487   **Q.   PLEASE SUMMARIZE MS. BULKLEY'S DCF ESTIMATES.**

1488   A.   On pages 44-50 of her testimony and in Exhibits RMP__(AEB-4) 4 and 5, Ms. Bulkley

1489   develops an equity cost rate by applying the DCF model to her electric group. Ms.

1490   Bulkley's DCF results are summarized on page 2 of Exhibit JRW-9. In the traditional

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[44]   S&P Global Market Intelligence, RRA *Regulatory Focus*, 2020.

1491   DCF approach, the equity cost rate is the sum of the dividend yield and expected growth.

1492   Ms. Bulkley uses three dividend yield measures (30, 90, and 180 days) in her DCF

1493   models. In her constant-growth DCF models, Ms. Bulkley has relied on the forecasted

1494   EPS growth rates of Zacks, Yahoo Finance, and *Value Line*. The average of the mean

1495   DCF results, as reported by Ms. Bulkley, is 8.93% for her electric group. She also

1496   develops and "considers the results" of a new, so-called projected Constant-growth

1497   DCF model. In this approach, she uses *Value Line*'s projected stock prices and

1498   dividends for her proxy group companies, and the five-year forecasted EPS growth

1499   rates of Zacks, Yahoo, and *Value Line*. While she gives no indication what she

1500   considered in the results or the weight given them, this approach increases her mean

1501   DCF results by 50 to 75 basis points.

1502   **Q.**   **WHAT ARE THE ERRORS IN MS. BULKLEY'S DCF ANALYSES?**

1503   A.   The primary issues in Ms. Bulkley's DCF analyses are: (1) she selectively eliminated

1504   low-end DCF results; (2) she exclusively used the overly optimistic and upwardly

1505   biased EPS growth rate forecasts of Wall Street analysts and *Value Line*; (3) she

1506   created her own new version of the DCF model – the so-called projected constant-

1507   growth DCF model - in which she projects DCF inputs into the future; and (4) she has

1508   claimed that the DCF results underestimate the market-determined cost of equity

1509   capital due to high utility stock valuations and low dividend yields.

1510
1511   1.   The Asymmetric Elimination of Low End DCF Results
1512
1513
1514   **Q.**   **HOW HAS MS. BULKLEY ELIMINATED LOW-END DCF RESULTS?**

1515   A.   Ms. Bulkley has eliminated all DCF results below 7.0% because she believes that they

1516   are too low. This results in an overstatement of her DCF results. By eliminating low-

1517   end outliers while keeping the same number of high-end outliers, Ms. Bulkley biases her

1518   DCF equity cost rate study and reports a higher DCF equity cost rate than the data

1519   indicate. This is magnified by her small proxy group. In addition, selectively eliminating

1520   individual DCF results creates a statistical problem. The problem is that the DCF cost of

1521   equity estimates are measured with error, most likely due to the growth rate estimates.

1522   In statistics, this is the well-known errors-in-variables ("EIV") problem.   The EIV

1523   problem results from incorrectly measured dependent variables (in this case, the DCF

1524   equity cost rate estimates) in a regression model. Errors in measuring the dependent

1525   variable (the growth rates) are incorporated in the error term in the regression which

1526   cause no problems. However, when an independent variable is measured with error, this

1527   error appears in both the regressor variable and in the error term of the regression

1528   model.[45] The typical way to address this issue is to group the data to mitigate the EIV

1529   problem. And that is why, in estimating an equity cost rate, we use a proxy group and

1530   employ the means or medians for the entire group. The presumption in using such an

1531   approach is that the measurement errors for the individual companies in the group will

1532   average out, and therefore the results of the entire group are a meaningful measure for

1533   the cost of equity capital, but not the individual company results.

1534   Q.   **DOES MS. BULKLEY'S DCF ROE ELIMINATION IMPACT HER REPORTED**

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[45]   G.S.Maddala and M.Nimalendran, "Errors-in-Variables Problems in Financial Models," *Handbook of Statistics*, Volume 14, 1996, Pages 507-528.

1535   **DCF RESULTS?**

1536   A.   Yes.   Beyond the statistical problems discussed above, Ms. Bulkley's asymmetric

1537   elimination of low-end DCF results significantly impacts her reported DCF results.

1538   Table 5 shows Ms. Bulkley's mean DCF results with and without the low-end

1539   eliminations.   The reported results, with eliminations, produces an average ROE of

1540   8.93% as opposed to the actual DCF results, without eliminations, with an average ROE

1541   of 8.59%, a 34 basis point difference.

Table 6
Mean Bulkley DCF Results
With and Without Low-End Eliminations

DCF Model	Mean DCF ROE	
	W/ Eliminations	W/O Eliminations
30-Day	9.01%	8.75%
90-Day	8.89%	8.51%
180-Day	8.89%	8.52%
Average	8.93%	8.59%

1545

1546
1547   2.   Analysts' EPS Growth Rate Forecasts

1548

1549   **Q.   PLEASE DISCUSS MS. BULKLEY'S EXCLUSIVE RELIANCE ON THE**

1550   **PROJECTED GROWTH RATES OF WALL STREET ANALYSTS AND**

1551   ***VALUE LINE.***

1552   A.   It seems highly unlikely that investors today would rely exclusively on the EPS growth

1553   rate forecasts of Wall Street analysts and ignore other growth rate measures in arriving

1554   at their expected growth rates for equity investments.   As I previously indicated, the

1555   appropriate growth rate in the DCF model is the dividend growth rate, not the earnings

1556   growth rate.   Hence, consideration must be given to other indicators of growth,

1557   including historical prospective dividend growth, internal growth, as well as projected

1558   earnings growth. In addition, a recent study by Lacina, Lee, and Xu (2011) has shown

1559   that analysts' long-term earnings growth rate forecasts are not more accurate at

1560   forecasting future earnings than naïve random walk forecasts of future earnings.[46] As

1561   such, the weight given to analysts' projected EPS growth rates should be limited. And

