CONTENTS

I. INTRODUCTION AND SUMMARY 1

II. CAPITAL STRUCTURE 5

III. COST OF DEBT AND PREFERRED STOCK 6

IV. OVERVIEW OF COST OF EQUITY METHODOLOGIES 7

V. GUIDELINE COMPANIES 11

VI. CALCULATED RESULTS OF COST OF EQUITY MODELS 11

A. DISCOUNTED CASH FLOW (SINGLE STAGE) 11

B. CAPITAL ASSET PRICING MODELS (CAPM) 12

C. OTHER MODELS 12

VII. CONCLUSIONS AND RECOMMENDATIONS 13

1 **Testimony of Charles E. Peterson**

2

3 **I. INTRODUCTION AND SUMMARY**

4 **Q: Please state your name, business address and title.**

5 A: My name is Charles E. Peterson; my business address is 160 East 300 South, Salt Lake City,

6 Utah 84114; I am a Technical Consultant in the Division of Public Utilities (Division).

7 **Q: On whose behalf are you testifying?**

8 A: The Division.

9 **Q: Please summarize your educational and professional experience.**

10 A: I attended the University of Utah and earned a B.A. in mathematics in 1978 and a Master of

11 Statistics (M.Stat.) through the Graduate School of Business in 1980. In 1990 I earned an

12 M.S. in economics, also from the University of Utah.

13

14 Between 1980 and 1991 I worked as an economic and financial consultant and business

15 appraiser for several local firms or local offices of national firms. My work frequently

16 involved litigation support consulting and I have testified as an expert witness in both federal

17 and state courts.

18

19 In 1991 I joined the Property Tax Division of the Utah State Tax Commission. In 1992 I was

20 promoted to manager over the Centrally Assessed Utility Valuation Section. I have provided

21 expert testimony regarding valuation, economic and cost of capital issues, both in deposition

22 and formal hearing, before the Utah State Tax Commission.

23

24 I joined the Division at the first of January 2005 as a utility analyst; in May 2006 I was
25 promoted to Technical Consultant. I have worked primarily in the energy section of the
26 Division.
27
28 My resume is attached as DPU Exhibit 3.1.
29
30 **Q: Please outline the projects you have worked on since coming to the Division.**
31 A: I was involved in evaluating cost of capital issues in the 2004 rate case that was settled in
32 February 2005. I subsequently co-authored a paper regarding the Capital Asset Pricing
33 Model (CAPM) published in the *The NRRI Journal of Applied Regulation*[1]. I have worked on
34 DSM, service quality and customer guarantees involving PacifiCorp. I was the Division lead
35 on an internal research project regarding ring-fencing that resulted in a report to the Public
36 Service Commission. I was the lead of the economics and finance group within the Division
37 assigned to evaluate the proposed acquisition (the Acquisition) of PacifiCorp (the
38 "Company") by MidAmerican Energy Holdings Company ("MEHC").
39 **Q: Have you previously provided testimony to the Commission?**
40 A: Yes. I first filed testimony in the Uinta Basin Telephone case (Docket No. 05-053-01)
41 regarding ring-fencing issues. I subsequently filed testimony in the PacifiCorp Acquisition
42 matter (Docket No. 05-035-54) as the primary Division witness.
43 **Q: What is the purpose of your testimony in this matter?**
44 A: My testimony covers the cost of capital estimates, including the related capital structure
45 issues, used by the Division in its determination that the overall settlement and Stipulation
46 for the $115 million increased revenue requirement was reasonable. The Stipulation indicates

[1] The NRRI Journal of Applied Research, vol. 3, December 2005, Ohio State University, Columbus, OH, pp. 57-70.

47 "that PacifiCorp's authorized return on common equity for purposes of this Stipulation will
48 be 10.25%."[2] I will provide testimony supporting the Division's belief that the 10.25 percent
49 return on equity (ROE) is within a reasonable range.

50 **Q: Are you asking the Commission to make substantive findings regarding cost of capital**
51 **methodologies and results?**

52 A: No. The Division is only asking the Commission to accept the part of the Stipulation
53 referring to the 10.25 percent ROE. The purpose of my testimony is to provide the
54 Commission background to understand why the Division accepts the Stipulation as
55 reasonable and in the public interest. The other Parties to the Stipulation may have differing
56 views regarding cost of capital issues, which the Commission is not being asked to resolve.

