



DIRECT TESTIMONY
OF
SHEENA KIGHT
FINANCIAL ANALYST

FINANCE DEPARTMENT
FINANCIAL ANALYSIS DIVISION
ILLINOIS COMMERCE COMMISSION

INTERSTATE POWER COMPANY

PETITION FOR APPROVAL OF DELIVERY SERVICES TARIFFS

DOCKET NO. 01-0628

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1

Witness Identification

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

3 A. My name is Sheena Kight. My business address is 527 East Capitol Avenue,
4 Springfield, Illinois 62701.

5 **Q. By whom are you employed and in what capacity?**

6 A. I am employed by the Illinois Commerce Commission ("Commission") as a
7 Financial Analyst in the Finance Department of the Financial Analysis Division.

8 **Q. Please describe your qualifications and background.**

9 A. In May of 1998, I received a Bachelor of Business degree in Finance and Marketing
10 from Western Illinois University in Macomb, Illinois. I earned a Master of Business
11 Administration degree, with a concentration in Finance, also at Western Illinois
12 University in May 2001. I have been employed by the Commission in my present
13 position since January of 2001.

14 **Q. What is the purpose of your testimony in this proceeding?**

15 A. The purpose of my testimony and accompanying schedules is to present my
16 analysis of the cost of capital of, and recommend an overall rate of return for, the
17 electric delivery service operations of Interstate Power Company ("IPC"). I will also
18 respond to the direct testimony of Mr. Enrique Bacalao on the issue of cost of
19 common equity.

20 **Cost of Capital**

21 **Q. Please summarize your cost of capital findings.**

22 A. The overall cost of capital for IPC equals 9.52%, as shown on Schedule 2.01.

23 **Q. Why must one determine an overall cost of capital for a public utility?**

24 A. Under the traditional regulatory model, the proper balance of ratepayer and
25 shareholder interests occurs when the Commission authorizes a public utility a rate
26 of return on its rate base equal to its overall cost of capital. If the authorized rate of
27 return on rate base exceeds the overall cost of capital, then ratepayers bear the
28 burden of excessive prices. Conversely, if the authorized rate of return on rate base

29 is lower than the overall cost of capital, then the utility may be unable to raise capital
30 at a reasonable cost. Ultimately, the utility's inability to raise sufficient capital would
31 impair service quality. Therefore, ratepayer interests are served best when the
32 authorized rate of return on rate base equals the overall cost of capital.

33 In authorizing a rate of return on rate base equal to the overall cost of capital, all
34 costs of service are assumed reasonable and accurately measured. If
35 unreasonable costs continue to be incurred, or if any reasonable cost of service
36 component is measured inaccurately, then the allowed rate of return on rate base
37 will not balance ratepayer and investor interests.

38 **Q. Please define the overall cost of capital for a public utility.**

39 A. The overall cost of capital equals the sum of the component costs of the capital
40 structure (i.e., debt, preferred stock, and common equity) after each is weighted by
41 its proportion to total capital. It represents the rate of return the utility needs to earn
42 on its assets to satisfy contractual obligations to, or the market requirements of, its
43 investors.

44 **Capital Structure**

45 **Q. What capital structure does IPC propose for setting rates?**

46 A. IPC proposes using its December 31, 2000, capital structure, comprised of 39.02%
47 long-term debt, 8.43% preferred stock, and 52.55% common equity, as revised on
48 November 5, 2001, and shown on Schedule 2.01.¹

49 **Q. Is this capital structure appropriate for setting rates?**

50 A. Yes.

51 **Q. Does capital structure affect the overall cost of capital?**

52 A. Yes. Financial theory suggests capital structure affects the value of a firm and,
53 therefore, its cost of capital, to the extent it affects the expected level of cash flows
54 that accrue to third parties (i.e., other than debt and stock holders). Employing debt
55 as a source of capital reduces a company's income taxes,² thereby reducing the
56 cost of capital; however, as reliance on debt as a source of capital increases, so
57 does the probability of bankruptcy. As bankruptcy becomes more probable,
58 expected payments to attorneys, trustees, accountants and other third parties
59 increase. Simultaneously, the expected value of the income tax shield provided by
60 debt financing declines. Beyond a certain point, a growing dependence on debt as
61 a source of funds increases the overall cost of capital. Therefore, the Commission

¹ IPC's response to Staff data request FIN-1, DST.4010 Schedule D-1.

² The tax advantage debt has over equity at the corporate level is partially offset at the individual investor level. Debt investors receive returns largely in the form of current income (i.e., interest). In contrast, equity investors receive returns in the form of both current income (i.e., dividends) and capital appreciation (i.e., capital gains). Taxes on capital gains are lower than taxes on interest and dividend income because capital gains tax rates are lower and taxes on capital gains are deferred until realized.

62 should not determine the overall rate of return from a utility's actual capital structure
63 if it determines that the capital structure adversely affects the overall cost of capital.

64 An optimal capital structure would minimize the cost of capital and maintain a
65 utility's financial integrity. Unfortunately, determining whether a capital structure is
66 optimal remains problematic because (1) the cost of capital is a continuous function
67 of the capital structure, rendering its precise measurement along each segment of
68 the range of possible capital structures problematic; (2) the optimal capital structure
69 is a function of operating risk, which is dynamic; and (3) the relative costs of the
70 different types of capital vary with dynamic market conditions. Consequently, one
71 should determine whether the capital structure is consistent with the financial
72 strength necessary to access the capital markets under all conditions, and if so,
73 whether the cost of that financial strength is reasonable.

74 Towards that end, I compared the Company's December 31, 2000, capital structure
75 to industry standards. Standard & Poor's ("S&P") categorizes debt securities on
76 the basis of the risk that a company will default on its interest or principal payment
77 obligations. The resulting credit rating reflects both the operating and financial risks
78 of a utility.³ Electric utilities that have a 'A+' credit rating have a mean total debt
79 ratio of 58.46%.^{4,5} Gas distribution utilities that have a 'A+' credit rating have a

² *Standard & Poor's Utility Financial Statistics*, June 1999, p. 3; Standard & Poor's Utilities Rating Service: Industry Commentary, May 20, 1996, p. 1.

⁴ IPC's credit rating was A+ as of October 14, 2001.

⁵ *S & P Utility Compustat*.

80 mean total debt ratio of 53.28%. The mean common equity ratio for A+-rated
 81 electric utilities equals 37.77%. The mean common equity ratio for S&P A+-rated
 82 gas distribution utilities equals 46.63%. The above numbers are shown in Table 1
 83 below for comparative purposes.