1562   finally, and most significantly, it is well-known that the long-term EPS growth rate

1563   forecasts of Wall Street securities analysts are overly optimistic and upwardly

1564   biased.[47] Hence, using these growth rates as a DCF growth rate produces an overstated

1565   equity cost rate. A recent study by Easton and Sommers (2007) found that optimism

1566   in analysts' earnings growth rate forecasts leads to an upward bias in estimates of the

1567   cost of equity capital of almost 3.0 percentage points.[48] Therefore, exclusive reliance

1568   on these forecasts for a DCF growth rate results in failure of one the basic inputs in

1569   the equation. In addition, as noted above, a study by Szakmary, Conover, and

1570   Lancaster (2008) discovered the three-to-five-year EPS growth rate forecasts of *Value*

1571   *Line* to be significantly higher than the EPS growth rates that these companies

1572   subsequently achieved.[49]

1573 **Q.**   **HAVE   CHANGES   IN   REGULATIONS   IMPACTING   WALL   STREET**

1574   **ANALYSTS AND THEIR RESEARCH IMPACTED THE UPWARD BIAS IN**

1575   **THEIR PROJECTED EPS GROWTH RATES?**

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[46]   M. Lacina, B. Lee and Z. Xu, *Advances in Business and Management Forecasting (Vol. 8),* Kenneth D. Lawrence, Ronald K. Klimberg (ed.), Emerald Group Publishing Limited, pp.77-101

[47]   See references in footnote No. 14.

[48]   Easton, P., & Sommers, G. (2007). Effect of analysts' optimism on estimates of the expected rate of return implied by earnings forecasts. *Journal of Accounting Research*, 45(5), 983–1015.

[49]   Szakmary, A., Conover, C., & Lancaster, C. (2008). "An Examination of *Value Line*'s Long-Term Projections," *Journal of Banking & Finance*, May 2008, pp. 820-833.

1576   A.   No. A number of the studies I have cited above demonstrate that the upward bias has

1577   continued despite changes in regulations and reporting requirements over the past two

1578   decades. This observation is highlighted by a 2010 McKinsey study entitled "Equity

1579   Analysts: Still Too Bullish," which involved a study of the accuracy of analysts' long-

1580   term EPS growth rate forecasts. The authors conclude that after a decade of stricter

1581   regulation, analysts' long-term earnings forecasts continue to be excessively

1582   optimistic. They made the following observation:[50]

1583   Alas, a recently completed update of our work only reinforces
1584   this view—despite a series of rules and regulations, dating to
1585   the last decade, that were intended to improve the quality of the
1586   analysts' long-term earnings forecasts, restore investor
1587   confidence in them, and prevent conflicts of interest. For
1588   executives, many of whom go to great lengths to satisfy Wall
1589   Street's expectations in their financial reporting and long-term
1590   strategic moves, this is a cautionary tale worth remembering.
1591   This pattern confirms our earlier findings that analysts typically
1592   lag behind events in revising their forecasts to reflect new
1593   economic conditions. When economic growth accelerates, the
1594   size of the forecast error declines; when economic growth
1595   slows, it increases. So as economic growth cycles up and down,
1596   the actual earnings S&P 500 companies report occasionally
1597   coincide with the analysts' forecasts, as they did, for example,
1598   in 1988, from 1994 to 1997, and from 2003 to 2006. *Moreover,*
1599   *analysts have been persistently overoptimistic for the past 25*
1600   *years, with estimates ranging from 10 to 12 percent a year,*
1601   *compared with actual earnings growth of 6 percent. Over this*
1602   *time frame, actual earnings growth surpassed forecasts in only*
1603   *two instances, both during the earnings recovery following a*
1604   *recession. On average, analysts' forecasts have been almost*
1605   *100 percent too high.*
1606

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[50]   Marc H. Goedhart, Rishi Raj, and Abhishek Saxena, "Equity Analysts, Still Too Bullish," *McKinsey on Finance*, pp. 14-17, (Spring 2010) (emphasis added).

1607   This is the same observation made in a *Bloomberg Businessweek* article.[51] The author

1608   concluded:

1609
1610   **The bottom line:** *Despite reforms intended to improve Wall*
1611   *Street research, stock analysts seem to be promoting an overly*
1612   *rosy view of profit prospects.*
1613
1614
1615   3. Projected DCF Model

1616

1617 **Q.   PLEASE DISCUSS MS. BULKLEY'S PROJECTED DCF APPROACH.**

1618 A.   Ms. Bulkley also has developed and employed an entirely new and novel DCF approach

1619   - the so-called projected constant-growth DCF model. In this model, she (1) computes

1620   a dividend yield using *Value Line*'s projected stock price and dividends for the proxy

1621   companies for the three-to-five year period; and (2) adds the current forecasted EPS

1622   growth rates of Zacks, Yahoo, and *Value Line*.

1623 **Q.   WHAT ARE THE ERRORS WITH MS. BULKLEY'S PROJECTED DCF**

1624   **APPROACH?**

1625 A.   First, it is a totally new approach, created and used only by Ms. Bulkley. It is not a

1626   generally accepted equity cost rate model. Second, it involves a mismatch of data. She

1627   uses the projected stock price and dividends for three-to-five years in the future, and

1628   then she adds the projected EPS growth rate from 2019. Her new approach produces

1629   her highest DCF results.

1630

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[51]   Roben Farzad, "For Analysts, Things Are Always Looking Up," *Bloomberg Businessweek* (June 10, 2010),
        https://www.bloomberg.com/news/articles/2010-06-10/for-analysts-things-are-always-looking-up.