57 **Q: Please summarize the work and investigations that you have performed in this matter.**

58 A: I have reviewed and analyzed the testimonies of PacifiCorp witnesses Bruce N. Williams, the
59 Company's Treasurer, and Samuel C. Hadaway, Ph.D., an outside cost of equity expert. Mr.
60 Williams provided testimony regarding cost of debt, cost of preferred stock and capital
61 structure. Dr. Hadaway filed testimony on cost of equity. I also began my own, independent
62 evaluation of these issues, particularly with respect to cost of equity.

63 **Q: Was your independent study of the cost of capital issues completed?**

64 A: No. At the time the settlement was reached the results from my independent analysis were
65 preliminary. However, my analysis had progressed to the point that I had determined a
66 reasonable range for the ROE. I had also determined that the returns on preferred stock and
67 long-term debt proposed by Mr. Williams were in a reasonable range, and that it was unlikely
68 that I would be proposing significant adjustments to those values. Mr. Williams' proposed

---

[2] Stipulation Regarding Revenue Requirement and Rate Spread ("Stipulation"), Docket No. 06-035-21, paragraph 9.

69 capital structure was also determined to be largely justifiable, though subject to "tweaking"
70 which will be discussed below.

71 **Q: What was the Company's original filed position regarding cost of capital?**

72 A: The Company asked for the following cost of capital rates of return:[3] Long-term Debt, 6.41
73 percent; Preferred Stock, 6.54 percent; Common Stock, 11.40 percent.
74 The following capital structure was also requested: Long-term Debt, 46.2 percent; Preferred
75 Stock, 1.0 percent; Common Stock, 52.8 percent.

76 **Q: With respect to the Company's filed testimony and the Stipulation what have you**
77 **concluded?**

78 A: I determined that the cost of long-term debt and the cost of preferred stock were within the
79 reasonable range for settlement. Likewise, with the exception of a small change in the
80 requested capital structure, the requested capital structure was determined to be reasonable.
81 The 10.25 percent ROE figure set forth in the Stipulation likewise was determined to be
82 within a reasonable range.
83
84 The Division used these values related to cost of capital and capital structure as part of its
85 determination that the settlement represented by the Stipulation was reasonable and in the
86 public interest. The Division supports and recommends to the Commission the 10.25 percent
87 authorized ROE as it is set forth in the Stipulation. DPU Exhibit 3.2 summarizes the results
88 of my cost of common equity analysis.
89
90
91

[3] Direct Testimony of Bruce N. Williams, page 3.

92 **II. CAPITAL STRUCTURE**

93 **Q: What capital structure did the Division consider when evaluating potential settlement**
94 **positions?**

95 A: The Division began with the latest actual capital structure of the Company that was available
96 from the Company's SEC Form 10-K as of March 31, 2006. At that date the capital structure
97 was 50 percent common equity, 49 percent long-term debt and 1 percent preferred stock.
98 Subsequently, the Company announced on June 29, 2006 that its parent company, MEHC
99 had made an equity contribution of $73.5 million. By itself this capital infusion would
100 increase the capital structure to about 50.4 percent common equity. Furthermore, since for
101 its fiscal year ended March 31, 2006 PacifiCorp had net income of approximately $360
102 million, or an average of $90 million per quarter, and since PacifiCorp management has
103 stated that it does not intend to pay dividends on common stock for at least the next 12
104 months,[4] it seems likely that the Company's actual capital structure at June 30, 2006 was
105 approximately 51 percent common equity, 48 percent long-term debt and 1 percent preferred
106 stock. Company representatives indicated that this was correct. I extrapolated this trend to
107 December 2006, when any new rates would take effect under the Stipulation, if approved by
108 the Commission. This extrapolation resulted in a common percentage of 51.5 to 52 percent of
109 capital without any further contributions from MEHC. The Division concluded that 52
110 percent common equity was a reasonable figure for the Company's capital structure in its
111 evaluation of the settlement.[5]

---

[4] PacifiCorp SEC Form 10-K, March 31, 2005, p. 45.

[5] Subsequent events: The Division has received the Company's SEC Form 10-Q for the quarter ended June 30, 2006. At that time PacifiCorp's capital structure was approximately 50.65 percent common equity. The Division has also learned that on August 8, 2006 PacifiCorp issued $350 million in long-term debt, apparently to mostly pay down short-term obligations. By itself, this debt issuance would lower the common equity percentage to about 49 percent. However, Standard & Poor's indicates that it expects further equity infusions from MEHC.