TABLE 1: Capital Structure Ratios

	A+ rated Electric Utilities		A+ rated Gas Distributors		IPC December 31, 2000
	Mean	Standard Deviation	Mean	Standard Deviation	
Long-Term Debt Ratio	58.46%	13.66%	53.28%	6.74%	39.02%
Equity Ratio	37.77%	14.82%	46.63%	6.78%	52.55%

84 IPC's December 31, 2000, total debt and equity ratios are reasonably close to the
 85 mean total debt and equity ratios for S&P A+ rated electric utilities and gas
 86 distributors. The common equity ratio, while on the high end, is within one standard
 87 deviation from the mean common equity ratios for S&P A+-rated electric utilities
 88 and gas distributors. According to S&P, an obligor rated 'A' has a strong capacity
 89 to meet its financial commitments but to a lesser degree than higher-rated obligors.⁶
 90 The above suggests that the December 31, 2000 capital structure for IPC is
 91 commensurate with a very strong but not excessive degree of financial strength.
 92 Therefore, I conclude the Company's proposed capital structure comprising 39.02%

⁶ Standard & Poor's Utility Financial Statistics, June 1999, p. 4.

93 long-term debt, 8.43% preferred stock, and 52.55% common equity, is reasonable
94 for establishing rates. That capital structure appears on Schedule 2.01.

95 **Q. Standard and Poor's currently rates IPC A-.⁷ Why did you compare the IPC's**
96 **capital ratios to those of A+ rated utilities?**

97 **A. On October 15, 2001 Standard and Poor's downgraded IPC to A- from A+. The**
98 **downgrade was a result of IPC's parent company, Alliant Energy Corporation's**
99 **("Alliant") "increased focus on expanding its higher-risk nonregulated businesses."⁸**

100 Section 9-230 of the Illinois Public Utilities Act (220 ILCS 5/9-230 *et seq.*, "Act")
101 states that:

102 In determining a reasonable rate of return upon investment for any
103 public utility in any proceeding to establish rates or charges, the
104 Commission shall not include any incremental risk or increased cost
105 of capital which is the direct or indirect result of the public utility's
106 affiliation with unregulated or non-utility companies.

107 Therefore, it would be inappropriate to base IPC's allowed rate of return on the
108 basis of it's A- credit rating since that credit rating is due to its affiliation with
109 unregulated or non-utility companies.

⁷ Ferara, William, "Interstate Power Company", www.ratingsdirect.standardandpoors.com, November 13, 2001

⁸ Ferara, William, "Ratings on Alliant Energy Corp. and Subsidiaries Lowered", www.ratingsdirect.standardandpoors.com, October 17, 2001

110 **Q. Should short-term debt be included in the capital structure of IPC?**

111 A. No. Short-term debt is not currently a source of financing for IPC's rate base
112 investments.

113 **Q. Should preferred stock be included in the capital structure of IPC?**

114 A. Yes. IPC reported a balance of \$36,558,117 on preferred securities outstanding as
115 of December 31, 2000.⁹

116 **Cost of Long-Term Debt**

117 **Q. What is the embedded cost of long-term debt for IPC?**

118 A. As of December 31, 2000, the embedded cost of long-term debt was 7.96%, as
119 shown on Schedule 2.02.

⁹ IPC's FERC Form 1 Annual Report for the year ended December 31, 2000. p 250-254a

120

Cost of Preferred Stock

121 **Q. What is the embedded cost of preferred stock for IPC?**

122 **A.** IPC's embedded cost of preferred stock is 6.81%, as shown on Schedule 2.03.

123

Cost of Common Equity

124 **Q. What is IPC's cost of common equity?**

125 **A.** My analysis indicates that the cost of common equity for IPC's electric delivery
126 service operations is 11.14%.

127 **Q. How did you measure the investor-required rate of return on common**
128 **equity for IPC's electric delivery service operations?**

129 **A.** I measured the investor-required rate of return on common equity for IPC's electric
130 delivery service operations with the discounted cash flow ("DCF") and risk premium
131 models. Since IPC does not have market-traded common stock, DCF and risk
132 premium models cannot be applied directly to IPC, therefore, I applied both models

133 to a sample of integrated electric utility companies and a sample of gas distribution
134 companies. Rate of return witnesses in other proceedings have suggested that the
135 risks of gas and electric distribution companies are similar.¹⁰ I have included a gas
136 distribution sample as well.

137 **Sample Selection**

138 **Q. How did you select an electric sample?**

139 A. Since this proceeding will set rates for electric delivery services, under ideal
140 circumstances the sample should reflect the risks associated with the provision of
141 those services. Unfortunately, few, if any, market-traded electric utilities in the
142 United States provide only electric delivery services. Therefore, I selected an
143 electric sample based on the following criteria. First, I began with a list of all
144 domestic publicly traded companies assigned an industry number of 4911 or 4931
145 (i.e., electric utilities) within *Standard & Poor's Utility Compustat*. Second, I
146 removed any company that derived less than 70% of its revenue from electric
147 services, based on 2000 data. Third, I removed any company that had an S&P debt
148 rating other than AA, AA-, A+, A, or A-. Fourth, I removed any company that had
149 neither Zacks Investment Research ("Zacks") nor Institutional Brokers Estimate

¹⁰ ComEd Exhibit No. 8.0, Direct Testimony of Daniel E. Thone, Docket No. 01-0423, June 1, 2001, p. 7.;
MidAmerican Exhibit No. 4.0, Direct Testimony of Dr. Roger A. Morin, PhD, Docket No. 01-0444, June 8,
2001, pp. 5, 19-21.

150 System ("IBES") long-term growth rates. Fifth, I removed companies involved in
151 pending significant mergers or acquisitions. Sixth, I removed companies without
152 Value Line beta estimates. The remaining companies, Allegheny Energy Inc.,
153 Ameren Corp., American Electric Power, Consolidated Edison, Empire District
154 Electric Company, FPL Group Inc., Great Plains Energy, Idacorp Inc., and NSTAR,
155 compose my Electric sample.

156 **Q. How did you select a gas sample?**

157 A. First, I began with a list of all domestic publicly traded companies assigned an
158 industry number of 4924 within *Standard & Poor's Utility Compustat*. Second, I
159 removed any company that derived less than 70% of its revenue from gas services,
160 based on 2000 data. Third, I removed any company that had an S&P debt rating
161 outside the range of AA through A-. Fourth, I removed any company that had
162 neither Zacks nor IBES long-term growth rates. Fifth, I removed companies involved
163 in pending significant mergers or acquisitions. Finally, I removed companies
164 without Value Line beta estimates. The remaining companies, AGL Resources Inc.,
165 Atmos Energy Corp., Laclede Gas Co., Nicor Inc., Northwest Natural Gas Co.,
166 Peoples Energy Corp., Piedmont Natural Gas Co., and WGL Holdings Inc.,
167 compose my Gas sample.