1631

1632   4. The DCF Model Understates the Cost of Equity Capital
1633

1634 **Q.   PLEASE DISCUSS MS. BULKLEY'S CLAIM THAT THE DCF MODEL**

1635   **UNDERSTATES THE COST OF EQUITY CAPITAL.**

1636 A.   On page 24-8 of her testimony, Ms. Bulkley makes the claim that using current utility

1637   stock valuations and low dividend yields will underestimate the market-determined

1638   ROE using the DCF model.

1639 **Q.   WHAT IS YOUR RESPONSE TO THIS CLAIM?**

1640 A.   Ms. Bulkley's claim is totally without merit for the following reasons: (1) she is saying

1641   that utility stocks are overvalued, and their stock prices will decline in the future (and

1642   therefore their dividend yield will increase). Hence, Ms. Bulkley presumes that she

1643   knows more than investors in the stock market. Actually, if she believes that utility

1644   stock prices will decline in the future, she should be forecasting negative returns. (2),

1645   Ms. Bulkley's CAPM results are highly dependent on her selection of a market risk

1646   premium which, as discussed above, is one of the great mysteries in finance.

1647

1648   **B.   CAPM Approach**

1649

1650 **Q.   PLEASE DISCUSS MS. BULKLEY'S CAPM.**

1651 A.   On pages 50-5 of her testimony and in Exhibit RMP__(AEB-4)-6, Ms. Bulkley develops

1652   an equity cost rate by applying the CAPM model to her electric proxy group. Ms.

1653   Bulkley's DCF results are summarized on page 2 of Exhibit JRW-9. Ms. Bulkley

1654   develops an equity cost rate by using not only the traditional CAPM, but also the so-

1655   called Empirical CAPM ("ECAPM") model for her electric proxy group. The ECAPM

1656   is a variant of the traditional CAPM. The CAPM/ECAPM approach requires an

1657   estimate of the risk-free interest rate, Beta, and the equity risk premium. Ms. Bulkley

1658   uses: (1) current (1.56%), near-term projected (1.80%), and long-term projected (3.20%)

1659   30-year Treasury yields; (2) betas from *Value Line* and Bloomberg; and (3) a market

1660   risk premium of 12.49%. Based on these figures, she finds CAPM/ECAPM equity

1661   cost rates ranging from 8.49% to 12.30%.

1662 **Q. WHAT ARE THE ERRORS IN MS. BULKLEY'S CAPM/ECAPM ANALYSES?**

1663 A.   The primary errors with Ms. Bulkley's CAPM/ECAPM analyses are: (1) the use of the

1664   ECAPM version of the CAPM; (2) the projected risk-free interest rate of 3.2%; and

1665   (3) the expected market risk premium 12.49%. As I explain below and in Appendix B,

1666   the use of a 12.49% MRP is a very serious error.

1667

1668   1.   <u>ECAPM Approach</u>

1669

1670 **Q. WHAT ISSUES DO YOU HAVE WITH MS. BULKLEY'S ECAPM?**

1671 A.   In addition to the CAPM, Ms. Bulkley has employed a variation of the CAPM which

1672   she calls the "ECAPM." The ECAPM, as popularized by rate of return consultant Dr.

1673   Roger Morin, attempts to model the well-known finding of tests of the CAPM that

1674   have indicated the Security Market Line ("SML") is not as steep as predicted by the

1675   CAPM. As such, the ECAPM is nothing more than an ad hoc version of the CAPM.

1676   Moreover, the ECAPM has not been theoretically or empirically validated in refereed

1677   journals. The ECAPM provides for weights which are used to adjust the risk-free rate

1678   and market risk premium in applying the ECAPM. Ms. Bulkley uses 0.25 and 0.75

1679   factors to boost the equity risk premium measure, but provides no empirical justification

1680   for those figures.

1681   Beyond the lack of any theoretical or empirical validation of the ECAPM, there

1682   are two errors in Ms. Bulkley's version of the ECAPM: (1) I am not aware of any tests

1683   of the CAPM that use adjusted betas such as those used by Ms. Bulkley; and (2)

1684   adjusted betas, which were previously discussed, address the empirical issues with the

1685   CAPM because adjusting low (high) beta stock increases (decreases) the adjusted beta,

1686   thereby increasing the expected returns for low beta stocks and decreasing the

1687   expected returns for high beta stocks.

1688

1689   2. The Projected Risk-Free Interest Rate

1690

1691 **Q.**   **PLEASE DISCUSS THE BASE YIELD OF MS. BULKLEY'S CAPM/ECAPM**

1692   **ANALYSIS.**

1693 A.   Ms. Bulkley uses a long-term projected risk-free interest rate of 3.2% in her

1694   CAPM/ECAPM. This figure is almost 200 basis points above the current yield on

1695   long-term Treasury bonds of 1.4%. Investors would not be buying long-term Treasury

1696   bonds at their current yields if they expected the yields on these bonds to increase from

1697   100 to 200 basis points in the next year or two. Such a move in interest rates would

1698   result in a capital loss of over 20%. Investors do not buy long-term Treasury bonds

1699   or any other investment if they expect to receive a negative return.

1700

1701   3. Market Risk Premium

1702

1703   **Q.   PLEASE ASSESS MS. BULKLEY'S MARKET RISK PREMIUMS DERIVED**

1704   **FROM APPLYING THE DCF MODEL TO THE S&P 500.**

1705   A.   A very serious problem with Ms. Bulkley's CAPM analysis is the magnitude of the

1706   market (or equity) risk premium – which she uses to produce very high ROE results, as

1707   high as 12.30%[52]. Ms. Bulkley develops an expected market risk premium by: (1)

1708   applying the DCF model to the S&P 500 to get an expected market return; and (2)

1709   subtracting the risk-free rate of interest. Ms. Bulkley's estimated market return of

1710   14.05% for the S&P 500 equals the sum of the dividend yield of 2.31% and expected

1711   EPS growth rate of 11.60%. The expected EPS growth rate is the average of the

1712   expected EPS growth rates from IBES, Zacks, and *Value Line*. The primary error in

1713   this approach is Ms. Bulkley's expected DCF growth rate. As previously discussed,

1714   the expected EPS growth rates of Wall Street analysts are upwardly biased.   In

1715   addition, as explained below, the projected growth rate is inconsistent with actual

1716   economic and earnings growth rates in the U.S.