112 **Q: Did the Division consider the capital structure effects on the Company's debt ratings?**

113 A: Yes. Standard & Poor's published criteria indicated that among other factors, a company
114 with PacifiCorp's risk profile[6] needs to have an equity (common and preferred) percentage of
115 50 percent, or higher, to maintain PacifiCorp's current bond rating. Because Standard &
116 Poor's includes short-term debt and adds an amount for purchased power agreements to the
117 debt side of the equation, the result is the regulatory capital structure needs to be higher than
118 50 percent equity in order to satisfy this particular rating agency criterion. The Division
119 estimates that the 52 percent common equity along with 1 percent preferred stock puts the
120 Company close to the minimum capital structure required by the Standard & Poor's criterion.
121 Therefore the Company's efforts to date to increase its equity capital are reasonable in light
122 of this rating agency criterion.

123

124 **<u>III. COST OF DEBT AND PREFERRED STOCK</u>**

125 **Q: What did you do with respect to the cost of debt and preferred stock?**

126 A: I studied the testimony of Bruce Williams and the related exhibits. Mr. Williams requested
127 the following cost of capital rates of return: Long-term Debt, 6.41 percent and Preferred
128 Stock, 6.54 percent. In addition to this testimony and exhibits, I submitted a number of data
129 requests asking for clarification and further information. The Company satisfactorily
130 answered these data requests. I studied the answers to these data requests as well as
131 compared this information to readily available public information.

132 **Q: What conclusions did you draw from this analysis?**

[6] Standard & Poor's gives a utility a risk profile grade between 1 and 10 (1 is best), based on its evaluation of the company's business and regulatory environment. PacifiCorp has a risk rating of 5, the middle of the range.

133 A: I concluded that the requests appeared to be reasonable within the established regulatory
134 framework, which uses embedded costs and historic balances to directly calculate these
135 amounts. The information provided by the Company supported the accuracy of the embedded
136 costs.
137

138 IV. OVERVIEW OF COST OF EQUITY METHODOLOGIES

139 **Q: What methods did you look at in order to estimate the current market cost of equity for**
140 **PacifiCorp?**[7]

141 A: I used standard discounted cash flow models (DCF) coupled with three types of risk premium
142 models to support and complement the DCF analyses. Regarding the DCF models for my
143 testimony here, I rely on the simple or single stage model, although I did look at some multi-
144 stage DCF models. The risk premium models included the capital asset pricing model
145 (CAPM), a company-debt-plus-market-risk-premium model, and a model I used at the Utah
146 State Tax Commission that uses factors based upon Value Line financial strength ratings to
147 adjust for varying risk in the expected market return.

148 **Q: Please describe how you developed the DCF models.**

149 A: First, I calculated the current dividend yield for each of the guideline companies (see below).
150 The dividend was based upon annualizing the latest quarterly dividend. The stock price used
151 was a 30-trading day average closing price. The 30-trading day average closing price was
152 used to smooth out random noise in the stock price data.[8] Next, I took earnings and dividend
153 growth rates from Value Line and combined those with the consensus earnings growth

[7] For the following discussion "cost of common equity," "cost of equity," "return on equity," and "ROE" will be used as synonymous terms.
[8] I also looked at the effects of using a spot price and also a three month average. Neither of these different time periods resulted in a significant change in the results.

154 estimates reported on the Yahoo! Finance web site for each guideline company[9]. The growth
155 rates were weighted-averaged by applying 75 percent of the weight to the earnings growth
156 rate and 25 percent to the dividend growth rate pursuant to the Commission's decision in
157 *Questar Gas,* Docket No. 02-057-02.
158
159 Two DCF models were examined. The first model calculates individual ROEs based upon
160 the historical growth rates and then averages them. The second does the same thing only
161 using the analyst forecasts instead of the historical growth rates. These models give a range
162 of results based upon the historical actual growth rates and the current estimates by analysts.
163 DPU Exhibits 3.5 through 3.7 sets forth the calculations on these models.
164 **Q: What did you do for the CAPM models?**
165 A: Cost of equity estimates were developed for each of the guideline companies and then
166 averaged. Models using the risk factor, or "beta," taken from Value Line and Standard &
167 Poor's were calculated. The betas calculated by Value Line and Standard & Poor's are based
168 upon different assumptions and give noticeably different results. Calculations using three
169 different risk free rates were performed. The assumed risk free rates were the current 90-day
170 U.S. Treasury Bill, or the 10-year U.S. Treasury Note, or the 20-year Treasury Bond. The
171 market risk premia were calculated from average total returns of the most recent 30-year
172 period based upon data compiled by Ibbotson & Associates. Before adjustment by the beta,
173 the expected market equity return is calculated by adding the selected risk free rate to a
174 market risk premium. DPU Exhibits 3.8 to 3.11 summarizes the CAPM model calculations.
175 **Q: What is your market risk premium model based on using company bond rates?**

[9] Yahoo! Finance obtains its information from Thomson Financial Network.