168 **Q. Please discuss the criteria by which you selected your samples.**

169 A. The percentage of revenues from electric or gas sales is an operating risk measure.
170 S&P credit ratings measure the risk that a company will default on financial
171 obligations, and are a function of both operating and financial risk.¹¹ By limiting the
172 sample to companies with a high percentage of revenue from electric or gas sales
173 and S&P credit ratings similar to IPC pre October 15, 2001 credit rating, the
174 samples together should approach the risk of the electric delivery services
175 operations of IPC while excluding risks associated with IPC's affiliation with non-
176 utility and unregulated companies. In addition, removing companies that have
177 pending significant mergers ensures that merger premiums do not distort the results
178 of my analysis.

179 **Q. In past rate cases Staff has utilized a general utility sample selected**
180 **on the basis of a quantitative comparison in risk to the utility. Did you**
181 **include such a sample in your analysis?**

182 A. No. Recent industry restructuring has rendered questionable the measurement of
183 financial and operating risk with historical data for many electric utilities.

¹¹ Standard & Poor's, *Utilities Rating Service: Financial Statistics, Twelve Months Ended June 30, 1998*, p. 1; Standard & Poor's, *Utilities Rating Service: Industry Commentary*, May 20, 1996, p. 1.

184

DCF Analysis

185 **Q. Please describe DCF analysis.**

186 A. For a utility to attract common equity capital, it must provide a rate of return on
187 common equity sufficient to meet investor requirements. DCF analysis establishes
188 a rate of return directly from investor requirements. A comprehensive analysis of a
189 utility's operating and financial risks becomes unnecessary to implement a DCF
190 analysis since the market price of a utility's stock already embodies the market
191 consensus of those risks.

192 According to DCF theory, a security price equals the present value of the cash flow
193 investors expect it to generate. Specifically, the market value of common stock
194 equals the cumulative value of the expected stream of future dividends after each is
195 discounted by the investor-required rate of return.

196 **Q. Please describe the DCF model with which you measured the investor-**
197 **required rate of return on common equity.**

198 A. As it applies to common stocks, DCF analysis is generally employed to determine
199 appropriate stock prices given a specified discount rate. Since a DCF model

200 incorporates time-sensitive valuation factors, it must correctly reflect the timing of
201 the dividend payments that stock prices embody. As such, incorporating stock
202 prices that the financial market sets on the basis of quarterly dividend payments into
203 a model that ignores the time value of quarterly cash flows constitutes a
204 misapplication of DCF analysis.

205 The companies in both samples pay dividends quarterly; therefore, I applied a
206 constant-growth DCF model that measures the annual required rate of return on
207 common equity as follows:

$$208 \quad k = \frac{\sum_{q=1}^4 D_{0,q} (1+g)(1+k)^{1-[x+0.25(q-1)]}}{P} + g.$$

- where P \equiv the current stock price;
 $D_{0,q}$ \equiv the last dividend paid at the end of quarter q ,
where $q = 1$ to 4 ;
 k \equiv the cost of common equity;
 x \equiv the elapsed time between the stock observation
and first dividend payment dates, in years; and
 g \equiv the expected dividend growth rate.

209 That model assumes dividends will grow at a constant rate, and the market value of
210 common stock (i.e., stock price) equals the sum of the discounted value of each
211 dividend.

212 **Q. How did you estimate the growth rate parameter?**

213 A. Determining the market-required rate of return with the DCF methodology requires
214 a growth rate that reflects the expectations of investors. Although the current market
215 price reflects aggregate investor expectations, market-consensus expected growth
216 rates cannot be measured directly. Therefore, I measured market-consensus
217 expected growth indirectly with growth rates forecasted by securities analysts that
218 are disseminated to investors.

219 IBES and Zacks summarize and publish the earnings growth expectations of
220 financial analysts that the research departments of investment brokerage firms
221 employ. To measure market-consensus expected growth, I averaged the IBES and
222 Zacks growth rate estimates. Schedule 2.04 presents the analyst growth rate
223 estimates for the companies in the samples.

224 **Q. How did you measure the stock price?**

225 A. A current stock price reflects all information that is available and relevant to the
226 market; thus, it represents the market's assessment of the common stock's current
227 value. I measured each company's current stock price with its closing market price
228 from November 14, 2001. Those stock prices appear on Schedule 2.05.

229 Since current stock prices reflect the market's current expectation of the cash flows
230 the securities will produce and the rate at which those cash flows are discounted, an
231 observed change in the market price does not necessarily indicate a change in the
232 required rate of return on common equity. Rather, a price change may reflect
233 investors' re-evaluation of the expected dividend growth rate. In addition, stock
234 prices change with the approach of dividend payment dates. Consequently, when
235 estimating the required return on common equity with the DCF model, one should
236 measure the expected dividend yield and the corresponding expected growth rate
237 concurrently. Using an historical stock price along with current growth expectations
238 or combining an updated stock price with past growth expectations would likely
239 produce an inaccurate estimate of the market-required rate of return on common
240 equity.

241 **Q. Please explain the significance of the column titled "Next Dividend Payment**
242 **Date" shown on Schedule 2.05.**

243 **A.** Estimating year-end dividend values requires measuring the length of time between
244 each dividend payment date and the first anniversary of the stock observation date.
245 For the first dividend payment, that length of time is measured from the "Next
246 Dividend Payment Date." Subsequent dividend payments occur in quarterly
247 intervals.

248 **Q. How did you estimate the next four expected quarterly dividends?**

249 A. Most utilities declare and pay the same dividend per share for four consecutive
250 quarters before adjusting the rate. Consequently, I assumed the dividend rate will
251 adjust during the same quarter it changed during the preceding year. If the utility did
252 not change its dividend during the last year, I assumed the rate would change during
253 the next quarter. The average expected growth rate was applied to the current
254 dividend rate to estimate the expected dividend rate. Schedule 2.05 presents the
255 current quarterly dividends. Schedule 2.06 presents the expected quarterly
256 dividends.

257 **Q. Based on your DCF analysis, what are the estimated required rates of return**
258 **on common equity for the electric sample and the gas sample?**

259 A. The DCF analysis estimated required rates of return on common equity of 12.58%
260 for the Electric sample and 11.31% for the Gas sample, as shown on Schedule
261 2.07. Those results represent averages of the DCF estimates for the individual
262 companies in each sample, which are derived from the growth rates presented on
263 Schedule 2.04, the stock price and dividend payment dates presented on Schedule
264 2.05, and the expected quarterly dividends presented on Schedule 2.06.

265

Risk Premium Analysis

266 **Q. Please describe the risk premium model.**

267 A. The risk premium model is based on the theory that the market-required rate of
268 return for a given security equals the risk-free rate of return plus a risk premium
269 associated with that security. A risk premium represents the additional return
270 investors expect in exchange for assuming the risk inherent in an investment.
271 Mathematically, a risk premium equals the difference between the expected rate of
272 return on a risk factor and the risk-free rate. If the risk of a security is measured
273 relative to a portfolio, then multiplying that relative measure of risk and the portfolio's
274 risk premium produces a security-specific risk premium for that risk factor.