1717   **Q.   INITIALLY, PLEASE PROVIDE ADDITIONAL INSIGHTS INTO THE**

1718   **EXPECTED STOCK MARKET RETURN OF 14.05%.**

1719   A.   Simply put, the assumption of a 14.05% expected stock market return is simply

1720   excessive and unrealistic. The compounded annual return in the U.S. stock market is

1721   about 10% (9.71% according to Damodaran between 1928-2019).[53] Ms. Bulkley's

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[52]   See Exhibit AEB-2.

[53]   http://pages.stern.nyu.edu/~adamodar/.

1722   CAPM results assume that return on the U.S. stock market will be more than 40%

1723   higher in the future than it has been in the past! The extremely high expected stock

1724   market return, and the resulting market risk premium and equity cost rate results, is

1725   directly related to computing the expected stock market return (14.05%) as the sum of

1726   the adjusted dividend yield (2.45%) plus the expected EPS growth rate (11.60%).

1727   **Q.   PLEASE ONCE AGAIN ADDRESS THE ISSUES WITH ANALYSTS' EPS**

1728   **GROWTH RATE FORECASTS.**

1729   A.   The key point is that Ms. Bulkley's CAPM market risk premium methodology is based

1730   entirely on the concept that analyst projections of companies' three-to-five EPS

1731   growth rates reflect investors' expected *long-term* EPS growth for those companies.

1732   However, this seems highly unrealistic given the published research on these

1733   projections. As previously noted, numerous studies have shown that the long-term

1734   EPS growth rate forecasts of Wall Street securities analysts are overly optimistic and

1735   upwardly biased.[54] Moreover, as discussed above, the Lacina, Lee and Xu study

1736   showed that analysts' forecasts of EPS growth over the next three-to-five years

1737   earnings are no more accurate than their forecasts of the next single year's EPS growth

1738   (and the single year forecasts are notoriously inaccurate). The overly-optimistic

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[54] Such studies include: R.D. Harris, "The Accuracy, Bias, and Efficiency of Analysts' Long Run Earnings Growth Forecasts," *Journal of Business Finance & Accounting*, pp. 725-55 (June/July 1999); P. DeChow, A. Hutton, and R. Sloan, "The Relation Between Analysts' Forecasts of Long-Term Earnings Growth and Stock Price Performance Following Equity Offerings," *Contemporary Accounting Research* (2000); K. Chan, L., Karceski, J., & Lakonishok, J., "The Level and Persistence of Growth Rates," *Journal of Finance,* pp. 643−684, (2003); M. Lacina, B. Lee, and Z. Xu, *Advances in Business and Management Forecasting (Vol. 8),* Kenneth D. Lawrence, Ronald K. Klimberg (ed.), Emerald Group Publishing Limited, pp.77-101 (2011).

1739   inaccuracy of analysts' growth rate forecasts leads to an upward bias in equity cost

1740   estimates that has been estimated at about 300 basis points.[55]

1741 **Q.   IS MS. BULKLEY'S MARKET RISK PREMIUM OF 12.49% REFLECTIVE**

1742   **OF THE MARKET RISK PREMIUMS FOUND IN STUDIES AND SURVEYS**

1743   **OF THE MARKET RISK PREMIUM?**

1744 A.   This figure is well in excess of market risk premiums: (1) found in studies of the

1745   market risk premiums by leading academic scholars; (2) produced by analyses of

1746   historic stock and bond returns; and (3) found in surveys of financial professionals.

1747   Page 6 of Exhibit JRW-8 provides the results of over thirty market risk premiums

1748   studies from the past fifteen years. Historic stock and bond returns suggest a market

1749   risk premium in the 4.40-6.43% range, depending on whether one uses arithmetic or

1750   geometric mean returns. There have been many studies using expected return (also

1751   called *ex ante*) models, and their market risk premiums results vary from as low as

1752   5.24% to as high as 6.0%. Finally, the market risk premiums developed from surveys

1753   of analysts, companies, financial professionals, and academics suggest even

1754   potentially lower market risk premiums, in a range of from 3.36% to 6.75%. The

1755   bottom line is that there is no support in historic return data, surveys, academic studies,

1756   or reports for investment firms for a market risk premium as high as the 12.49% used

1757   by Ms. Bulkley.

1758 **Q.   IS A PROJECTED EPS GROWTH RATE OF 11.60%, WHICH MS.**

1759   **BULKLEY USES TO COMPUTE HER MARKET RISK PREMIUM OF**

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[55]   Peter D. Easton & Gregory A. Sommers, "Effect of Analysts' Optimism on Estimates of the Expected Rate
         of Return Implied by Earnings Forecasts," 45, *Journal of Accounting Research*, pp. 983–1015 (2007).

1760   **12.49%, REASAONABLE GIVEN THE PROJECTED GROWTH IN U.S.**

1761   **GDP?**

1762 A.   No. This issue is addressed in depth in Appendix B. But the simple answer is that a

1763   long-term EPS growth rate of 11.60% is inconsistent with both historic and projected

1764   economic and earnings growth in the U.S. for several reasons: (1) long-term EPS and

1765   economic growth is about one-half of Ms. Bulkley's projected EPS growth rate of

1766   11.60%; (2) long-term EPS and GDP growth are directly linked; and (3) more recent

1767   trends in GDP growth, as well as projections of GDP growth, suggest slower economic

1768   and earnings growth in the near future, during the period when the rates from this case

1769   will be effective.

1770   Long-Term Historic EPS and GDP Growth have been in the 6%-7% Range - By

1771   comparison, Ms. Bulkley's long-run growth rate projections of 11.60% is at best

1772   overstated. These estimates suggest that companies in the U.S. would be expected to:

1773   (1) increase their growth rate of EPS by more than 50% in the future, and (2) maintain

1774   that growth indefinitely in an economy that is currently expected to grow at about one-

1775   third of Ms. Bulkley's projected growth rates.