176 A: An overall expected market return is calculated based upon the same data that was used in
177 the calculation of the CAPM models, and gives the same initial result assuming beta equals
178 one. From this expected market return is subtracted the current average yield on BBB rated
179 corporate bonds to calculate a market risk premium with respect to that bond rate. The BBB
180 bond rating is approximately the market average rating. To this market risk premium is added
181 the market yield on the Company's own long-term debt to estimate the expected return for
182 the company's stock. DPU Exhibit 3.12 sets forth the calculations for this model.
183 **Q: Please briefly describe the model based upon Value Line financial strength ratings.**
184 A: This model also begins with an estimate of the expected market return on common stock
185 derived in the same manner as in the previous two models. The expected return for the entire
186 market is then adjusted by a risk factor based upon the average Value Line financial strength
187 rating for the guideline companies. Using the entire Value Line standard edition data set, a
188 regression equation is matched to the average forecast total returns by rating class; this
189 equation is constructed, in part, to estimate the returns between whole ratings. Starting from a
190 median rating for the entire Value Line universe of companies, a ratio of the expected returns
191 to this median return is constructed. This ratio becomes the "risk factor" that adjusts the
192 expected market return.
193
194 Generally, the higher the rating (i.e., the lower the risks as measured by that rating), the
195 lower the expected return. Thus, higher ratings than the median will result in a risk factor less
196 than one; the highest financial strength rating should have the lowest risk factor, and vice
197 versa. This all comports with current financial theory: the higher the risk, the higher the
198 expected return; the lower the risk, the lower the return.

199

200 Additionally, I calculated the standard deviations of the forecast returns within each financial
201 strength rating and used the ratio of the standard deviations to the median to construct a risk
202 factor estimate. DPU Exhibits 3.13 and 3.14 summarizes the results from this model.

203 **Q: Where has this model been used?**

204 A: I used this model as a secondary estimate of cost of equity at the Utah State Tax Commission
205 for about ten years.[10] Its use has included contested cases heard by the Tax Commission.

206 **Q: Do you expect the Utah Public Service Commission to rely on this model now, or in the**
207 **future?**

208 A: No, I don't intend that Commission rely on this model. I only offer it as another check on
209 reasonableness.

210 **Q: How did you handle results that you considered to be "outliers"?**

211 A: Operationally, I considered a cost of equity result an outlier if it was less than 7.40 percent or
212 higher than 13.50 percent. The lower limit is based upon approximately PacifiCorp's long-
213 term debt yield plus 1 percent. The upper limit is approximately the highest average CAPM
214 (using Value Line betas) plus two standard deviations.

215 **Q: What is your thinking regarding the exclusion of these outliers?**

216 A: Regarding the lower limit, if a company's debt has a market yield around 6.4 percent, it does
217 not make sense that the cost of equity should also be around 6.4 percent—or even lower.
218 Common equity is generally thought to be noticeably riskier for the same company than debt
219 and consequently should command a strictly higher return than debt. Although I recognize
220 that there is uncertainty as to how much higher return investors may command in a given
221 situation, I believe, though, that a minimum of about 1 percentage point is required. Thus the

[10] By Tax Commission rule, the primary cost of equity model is a variation of CAPM.