275 The risk premium methodology is consistent with the theory that investors are risk-
276 averse. That is, investors require higher returns to accept greater exposure to risk.
277 Thus, if investors had an opportunity to purchase one of two securities with equal
278 expected returns, they would purchase the security with less risk. Conversely, if
279 investors had an opportunity to purchase one of two securities with equal risk, they
280 would purchase the security with the higher expected return. In equilibrium, two
281 securities with equal quantities of risk have equal required rates of return.

282 The Capital Asset Pricing Model ("CAPM") is a one-factor risk premium model that
283 mathematically depicts the relationship between risk and return as:

284
$$R_j = R_f + \beta_j \times (R_m - R_f)$$

where R_j \equiv the required rate of return for security j ;

R_f \equiv the risk-free rate;

R_m \equiv the expected rate of return for the market portfolio; and

β_j \equiv the measure of market risk for security j .

285 In the CAPM, the risk factor is market risk which is defined as risk that cannot be
286 eliminated through portfolio diversification. To implement the CAPM, one must
287 estimate the risk-free rate of return, the expected rate of return on the market
288 portfolio, and a security or portfolio-specific measure of market risk.

289 **Q. How did you estimate the risk-free rate of return?**

290 A. I examined the suitability of the yields on three-month U.S. Treasury bills and thirty-
291 year U.S. Treasury bonds as estimates of the risk-free rate of return.

292 **Q. Why did you examine the yields on U.S. Treasury bills and bonds as**
293 **measures of the risk-free rate?**

294 A. The proxy for the nominal risk-free rate should contain no risk premium and reflect
295 similar inflation and real risk-free rate expectations to the security being analyzed
296 through the risk premium methodology.¹² The yields of fixed income securities
297 include premiums for default and interest rate risk. Default risk pertains to the
298 possibility of default on principal or interest payments. Securities of the United
299 States Treasury are virtually free of default risk by virtue of the federal government's
300 fiscal and monetary authority. Interest rate risk pertains to the effect of unexpected
301 interest rate fluctuations on the value of securities.

302 Since common equity theoretically has an infinite life, its market-required rate of
303 return reflects the inflation and real risk-free rates anticipated to prevail over the long
304 run. U.S. Treasury bonds, the longest term treasury securities, are issued with
305 terms to maturity of thirty years; U.S. Treasury notes are issued with terms to
306 maturity ranging from two to ten years; U.S. Treasury bills are issued with terms to
307 maturity ranging from ninety-one days to one year. Therefore, U.S. Treasury bonds
308 are more likely to incorporate within their yields the inflation and real risk-free rate
309 expectations that drive, in part, the prices of common stocks than either U.S.
310 Treasury notes or Treasury bills.

311 However, due to relatively long terms to maturity, U.S. Treasury bond yields also
312 contain an interest rate risk premium that diminishes their usefulness as measures

¹² Real risk-free rate and inflation expectations comprise the non-risk portion of a security's rate of return.

313 of the risk-free rate. U.S. Treasury bill yields contain a smaller premium for interest
314 rate risk. Thus, in terms of interest rate risk, U.S. Treasury bill yields more
315 accurately measure the risk-free rate.

316 **Q. Given that the inflation and real risk-free rate expectations reflected in the**
317 **yields on U.S. Treasury bonds and the prices of common stocks are similar,**
318 **does it necessarily follow that the inflation and real risk-free rate**
319 **expectations that are reflected in the yields on U.S. Treasury bills and the**
320 **prices of common stocks are dissimilar?**

321 **A.** No. To the contrary, short and long-term inflation and real risk-free rate
322 expectations, including those that are reflected in the yields on U.S. Treasury bills,
323 U.S. Treasury bonds, and the prices of common stocks, should equal over time.
324 Any other assumption implausibly implies that the real risk-free rate and inflation are
325 expected to systematically and continuously rise or fall.

326 Although expectations for short and long-term real risk-free rates and inflation
327 should equal over time, in finite time periods, short and long-term expectations may
328 differ. Short-term interest rates tend to be more volatile than long-term interest
329 rates.¹³ Consequently, over time U.S. Treasury bill yields are less biased (i.e., more
330 accurate) but less reliable (i.e., more volatile) estimators of the long-term risk-free

331 rate than U.S. Treasury bond yields. In comparison, U.S. Treasury bond yields are
332 more biased (i.e., less accurate) but more reliable (i.e., less volatile) estimators of
333 the long-term risk-free rate. Therefore, an estimator of the long-term nominal risk-
334 free rate should not be chosen mechanistically. Rather, the similarity in current short
335 and long-term nominal risk-free rates should be evaluated. If those risk-free rates
336 are similar, then U.S. Treasury bill yields should be used to measure the long-term
337 nominal risk-free rate. If not, some other proxy or combination of proxies should be
338 used.

339 **Q. What are the current yields on three-month U.S. Treasury bills and thirty-**
340 **year U.S. Treasury bonds?**

341 A. Three-month U.S. Treasury bills are currently yielding 1.89%. Thirty-year U.S.
342 Treasury bonds are currently yielding 5.08%. Both estimates are derived from
343 quotes for November 14, 2001.¹⁴ Schedule 2.08 presents the published quotes and
344 effective yields.

345 **Q. Of the U.S. Treasury bill and bond yields, which is currently a better proxy**
346 **for the long-term risk-free rate?**

¹³ Fabozzi and Pollack, ed., *The Handbook of Fixed Income Securities*, Fourth Edition, Irwin, p. 789.

¹¹ The Federal Reserve Board, *Federal Reserve Statistical Release: Selected Interest Rates, H.15 Daily Update*, <http://www.federalreserve.gov/releases/H15/update/>, November 14, 2001.

347 A. In terms of the gross domestic product ("GDP") price index, DRI-WEFA forecasts
348 the inflation rate will average 3.0% annually during the 2001-2026 period.¹⁵ In terms
349 of the consumer price index ("CPI"), the *Survey of Professional Forecasters*
350 ("Survey") forecasts the inflation rate will average 2.6% during the next ten years.¹⁶
351 In terms of real GDP growth, DRI-WEFA forecasts the real risk-free rate will
352 average 2.9% during the 2001-2026 period.¹⁷ The Survey forecasts real GDP
353 growth will average 3.3% during the next ten years.^{18, 19} Those forecasts imply a
354 long-term, nominal risk-free rate between 6.0% and 6.3%.²⁰ Therefore, DRI-WEFA
355 and Survey forecasts of inflation and real GDP growth expectations indicate that the
356 U.S. Treasury bond yield more closely approximates the long-term risk-free rate at
357 this time. It should be noted, however, that the estimate from using the U.S.
358 Treasury bond yield contains an upward bias due to the inclusion of an interest rate
359 risk premium associated with its relatively long term to maturity.