1776   There is a Direct Link Between Long-Term EPS and GDP Growth - Brad Cornell of

1777   the California Institute of Technology published a study on GDP growth, earnings

1778   growth, and equity returns. He finds that long-term EPS growth in the U.S. is directly

1779   related to GDP growth, with GDP growth providing an upward limit on EPS growth.

1780   In addition, he finds that long-term stock returns are determined by long-term earnings

1781   growth.[56]

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[56]   Bradford Cornell, "Economic Growth and Equity Investing," *Financial Analysts Journal* (January-

1782   The Trend and Projections Indicate Slower GDP Growth in the Future - Whereas the

1783   long-term compounded GDP growth rate is in the 6.00%-7.00% range, there has been a

1784   monotonic and significant decline in nominal GDP growth in recent decades.

1785   Long-Term GDP Projections also Indicate Slower GDP Growth in the Future - A

1786   lower range is also consistent with long-term GDP forecasts.   There are several

1787   forecasts of annual GDP growth that are available from economists and government

1788   agencies.   These include forecasts from the Energy Information Administration

1789   ("EIA"), the Congressional Budget Office ("CBO), and the Social Security

1790   Administration ("SSA"), Overall, these forecasts suggest long-term GDP growth rate

1791   in the 4.0% - 4.3% range. The trends and projections indicating slower GDP growth

1792   make Ms. Bulkley's market risk premium of 12.49%, which is computed by using a

1793   growth rate of 11.60% from analysts' EPS growth projections, look even more

1794   unrealistic.   Simply stated, Ms. Bulkley's projected EPS growth rate of 11.6% is

1795   almost three times projected GDP growth.

1796   Corporate Profits are Constrained by GDP – Milton Friedman, the noted economist,

1797   warned investors and others not to expect corporate profit growth to sustainably

1798   exceed GDP growth, stating, "Beware of predictions that earnings can grow faster

1799   than the economy for long periods. When earnings are exceptionally high, they don't

1800   just keep booming."[57] Friedman also noted in the same *Fortune* interview that profits

1801   must move back down to their traditional share of GDP.   In Appendix B, I show that

1802   currently the aggregate net income levels for the S&P 500 companies, using 2019

February 2010), p. 63.

[57]   Shaun Tully, "Corporate Profits Are Soaring. Here's Why It Can't Last," Fortune, (Dec. 7, 2017), http://fortune.com/2017/12/07/corporate-earnings-profit-boom-end/.

1803   figures, represent 6.53% of nominal GDP. However, if the S&P 500 companies grow

1804   their earnings at Ms. Bulkley's projected growth rate of 11.60%, while the U.S. GDP

1805   grows at 4.09% (the average of CBO, SSA, and EIA), the S&P 500 profits would

1806   grow to 56.6% of GDP by the year 2050!

1807 **Q.**   **PLEASE PROVIDE A SUMMARY ANALYSIS ON GDP AND S&P 500 EPS**

1808   **GROWTH RATES.**

1809 A.   As noted above, the long-term link between corporate profits and GDP is inevitable.

1810   The short-term differences in growth between the two has been highlighted by some

1811   notable market observers, including Warren Buffet, who indicated that corporate

1812   profits as a share of GDP tend to go far higher after periods where they are depressed,

1813   and then drop sharply after they have been hovering at historically high levels. In a

1814   famous 1999 *Fortune* article, Mr. Buffet made the following observation:[58]

1815   You know, someone once told me that New York has more
1816   lawyers than people. I think that's the same fellow who thinks
1817   profits will become larger than GDP. When you begin to expect
1818   the growth of a component factor to forever outpace that of the
1819   aggregate, you get into certain mathematical problems. In my
1820   opinion, you have to be wildly optimistic to believe that
1821   corporate profits as a percent of GDP can, for any sustained
1822   period, hold much above 6%. One thing keeping the percentage
1823   down will be competition, which is alive and well. In addition,
1824   there's a public-policy point: If corporate investors, in
1825   aggregate, are going to eat an ever-growing portion of the
1826   American economic pie, some other group will have to settle
1827   for a smaller portion. That would justifiably raise political
1828   problems – and in my view a major reslicing of the pie just isn't
1829   going to happen.

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[58] Carol Loomis, "Mr. Buffet on the Stock Market," *Fortune*, (Nov. 22, 1999), https://money.cnn.com/magazines/fortune/fortune_archive/1999/11/22/269071/.

1830   In sum, Ms. Bulkley's long-term S&P 500 EPS growth rate of 11.60% is

1831   grossly overstated and has no basis in economic reality. In the end, the big question

1832   remains as to whether corporate profits can grow faster than GDP. Jeremy Siegel, the

1833   renowned finance professor at the Wharton School of the University of Pennsylvania,

1834   believes that going forward, earnings per share can grow about half a point faster than

1835   nominal GDP, or about 5.0%, due to the big gains in the technology sector. But he

1836   also believes that sustained EPS growth matching analysts' near-term projections is

1837   absurd: "The idea of 8% or 10% or 12% growth is ridiculous. It will not happen."[59]

1838

1839   **C.**   **Bond Yield Risk Premium Approach ("BYRP")**

1840

1841   **Q.**   **PLEASE REVIEW MS. BULKLEY'S BYRP APPROACH.**

1842   A.   On pages 55-8 of her testimony and in Exhibit RMP__(AEB-4)-7, Ms. Bulkley estimates

1843   an equity cost rate using a risk premium ("RP") model. She uses the quarterly authorized

1844   ROEs for all electric utility companies from Q1 1992 until Q1 2020. Ms. Bulkley

1845   develops an equity cost rate by: (1) regressing the authorized returns on equity for electric

1846   utility companies on the thirty-year Treasury yield; and then (2) adding the risk premium

1847   established in (1) to each of her three different thirty-year Treasury yields: (a) a current

1848   yield of 1.56%, (b) a near-term projected yield of 1.80%, and (c) a long-term projected

1849   yield of 3.20%. Ms. Bulkley's RP results are provided in page 2 of Exhibit JRW-9.