222 lower bound should be around the 7.40 percent that I am using. On the upper end, the two
223 standard deviation "rule" is a fairly common practice.
224

225 **V. GUIDELINE COMPANIES**

226 **Q: What are the "guideline companies" you referred to and how were they chosen?**

227 A: One of the first steps in the estimate of cost of equity was the selection of publicly traded
228 "comparable," or "guideline" companies whose market returns and characteristics would be
229 studied in order to infer from them what the appropriate cost of equity should be for
230 PacifiCorp. The selection and use of guideline companies is obviously critical since
231 PacifiCorp itself is not an independent, publicly trading company. The Company's witness,
232 Samuel Hadaway, chose 13 companies as explained in his testimony. I made a preliminary
233 selection of 15 companies based upon bond rating, size and percent of regulated electric
234 operations. I further sub-divided my provisional list into what I named the "select group" of
235 six companies based upon tighter constraints on size and regulated electric operations.
236 Exhibits 3.3 and 3.4 summarize these companies and make a comparison of some of their
237 characteristics with PacifiCorp.
238

239 **VI. CALCULATED RESULTS OF COST OF EQUITY MODELS**

240

241 A. DISCOUNTED CASH FLOW (SINGLE STAGE)

242 **Q: What were the results of the DCF models you examined?**

243 A: DPU Exhibits 3.5 and 3.7 set forth the results of the calculations for my and Dr. Hadaway's
244 list of guideline companies, respectively. DPU Exhibit 3.6 sets forth calculations on the
245 "select" sub-group. I should emphasize that DPU Exhibit 3.7, while based on Dr. Hadaway's
246 list of guideline companies, sets forth my calculations not Dr. Hadaway's.
247
248 The DCF models using my preliminary guideline companies had averages that ranged from
249 9.43 percent to 10.42 percent. The median of the averages was 9.84 percent. Using the
250 Hadaway list the range of averages was 8.85 percent to 9.18 percent with a median of 9.02
251 percent.
252
253 Examining the results from individual company estimates, using my list of companies the
254 range is 7.47 percent to 13.50 percent, with a median of 9.64 percent; using the Hadaway list,
255 the range is 7.87 percent to 10.21 percent, with a median of 9.20 percent.
256
257 B. CAPITAL ASSET PRICING MODELS (CAPM)
258 **Q: What were your results from CAPM?**
259 A: Broadly, the averages ranged from 8.13 to 11.74 percent. The individual companies ranged
260 from 7.50 to 13.46 percent. The median of the individual companies from my list was 9.50
261 percent; the median from the Hadaway list was 9.04 percent. DPU Exhibits 3.8 through 3.11
262 summarize the CAPM calculations.
263
264 C. OTHER MODELS
265 **Q: What were the results from the other models you examined?**

266 A: The bond-yield-plus-risk-premium model had a range of 8.45 percent to 12.26 percent with a
267 medium value of 10.31 percent. DPU Exhibit 2.12 sets forth these data.
268
269 As given on DPU Exhibit 3.13, the Value Line financial strength-related results ranged from
270 7.82 percent to 11.24 percent with a medium value of about 9.45 percent. The differences in
271 results between the Hadaway list (DPU Exhibit 3.14) and my list were small in the
272 application of this model compared to some of the others.
273
274

275 **VII. CONCLUSIONS AND RECOMMENDATIONS**

276 **Q: Please summarize your cost of capital and capital structure conclusions, excluding the**
277 **ROE results.**

278 A: Basically, I have concluded that the Company's requested cost of debt and preferred stock
279 fell into a reasonable range for settlement purposes. The capital structure proposed by the
280 Company also fell within reasonable bounds. The Division intends to rely on actual capital
281 structure as opposed to a purely hypothetical capital structure. The Division' analysis
282 indicated that the actual equity percentage of the Company would be in the 51 to 52 percent
283 range in December 2006 when it evaluated the settlement.

284 **Q: What conclusions with respect to ROE have you drawn from this data?**

285 A: The first conclusion alluded to above is that the selection of guideline companies is not a
286 critical factor in this case so long as there is chosen a sufficient number of reasonably
287 comparable companies. Second, it is apparent that in this case the risk premium models
288 produce generally similar results when given similar inputs; the risk premium results are

289 similar to the DCF results. The third conclusion relates to the overall purpose of this analysis
290 which is to determine whether or not the 10.25 percent authorized rate of return figure
291 mentioned in the Stipulation is within a reasonable range of values. It is clear from the data I
292 have examined, that the 10.25 percent figure is in the upper 50 percentile of the range of
293 values. However, it does not appear to be outside a reasonable range based upon the data
294 presented. Therefore, based upon the above analysis, the 10.25 percent is within a reasonable
295 range. A range of ROE values that included 10.25 percent was used by the Division in
296 evaluating the settlement represented by the Stipulation.

297 **Q: What is your recommendation?**

298 A: My recommendation is that the Commission accepts the part of the Stipulation related to the
299 authorized return on equity.

300 **Q: Does this conclude your testimony?**

301 A: Yes.