¹⁵ *The U.S. Economy: The 25-Year Focus*, DRI-DRI-WEFA, Summer Issue 2001, pp. A.60 and A.63.

¹⁶ *Survey of Professional Forecasters*, Federal Reserve Bank of Philadelphia, www.phil.frb.org/files/spf/survq101.html, August 23, 2001. The *Survey* aggregates the forecasts of approximately thirty forecasters.

¹⁷ *The U.S. Economy: The 25-Year Focus*, DRI-DRI-WEFA, Summer Issue 2001, pp. A.8-A.9.

¹⁸ *Survey of Professional Forecasters*, Federal Reserve Bank of Philadelphia, www.phil.frb.org/files/spf/survq101.html, February 20, 2001.

¹⁹ Historically, the realized interest rate return premium averaged 1.4% during the last 75 years (Ibbotson Associates, *Stocks, Bonds, Bills, and Inflation, 2001 Yearbook*, p. 174).

²⁰ Nominal interest rates are calculated as follows:

$$r = (1 + R) \times (1 + i) - 1.$$

where

r ≡ nominal interest rate;
R ≡ real interest rate; and
i ≡ inflation rate.

360 **Q. Please explain why the real risk-free rate and the GDP growth rate should be**
361 **similar.**

362 A. Risk-free securities provide a rate of return sufficient to compensate investors for
363 the time value of money, which is a function of production opportunities, time
364 preferences for consumption, and inflation.²¹ In contrast, the real risk-free rate does
365 not include a premium for inflation. The real GDP growth rate measures output of
366 goods and services excluding inflation and, as such, also reflects both production
367 and consumers' consumption preferences. Therefore, both the real GDP growth
368 rate and the real risk-free rate of return should be similar since both are a function of
369 production opportunities and consumption preferences without the effects of a risk
370 premium or an inflation premium.

371 **Q. How was the expected rate of return on the market portfolio estimated?**

372 A. The expected rate of return on the market was estimated by conducting a DCF
373 analysis on the firms composing the S&P 500 Index ("S&P 500"). That analysis
374 used dividends and closing market prices as of September 28, 2001 as reported in
375 the October 2001 edition of *S&P Security Owner's Stock Guide*. Growth rate
376 estimates were obtained from the September 2001 edition of *IBES Monthly*
377 *Summary Data* and September 26, 2001 Zacks reports. Firms not paying a

378 dividend as of September 28, 2001, or for which neither IBES nor Zacks growth
379 rates were available were eliminated from the analysis. The resulting company-
380 specific estimates of the expected rate of return on common equity were then
381 weighted using market value data from Salomon Smith Barney, *Performance and*
382 *Weights of the S&P 500: Third Quarter 2001*. The estimated weighted average
383 expected rate of return for the remaining 359 firms, composing 81.86% of the
384 market capitalization of the S&P 500, equals 15.30%.

385 **Q. Has any financial market uncertainty resulting from the September 11, 2001**
386 **terrorist attacks affected the accuracy of your estimate of the required rate**
387 **of return on the market?**

388 A. No. The required rate of return on the market equaled 15.31% as of June 28, 2001.
389 The small difference between the June 28 and September 28, 2001 estimates
390 suggests little, if any, unusual post September 11, 2001 related impact on my
391 estimate of the market return.

392 **Q. How did you measure market risk on a security-specific basis?**

393 A. Beta measures risk in a portfolio context. When multiplied by the market risk
394 premium, a security's beta produces a market risk premium specific to that security.

²¹ Brigham and Houston, Fundamentals of Financial Management, 8th edition.

395 I used Value Line's beta estimates for the companies in my samples. The Value
396 Line beta for a security is estimated with the following model using an ordinary
397 least-squares technique.²²

398
$$R_{j,t} = a_j + \beta_j \times R_{m,t} + e_{j,t}$$

where $R_{j,t}$ \equiv the return on security j in period t ;

$R_{m,t}$ \equiv the return on the market portfolio in period t ;

a_j \equiv the intercept term for security j ;

β_j \equiv beta, the measure of market risk for security j ; and

$e_{j,t}$ \equiv the residual term in period t for security j .

399 A beta can be calculated for firms with market-traded common stock. Value Line
400 calculates its betas in two steps. First, the returns of each company are regressed
401 against the returns of the New York Stock Exchange Composite Index to estimate a
402 raw beta. The regression analysis employs 260 weekly observations of stock return
403 data. Then, an adjusted beta is estimated through the following equation:

404
$$\beta_{adjusted} = 0.35 + 0.67 \times \beta_{raw}.$$

405 From the individual betas of the companies in each sample a single average beta
406 was computed for each sample to be input into the CAPM.

407 **Q. Why do you use an adjusted beta estimate?**

²² Statman, Meir, "Betas Compared: Merrill Lynch vs. Value Line", *The Journal of Portfolio Management*, Winter 1981.

408 A. I use an adjusted beta estimate because empirical tests of the CAPM suggest that
409 the linear relationship between risk, as measured by raw beta, and return is flatter
410 than the CAPM predicts. That is, securities with raw betas less than one tend to
411 realize higher returns than the CAPM predicts. Conversely, securities with raw
412 betas greater than one tend to realize lower returns than the CAPM predicts.
413 Adjusting the raw beta estimate towards the market mean value of 1.0
414 compensates for the observed flatness in the linear relationship between risk and
415 return.²³ Securities with betas less than one are adjusted upwards thereby
416 increasing the predicted required rate of return towards observed realized rates of
417 return. Conversely, securities with betas greater than one are adjusted downwards
418 thereby decreasing the predicted required rate of return towards observed realized
419 rates of return. The adjustment represents an attempt to estimate a forward-looking
420 beta.

421 **Q. What are the beta estimates for the electric sample and the gas sample?**

422 A. The average Value Line adjusted beta for the Electric sample equals 0.51. The
423 average Value Line adjusted beta for the Gas sample equals 0.58.

²³ Litzenger, Ramaswamy and Sosin, "On the CAPM Approach to the Estimation of A Public Utility's Cost of Equity Capital," *Journal of Finance*, May 1980, pp. 375-376.

424 **Q. What required rate of return on common equity does the risk premium**
425 **model estimate for the two samples?**

426 A. The risk premium model estimates a required rate of return on common equity of
427 10.30% for the Electric sample and 10.96% for the Gas sample. The computation
428 of those estimates appears on Schedule 2.08.