1850   She reports RP equity cost rates ranging from 9.33% to 10.04%.

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[59] Shaun Tully, "Corporate Profits Are Soaring. Here's Why It Can't Last," *Fortune*, (Dec. 7, 2017), http://fortune.com/2017/12/07/corporate-earnings-profit-boom-end/.

1851   **Q.   WHAT ARE THE ERRORS IN MS. BULKLEY'S BYRP ANALYSIS?**

1852   A.   The two issues are: (1) the long-term projected (3.20%) 30-year Treasury yield; (2) the

1853   risk premium.

1854

1855   1.   Long-Term Projected Risk-Free Interest Rate

1856

1857   **Q. WHAT IS THE ISSUE WITH MS. BULKLEY'S RISK FREE INTEREST RATES?**

1858   A. Ms. Bulkley's long-term projected (3.20%) 30-year Treasury yield is well above the current

1859   30-year Treasury yield of 1.40%. As previously discussed, investors would not be buying

1860   30-year Treasury bonds at current rates if they expected these rate to increase by 200 basis

1861   points in the next couple years because they would incur significant capital losses. Also, as

1862   discussed above, economists have been forecasting high interest rates for a decade, and they

1863   have been consistently wrong as interest rates have declined and not increased.

1864

1865   2.   Risk Premium

1866

1867   **Q. WHAT ARE THE ISSUES WITH MS. BULKLEY'S RISK PREMIUM IN THE**

1868   **BYRP ANALYSIS?**

1869   A. There are several problems with this approach for calculating risk premium.

1870   First, the methodology produces an inflated measure of the risk premium because it

1871   uses historic authorized ROEs and Treasury yields, and the resulting risk premium is applied

1872   to projected Treasury Yields. Since Treasury yields are always forecasted to increase, the

1873   resulting risk premium would be smaller if done correctly, which would be to use projected

1874   Treasury yields in the analysis rather than historic Treasury yields.

1875   .   Second, Ms. Bulkley's RP approach is a gauge of *commission* behavior and not

1876   *investor* behavior. Capital costs are determined in the marketplace through the financial

1877   decisions of investors and are reflected in such fundamental factors as dividend yields,

1878   expected growth rates, interest rates, and investors' assessment of the risk and expected

1879   return of different investments. Regulatory commissions evaluate capital market data in

1880   setting authorized ROEs, but also consider other utility- and rate case-specific information

1881   in setting ROEs. As such, Ms. Bulkley's approach and results reflect other factors such

1882   as capital structure, credit ratings and other risk measures, service territory, capital

1883   expenditures, energy supply issues, rate design, investment and expense trackers, and

1884   other factors used by utility commissions in determining an appropriate ROE in addition

1885   to capital costs. This may especially be true when the authorized ROE data includes the

1886   results of rate cases that are settled and not fully litigated.

1887   Third, since the stocks of electric utilities have been selling above book value for

1888   the last decade, it is obvious that the authorized ROEs of state utility commissions are

1889   above the returns that investors require.

1890

1891   **D. Expected Earnings Approach**

1892

1893   **Q.   PLEASE DISCUSS MS. BULKLEY'S EXPECTED EARNINGS ANALYSIS.**

1894   A.   On pages 58-60 of her testimony and in Exhibit RMP__(AEB-4)-8, Ms. Bulkley

1895   estimates an equity cost rates of 10.74% and 10.82% using an approach she calls the

1896   Expected Earnings ("EE") approach. Her methodology simply involves using the

1897   expected ROE for the companies in the proxy group as estimated by *Value Line*.

1898 **Q.**   **PLEASE ADDRESS THE ISSUES WITH MS. BULKLEY'S EXPECTED**

1899   **EARNINGS APPROACH.**

1900 A.   There are a number of significant issues with this so-called Expected Earnings

1901   approach. As such, I strongly suggest that the Commission ignore this approach in

1902   setting an ROE for RMP. These issues include:

1903   The Expected Earnings Approach Does Not Measure the Market Cost of Equity

1904   Capital – First and foremost, this is an accounting-based methodology that does not

1905   measure investor return requirements. As indicated by Professor Roger Morin, a long-

1906   time rate of return witness for utility companies, "More simply, the Comparable

1907   (Expected) Earnings standard ignores capital markets. If interest rates go up 2%

1908   for example, investor requirements and the cost of equity should increase

1909   commensurably, but if regulation is based on accounting returns, no immediate

1910   change in equity cost results."[60] As such, this method does not measure the market

1911   cost of equity capital.

1912   Changes in ROE Ratios do not Track Capital Market Conditions - As also noted by

1913   Morin, "The denominator of accounting return, book equity, is a historical cost-based

1914   concept, which is insensitive to changes in investor return requirements. Only stock

1915   market price is sensitive to a change in investor requirements. Investors can only

---

[60]   Roger Morin, *New Regulatory Finance* (2006), p. 293.

1916   purchase new shares of common stock at current market prices and not at book

1917   value."[61]

1918   The Expected Earnings Approach is Circular - The ROE ratios for the proxy

1919   companies are not determined by competitive market forces, but instead are largely

1920   the result of federal and state rate regulation, including the present proceedings.

1921   The Proxies' ROEs Reflect Earnings on Business Activities that are not

1922   Representative of RMP' Rate-Regulated Utility Activities - The numerators of the

1923   proxy companies' ROEs include earnings from business activities that are riskier and

1924   produce more projected earnings per dollar of book investment than does the regulated

1925   electric business.   These include earnings from unregulated businesses such as

1926   merchant generation, construction services, and other energy services.