429 **Cost of Equity Recommendation**

430 **Q. Based on your entire analysis, what is your estimate of the required rate of**
431 **return on the common equity for IPC?**

432 A. A thorough analysis of the required rate of return on common equity requires both
433 the application of financial models and the analyst's informed judgment. An
434 estimate of the required rate of return on common equity based solely on judgment
435 is inappropriate. Nevertheless, because techniques to measure the required rate of
436 return on common equity necessarily employ proxies for investor expectations,
437 judgment remains necessary to evaluate the results of such analyses. Based on my
438 analysis, in my judgment the investor-required rate of return on common equity for
439 IPC equals 11.14%.

440 **Q. Please summarize how you formed your recommendation for the investor-**
441 **required rate of return on common equity for IPC's electric delivery services.**

442 A. My recommended rate of return on common equity, 11.14%, is the average of the
443 DCF and CAPM results for the Gas Sample. The models from which the individual
444 company estimates were derived are correctly specified and thus contain no source
445 of bias. Moreover, I am unaware of bias in my proxy for investor expectations.²⁴ In
446 addition, measurement error has been minimized through the use of a sample,
447 since estimates for a sample as a whole are subject to less measurement error than
448 individual company estimates.

449 When using samples to estimate the cost of equity of a target company, the risk
450 level of the proxies should correspond to the risk level of the target company as
451 closely as possible. Therefore, I analyzed the S&P credit ratings and business
452 profile rankings of my sample groups to determine which more closely
453 approximates the risk level of IPC. An S&P credit rating is a measure of a
454 company's overall risk and the S&P business profile ranking is a measure of a
455 company's business risk.²⁵ As noted previously, the appropriate credit rating for
456 IPC is A+. In addition, S&P states that regulated distribution systems business
457 profile assessments tend to fall within the 1-4 range.²⁶ Therefore, I compared my

²⁴ Except as discussed above in regard to U.S. Treasury bond yields as proxies for the long-term risk-free rate.

²⁵ S&P assigns companies business profiles ranging from 1 to 10 based on business risk, with 1 being the lowest business risk and 10 being the highest. Standard & Poor's, *Utilities & Perspectives*, June 21, 1999.

²⁶ Standard and Poor's, *Corporate Ratings Criteria*, 1998, p. 32.

458 samples as they relate to a company with a corporate credit rating of A+ and a
459 business profile of 4.²⁷ The Gas Sample has an average S&P credit rating
460 between A and A+ and an average business profile ranking of 3.25, which indicates
461 it is reasonably representative of IPC's electric delivery service operations in terms
462 of overall financial strength and business risk. In contrast, the Electric Sample has
463 an average S&P credit rating of A and an average business profile ranking of 4.89,
464 which indicates it is riskier than IPC's electric delivery service operations in terms of
465 overall financial strength and business risk. Schedule 2.09 presents the S&P credit
466 ratings and business position ratings of the samples. Therefore, I based my
467 recommended rate of return on common equity on an average of the DCF and
468 CAPM estimates for my Gas Sample.

469 **Overall Cost of Capital Recommendation**

470 **Q. What is the overall cost of capital for IPC?**

471 A. As shown on Schedule 2.01, IPC's overall cost of capital is 9.52%. The
472 recommended estimate incorporates a cost of common equity of 11.14%.

²⁷ IPC was assigned an S&P business profile of 5, which reflects ownership of riskier generation assets. IPC's electric delivery services operations, exclusive of its riskier generation assets, would almost certainly be higher. Thus, a business profile of 4 was utilized.

473

Response to Mr. Bacalao

474 **Q. Please summarize your evaluation of Mr. Bacalao's analyses of IPC's cost**
475 **of common equity.**

476 **A.** Mr. Bacalao measured IPC's investor required rate of return on common equity with
477 a historical and forecasted comparable earnings model, a discounted cash flow
478 (DCF) model, a risk premium model, and a capital asset pricing model (CAPM).
479 He applied each model to a general sample.

480 Mr. Bacalao's analyses contain several errors that lead him to incorrectly estimate
481 IPC's cost of common equity. The most significant flaws in Mr. Bacalao's analyses
482 of IPC's cost of common equity are the following:

- 483 1. Mr. Bacalao's sample is not representative of the risk inherent in IPC's
484 electric delivery service operations.
- 485 2. Mr. Bacalao's comparable earnings methodology does not provide valid
486 estimates of the investor-required rate of return on IPC's common equity.
- 487 3. Mr. Bacalao's DCF analysis contains an unreasonable terminal growth rate.

488 4. Mr. Bacalao's risk premium model is based on the incorrect assumption that
489 historical risk premiums are reasonable estimates of current investor-
490 required risk premiums.

491 5. Mr. Bacalao's CAPM analysis is seriously flawed and does not accurately
492 reflect the cost of equity for his sample.

493 **Mr. Bacalao's Sample**

494 **Q. Please summarize how Mr. Bacalao determined his sample.**

495 A. Mr. Bacalao's sample was developed from Value Line's 1,700-company universe
496 by using Value Line's safety ranking as a screen.²⁸ Since Alliant Energy
497 Corporation ("Alliant") has a Value Line safety ranking of "2", all firms with a safety
498 ranking of "2" were included in Mr. Bacalao's general sample.

499 **Q. Is Mr. Bacalao's use of the Value Line safety ranking appropriate for**
500 **selecting his sample?**

501 A. No. The Value Line safety ranking is an imprecise measure of risk and its use as a
502 screening technique is problematic as well. Value Line sorts its 1,700 company
503 universe of stocks by a composite index score and then divides those 1,700

²⁸ Prepared Direct Testimony of Enrique Bacalao pp. 13-15.

504 companies into five very broad segments from 1 (safest) to 5 (riskiest). There are
505 150 stocks rated 1 for safety; 250 are rated 2, above average for safety; 900 are
506 rated 3, average for safety; 250 are rated 4, below average for safety; and 150 are
507 rated 5, lowest for safety.²⁹ Stocks that are close to one another, such as numbers
508 150 and 151, may be assigned different safety numbers while stocks ranked far
509 from each other, such as number 401 and 1300, may be assigned the same safety
510 number.³⁰ Therefore, stocks with different assigned safety numbers may be more
511 similar in risk than stocks ranked far apart with identical assigned safety numbers.

512 **Q. Are there any other shortcomings in Mr. Bacalao's application of the Value**
513 **Line safety rank?**

514 **A.** Yes. IPC, as a non-publicly traded company, does not have a Value Line safety
515 rank. Therefore, Mr. Bacalao used the safety rank of Alliant, which is IPC's parent
516 company. Since Alliant has a subsidiary that is engaged in foreign distribution and
517 domestic generation businesses, Alliant's safety rank reflects non-utility risks. In
518 addition, since Value Line does not state to what degree that subsidiary affects
519 common equity risks, the implied safety rank of IPC's electric delivery service
520 operations on a stand-alone basis cannot be derived.³¹ If Alliant's unregulated
521 subsidiary affects its Value Line safety rank (as that subsidiary has affected Alliant's
522 credit rating), any cost of common equity estimate calculated from a sample formed

²⁹ Value Line Investment Survey, *A Subscriber's Guide*, p. 48.

³⁰ Arnold Bernhard, *Value Line Methods of Evaluating Common Stocks*, pp. 53 and 57.

523 on that basis would reflect the risk of the unregulated affiliate. Therefore, Mr.
524 Bacalao's samples should not be considered when determining IPC's cost of
525 common equity for their electric delivery services.

526 **Q. Has the inclusion of non-utility companies impacted Mr. Bacalao's cost of**
527 **equity analyses?**

528 A. Yes. I do not have a breakdown of company DCF return between utility and non-
529 utility companies; however, the beta for Mr. Bacalao's entire sample equaled .77
530 while the betas for the electric and gas utilities within that sample averaged .52 and
531 .55, respectively. The higher the beta, the greater the cost of common equity.

532 **Comparable Earnings**

533 **Q. Please summarize Mr. Bacalao's comparable earnings analysis.**

534 A. Mr. Bacalao used historical return on book equity as reported by Value Line for the
535 period 1991 to 2000 and forecasted Value Line estimates of return on book equity
536 for the years 2004 through 2006 for the companies in his samples to estimate IPC's

³¹ Value Line Investment Survey Ratings & Reports, October 5, 2001, p. 697.

537 cost of equity. He claims that actual book returns provide a less biased view of
538 return levels.³²

539 **Q. Is the comparable earnings methodology appropriate for determining the**
540 **cost of common equity?**

541 A. No. The comparable earnings approach, which Mr. Bacalao relied upon to develop
542 two of his cost of common equity estimate for IPC's electric delivery service
543 operations in this proceeding, is badly flawed. The cost of common equity is the
544 market-required rate of return demanded by investors. In contrast, comparable
545 earnings analysis is not a market-based methodology. The comparable earnings
546 method incorrectly implies that the earned or expected rates of return on book
547 common equity are equivalent to the current investor-required rate of return.
548 However, there is simply no basis for this implication. Market-based cost of equity
549 methodologies reflect the investor-required rate of return since the market price of a
550 common stock will not reach equilibrium until the expected rate of return on the
551 common stock equals the investor-required rate of return. In contrast, the return on
552 book equity has no such adjustment mechanism since its denominator, book value,
553 is immune to market forces.

554 **Q. Has the Commission rejected use of the comparable earnings analysis to**
555 **measure a utility's cost of equity?**

³² Prepared Direct Testimony of Enrique Bacalao, p.15.

556 A. Yes. The Commission rejected use of the comparable earnings methodology in
557 Docket Nos. 99-0121, 89-0033, and 92-0448/93-0239 Consol.³³

558 **DCF Analysis**

559 **Q. Please summarize Mr. Bacalao's DCF analysis.**

560 A. Mr. Bacalao used an annual two-step DCF analysis. He used Zacks five-year
561 growth rates for the first stage. Mr. Bacalao used Ibbotson Associates' estimate of
562 the long-run annual rate of inflation to determine the terminal growth rate for the
563 second stage.

564 **Q. Please respond to Mr. Bacalao's criticisms of the DCF analysis.**

565 A. Mr. Bacalao cites three reasons why the DCF model could produce unreasonable
566 estimates of the cost of equity: economic cycle, terminal growth rate, and business
567 cycle. I disagree that those three reasons invalidate the usefulness of DCF
568 analysis.

569 First, with regard to economic cycle, if earnings growth expectations are depressed
570 due to a recession, then stock prices will decline until the expected return equals the

³³ Order, Docket 99-0121, August 25, 1999, p. 68; Order on Remand, Docket No. 89-0033, November 4, 1991, p.15; Order, Docket No. 92-0448/93-0239 Consol., October 11, 1994, p. 173.

571 investor required rate of return. Thus, regardless of economic cycle, a company's
572 stock price will reflect its investor's required rate of return.

573 Second, Mr. Bacalao uses an unreasonable terminal growth rate. Mr. Bacalao is
574 assuming that the company will only grow at the rate of inflation. This implausibly
575 implies the Company will not experience real growth. Thus, Mr. Bacalao's criticism
576 of the terminal growth rate is not applicable to the DCF model in general, but to his
577 implementation of that model.

578 Third, Mr. Bacalao argues the DCF model may produce unreasonable estimates of
579 the cost of equity depending on the business life cycle of the sample companies.
580 Clearly, the expected growth of a company is a function of business life cycle. For
581 example, a non-constant growth DCF model should be used for companies that are
582 experiencing rapid near-term growth. However, determining the growth rate for the
583 various growth stages for such an analysis is problematic as Mr. Bacalao's own
584 non-constant growth DCF analysis attests. Fortunately, a constant growth
585 assumption is generally valid for utility companies that operate in mature industries.

586 **Risk Premium Model**

587 **Q. Do you have any comments regarding Mr. Bacalao's risk premium analysis?**

588 A. Yes. Mr. Bacalao relied upon historical risk premiums in his risk premium analysis.
589 Historical risk premiums do not adequately measure investors' current return
590 requirements because historical risk premiums are based on realized returns. Due
591 to unpredictable movements in financial markets and the economy, the difference
592 between realized and expected returns can be substantial. Thus, historical
593 premiums are not reliable proxies of current or future risk premiums.

594 **Q. Has the Commission ruled on the use of historical data in determining a**
595 **company's cost of capital before?**

596 A. Yes. In Docket No. 92-0357, a rate proceeding for Iowa-Illinois Gas and Electric
597 Company, the Commission Order stated, "[t]he Commission notes that the investor-
598 required return on common equity is a forward-looking concept. Mr. Benore [the
599 company witness], in many instances, inappropriately utilized historical data to
600 determine the Company's cost of equity."³⁴ Similarly, in Docket No. 95-0076, a rate
601 proceeding for Illinois-American Water Company, the Commission Order stated,
602 "[t]he Commission also concludes that Staff's criticism of Dr. Phillips' use of two-
603 month average historical stock prices and historical growth rates in his traditional
604 DCF analysis, and historical risk premiums in his risk premium analysis are valid.

³⁴ Order, Docket No. 92-0357, July 21, 1993, p. 66.

605 Historical data is inappropriate in determining a forward-looking cost of equity
606 because it contains information that may no longer be relevant to investors."³⁵

607 **CAPM Analysis**

608 **Leverage Adjustment**

609 **Q. Please summarize the leverage adjustments that Mr. Bacalao made to his**
610 **CAPM analysis.**

611 Mr. Bacalao modified the beta component of the CAPM to account for the effect of
612 a company's financial leverage on its risk. Mr. Bacalao removed the effect of
613 financial leverage from his sample companies' betas using market-value capital
614 structures to obtain an unlevered beta and then re-levered it using the proposed
615 book-value capital structure of IPC. Mr. Bacalao then used the re-levered betas for
616 his sample companies when estimating the cost of equity with the CAPM
617 methodology.³⁶

618 **Q. Please define the term financial leverage.**

619 **A. Financial leverage is the amount of fixed financial obligations. The greater the**
620 **proportion of fixed financial obligations to capital, the greater the financial leverage.**

³⁵ Order, Docket No. 95-0076, December 20, 1995, p. 70.