1927 **Q.   FINALLY PLEASE DISCUSS THE EXPECTED EARNINGS APPROACH IN**

1928   **LIGHT OF A STUDY OF VALUE LINE PROJECTED EARNINGS.**

1929 A.   Ms.   Bulkley's EE approach uses *Value Line*'s adjusted forecast for proxy utility

1930   ROEs. Hence, the ROE specified by the EE approach is totally dependent on the

1931   forecast of one variable (net income/shareholder's equity) by one analyst firm (Value

1932   Line), with the same single individual authoring most of the *Value Line* reports for the

1933   various proxy companies. Neither the Commission nor other parties have assessed the

1934   accuracy of these forecasts. However, there is one study that did evaluate the *Value*

1935   *Line* forecasts. A study by Szakmary, Conover, and Lancaster evaluated the accuracy

1936   of *Value Line*'s three-to-five-year EPS growth rate forecasts using companies in the

1937   Dow Jones Industrial Average over a 30-year time period and found these forecasted

---

[61]   *Id.*

1938   EPS growth rates to be significantly higher than the EPS growth rates that these

1939   companies subsequently achieved.[62]

1940   Szakmary, Conover, and Lancaster (SCL) studied the predicted versus the

1941   projected stock returns, sales, profit margins, and earnings per share made by *Value*

1942   *Line* over the 1969 to 2001 time period. *Value Line* projects variables from a three-

1943   year base period (e.g., 2012-2014) to a future three-year projected period (e.g., 2016-

1944   18). SCL used the sixty-five stocks included in the Dow Jones Indexes (30 Industrials,

1945   20 Transports and 15 Utilities). SCL found that the projected annual stock returns for

1946   the Dow Jones stocks were "incredibly overoptimistic" and of no predictive value.

1947   The mean annual stock return of 20% for the Dow Jones' stocks *Value Line*'s forecasts

1948   was nearly double the realized annual stock return. The authors also found that *Value*

1949   *Line*'s forecasts of earnings per share and profit margins were termed "strikingly

1950   overoptimistic." *Value Line*'s forecasts of annual sales were higher than achieved

1951   levels, but not statistically significant. SCL concluded that the overly-optimistic

1952   projected annual stock returns were attributable to *Value Line*'s upwardly-biased

1953   forecasts of earnings per share and profit margins

1954   The SCL results suggest that *Value Line*'s projection of return on equity is

1955   upwardly biased. As noted above, the EPS and profit margins as projected by *Value*

1956   *Line* over this 30-year period were termed "strikingly overoptimistic." This is because

1957   Value line's projected earnings is the numerator for their calculation of return on

1958   equity (net income/book value). Therefore, the EE approach proposed by Ms. Bulkley

1959   is based on an upwardly-biased measure forecasted by one analyst.

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[62]   Szakmary, A., Conover, C., & Lancaster, C. (2008). "An Examination of *Value Line*'s Long-Term Projections," *Journal of Banking & Finance*, May 2008, pp. 820-833.

1960   Q.   **PLEASE PROVIDE A SUMMARY OF THE SIGNIFICANT ERRORS THAT**

1961   **YOU FOUND WITH MS. BULKLEY'S ROE ANALYSES.**

1962   A.   There are a number of errors in Ms. Bulkley's ROE studies that cause her ROE

1963   estimates and the Company's cost of capital to be inaccurate and too high. These

1964   include:

1965   Capital Structure - The Company has proposed a capital structure that includes a

1966   common equity ratio of 53.67%. This capital structure includes a higher common

1967   equity ratio than the Company's parent, BHE, and the average common equity ratios

1968   employed by the two proxy groups;

1969   Capital Market Conditions – Ms. Bulkley's analyses, ROE results, and

1970   recommendations are based on assumptions of higher interest rates and capital costs.

1971   However, interest rates and capital costs remained at low levels in recent years. In

1972   2019, interest rates fell due to slow economic growth and low inflation and, as

1973   discussed in above, interest rates have fallen even further to record low levels in 2020

1974   due to the impact of the novel coronavirus on the world's population and economy.

1975   RMP's Investment Risk is Below the Averages of the Two Proxy Groups –RMP's

1976   S&P and Moody's credit ratings of A and A3 are better than the averages of the proxy

1977   groups, which indicates the Company is a less risky than the groups.

1978   DCF Approach – Ms. Bulkley and I have both employed the traditional constant-

1979   growth DCF model. Ms. Bulkley's analysis has seriously overstated her reported DCF

1980   results in four ways: (1) she selectively eliminated low-end DCF results; (2) she has

1981   exclusively used the overly optimistic and upwardly biased EPS growth rate forecasts

1982   of Wall Street analysts and *Value Line*; and (3) she has created her own new version

1983   of the DCF model – the projected constant-growth DCF model - in which she projects

1984   DCF inputs into the future; and (4) she has claimed that the DCF results underestimate

1985   the market-determined cost of equity capital due to high utility stock valuations and

1986   low dividend yields, i.e. Ms. Bulkley claims that she knows more than investors in the

1987   stock market.

1988   CAPM Approach – The CAPM approach requires an estimate of the risk-free interest

1989   rate, beta, and the market or risk premium. There are three issues with Ms. Bulkley's

1990   CAPM analysis: (1) her long-term projected (3.20%) 30-year Treasury yields are well

1991   in excess of current market yields; (2) she has employed the Empirical CAPM

1992   ("ECAPM") version of the CAPM, which makes inappropriate adjustments to the risk-

1993   free rate and the market risk premium; and (3) most significantly, she has computed a

1994   market risk premium of 12.49%. The 12.49% market risk premium is much larger

1995   than: (1) indicated by historic stock and bond return data; and (2) found in the

1996   published studies and surveys of the market risk premium. In addition, I demonstrate

1997   that the 12.49% market risk premium is based on totally unrealistic assumptions of

1998   future economic and earnings growth and stock returns.

1999   Alternative Risk Premium Model - Ms. Bulkley also estimates an equity cost rate

2000   using an alternative risk premium model which she calls the Bond Yield Risk Premium

2001   ("BYRP") approach. There are two issues with this approach: (1) the base interest

2002   rates; and (2) the risk premium. With respect to the base rates, her current long-term

2003   projected (3.20%) 30-year Treasury rates yields are well in excess of current market

2004   yields (1.40%). The risk premium in her BYRP method is based on an unorthodox

2005   approach using the historical relationship between the yields on long-term Treasury

2006   yields and authorized ROEs for electric utility companies. As the discussion in my

2007   testimony of market-to-book ratios explains, the authorized ROEs have been greater

2008   than the return that investors require.

2009   Expected Earnings Approach - Ms. Bulkley also uses the Expected Earnings approach

2010   to estimate an equity cost rate for the Company. Ms. Bulkley computes the expected

2011   ROE as forecasted by *Value Line* for her proxy group of electric utilities. As I discuss

2012   in my critique of Ms. Bulkley's presentation, the so-called "Expected Earnings"

2013   approach does not measure the market cost of equity capital, is independent of most

2014   cost of capital indicators, ignores the research on the upward bias in *Value Line*'s

2015   earnings projections, and has several other empirical issues. Therefore, the

2016   Commission should ignore Ms. Bulkley's "Expected Earnings" approach in

2017   determining the appropriate ROE for RMP.

2018   Regulatory and Business Risk Factors - Ms. Bulkley also considers several other risk

2019   factors in arriving at her 10.20% ROE recommendation. She claims that: (1) RMP's

2020   higher than average capital expenditures increase its risk relative to the proxy utility

2021   companies: (2) RMP's regulatory risk of high due to operating in Utah; (3) RMP's

2022   generation ownership and fuel sources make it riskier than other utilities. Ms.

2023   Bulkley's conclusion that these factors are making RMP riskier are erroneous. Each

2024   of these three factors are risk factors that are already considered in the credit-rating

2025   process used by major rating agencies. As I noted above, the S&P and Moody's issuer

2026   credit ratings for RMP of A and A3 indicate that the Company is less risky than the

2027   electric utilities in the proxy groups. In addition, in terms of Utah regulatory risk, Ms.

2028   Bulkley claims that Utah ROEs are below those of other states. This is erroneous. For

2029   example, the Commission approved a ROE of 9.50% for the gas distribution

2030   operations of Dominion Energy of Utah in February of this year. This compares to a

2031   national average gas distribution ROE of 9.40% in 2020.[63]

2032

2033   **VII.   SUMMARY AND CONCLUSIONS**

2034

2035 **Q. PLEASE SUMMARIZE THE ISSUES WITH THE COMPANY'S COST OF**

2036   **CAPITAL PROPOSAL.**

2037 A.   The primary issues related to the Company's rate of return include the following:

2038   Capital Structure - The Company has proposed a capital structure that includes a

2039   common equity ratio of 53.67%. This capital structure includes a higher common

2040   equity ratio than the Company's parent, BHE, and the average common equity ratios

2041   employed by the two proxy groups;

2042   Capital Market Conditions – Ms. Bulkley's analyses, ROE results, and

2043   recommendations are based on assumptions of higher interest rates and capital costs.

2044   However, interest rates and capital costs have remained at low levels in recent years.

2045   In 2019, interest rates fell due to slow economic growth and low inflation and, as

2046   discussed in above, interest rates have fallen even further to record low levels in 2020

2047   due to the impact of the novel coronavirus on the world's population and economy.

2048   GDP and Corporate Earnings Growth – Ms. Bulkley employs excessive growth

2049   estimates in the models she uses to calculate RMP's required ROE. This produces

2050   erroneous results and ROEs that are much too high.

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[63]   S&P Global Market Intelligence, RRA *Regulatory Focus*, 2020.

2051   RMP's Investment Risk is Below the Averages of the Two Proxy Groups –RMP's

2052   S&P and Moody's credit ratings of A and A3 are better that the averages of the proxy

2053   groups, which indicates the Company is a less risky than the groups.

2054   **Q.   PLEASE REVIEW YOUR PROPOSED RATE OF RETURN.**

2055   A.   I have reviewed the Company's proposed capital structure and overall cost of capital.

2056   To estimate an equity cost rate for the Company, I have applied the DCF and CAPM

2057   to my two proxy groups of electric utility companies. My DCF and CAPM analyses

2058   indicate an equity cost rate range of 7.60% to 8.95%.

2059   RMP's proposed capitalization has more equity and less financial risk than the

2060   average current capitalizations of electric utilities. Therefore, in my primary rate of

2061   return recommendation, I am using the capital structure with a common equity ratio

2062   of 50.0% which is more reflective of the capital structures of electric utility companies.

2063   I am using RMP's recommended long-term debt cost and preferred stock cost rates.

2064   With respect to the ROE, I recognize that my equity cost rate range, 7.60% to 8.95%,

2065   is below the average authorized ROEs for electric utility companies nationally.

2066   Therefore, as a primary ROE for RMP, I am recommending 9.0%.   This

2067   recommendation: (1) gives weight to the higher authorized ROEs for electric utility

2068   companies; and (2) recognizes the concept of 'gradualism' in which authorized ROEs

2069   are adjusted on a gradual basis to reflect capital market data. Given my recommended

2070   capitalization ratios and senior capital cost rates, my primary rate of return or cost of

2071   capital recommendation for the Company is 6.91% and is summarized in Table 1

2072   above and in Panel A of Exhibit JRW-1.

2073   In my alternative rate of return recommendation, I am employing RMP's

2074   proposed capital structure of 46.32% long-term debt, 0.01% preferred stock, and

2075   53.67% common equity and RMP's recommended long-term debt cost and preferred

2076   stock cost rates of 4.81% and 6.75%. With respect to the equity component of my

2077   recommendation regarding rate of return and due to using a much higher 53.67%

2078   equity ratio, my alternative ROE recommendation is 8.75%, which is still at the high

2079   end of my equity cost rate range of 7.60% to 8.95%.   Given my alternative

2080   capitalization ratios and senior capital cost rates, based on the Company's proposed

2081   capital structure, my alternative rate of return or cost of capital recommendation for

2082   the Company is 6.92% and is summarized above in Table 2 and in Panel B of Exhibit

2083   JRW-1.

2084   **Q.   DOES THIS CONCLUDE YOUR TESTIMONY?**

2085   A.   Yes.

2086