³⁶ Prepared Direct Testimony of Enrique Bacalao pp. 16-17.

621 **Q. Are the leverage adjustments as implemented by Mr. Bacalao appropriate**
622 **for his CAPM analysis?**

623 A. No. Re-levering the sample companies' betas to IPC's financial leverage increases
624 the implied risk of Mr. Bacalao's sample relative to IPC. Since Value Line safety
625 rank is a function of both operating risk and financial leverage, many of the
626 companies in the sample would no longer receive the same safety ranking if their
627 financial leverage was that of IPC. The electric companies in Mr. Bacalao's sample
628 had an average Value Line beta of .52 and a re-levered beta of .51. The gas
629 distribution companies in Mr. Bacalao's sample had an average Value Line beta of
630 .55 and a re-levered beta .56. The small difference between the Value Line beta
631 and the re-levered beta indicates that the electric and gas distribution companies
632 have financial leverage similar to IPC. In contrast, the beta for the entire sample
633 averages .77, and the relevered beta averages 1.00 indicating that the financial risk
634 of the sample is lower than IPC. Therefore, if the sample has the same total risk as
635 IPC but lower financial risk (before the beta adjustment) the operating risk of the
636 entire sample must be higher. Thus, the leverage adjustment might result in a
637 sample with the same financial risk as IPC, but operating risk would remain higher.
638 That is, if the total risk of Mr. Bacalao's sample was equal to that of IPC, then his
639 beta adjustment surely resulted in a sample with implied total risk that exceeds that
640 for IPC.

641 **Q. If one assumes that a leverage adjustment is appropriate, did Mr. Bacalao**
642 **implement the leverage adjustments properly?**

643 A. No. Mr. Bacalao used the market value capital structures of the sample companies
644 to unlever the cost of equity estimates. When re-levering, Mr. Bacalao used IPC's
645 proposed book value capital structure. Essentially, Mr. Bacalao adjusted his
646 market-based CAPM models for application to book value.³⁷ Consistency is
647 important when implementing the leverage adjustment. Because IPC's common
648 stock is not market traded, its market value of common equity is unobservable.
649 Therefore, if Mr. Bacalao is to be consistent in his leveraging adjustment, he should
650 use an estimated market value capital structure for IPC.

651 **Q. Has the Commission ever rejected the use of the leverage adjustments to a**
652 **utility's cost of equity?**

653 A. Yes. The Commission rejected use of the leverage adjustments in Docket No. 99-
654 0120/99-0134 Consol. and 94-0065.³⁸

³⁷ Although it might appear as if book value capital structures imply a greater level of financial leverage than a market value capital structure, such an appearance would be misleading. Capital structure ratios are only indicators of financial leverage, rather than sources of financial leverage. Changing measurement units (i.e., from market values to book values) does not change the degree of financial leverage a firm employs.

³⁸ Order 99-0120/99-0134 Consol., August 25, 1999, p. 54; Order 94-0065, January 9, 1995, pp. 92-93.

655 **Risk Premium**

656 **Q. Please describe the methods Mr. Bacalao used to determine the risk**
657 **premium component for the CAPM analysis.**

658 A. Mr. Bacalao averaged the Annual Total Returns of Large Company Stocks and
659 Small Company Stocks to determine the expected market return for his first two
660 CAPM calculations. He then subtracted out the risk-free rate to determine the risk
661 premium. The equity risk premium published by Ibbotson Associates was used to
662 determine the risk premium in his third and fourth calculations.

663 **Q. Is Mr. Bacalao's risk premium estimate appropriate?**

664 A. No. Mr. Bacalao used the historical return on large and small-capitalization stocks
665 as a proxy for the current required return on the market. This is problematic for three
666 reasons. First historical risk premiums are unreliable proxies for expected return for
667 the reasons stated in the Commission Orders previously cited. Second, the return
668 on small-capitalization stocks is not representative of the stocks against which
669 betas are calculated. Beta is a function of variance of the market returns, thus Mr.
670 Bacalao created a mismatch between beta and the market index. The greater the
671 variance of the market returns, the lower the beta, all else equal. The historical
672 standard deviation for large and small capitalization stock returns is 20.1% and

673 33.6%, respectively.^{39,40} Value line betas are regressed against the NYSE, which
674 contains a much smaller proportion of small capitalization stocks. Thus, the
675 standard deviation of the NYSE is likely to be lower than the standard deviation of a
676 portfolio in which small capitalization stocks are equally weighted with large
677 capitalization stocks. Third, a simple average of large and small company risk
678 premiums over weights the latter since small company stocks account for less than
679 1% of the total market capitalization proportion of the NYSE and less than 3% of the
680 total market as measured by the Wilshire 5000.^{41,42,43}

681 **Q. Does this conclude your direct testimony?**

682 **A. Yes.**

³⁹ Standard deviation is the square root of variance.

⁴⁰ Ibbotson Associates, *Stocks, Bonds, Bills, and Inflation, 2000 Yearbook*, p. 33.

⁴¹ Ibbotson Associates, *Stocks, Bonds, Bills, and Inflation, 2000 Yearbook*, p. 140.

⁴² Ibbotson Associates, *Stocks, Bonds, Bills, and Inflation, 2000 Yearbook*, p. 57.

⁴³ Wilshire Indexes, www.wilshire.com/Indexes/Broad.Wilshire5000/Characteristics.html, October 31, 2001

Interstate Power Company

Weighted Average Cost of Capital

<u>Component</u>	<u>Balance</u>	<u>Percent of Total Capital</u>	<u>Cost</u>	<u>Weighted Cost</u>
Long-Term Debt	\$ 169,257,754	39.02%	7.96%	3.10%
Preferred Equity	\$ 36,558,117	8.43%	6.81%	0.57%
Common Equity	\$ 227,917,195	52.55%	11.14%	5.85%
Total	<u>\$ 433,733,066</u>	<u>100.0%</u>		<u>9.52%</u>

**Interstate Power Company
 Embedded Cost of Debt**

12/31/2000 Series C1	Coupon C2	Date Issued C3	Maturity Date C4	Original Principal Amount C7	Face Amount Outstanding C8	Unamortized Disc/(Prem) C9	Balances Issue Exp. C10	Carrying Value C11	Annualized Coupon Int. C12	Annualized Disc/(Prem) C13	Amortization Issue Exp. C14	Annualized Int. Exp. C15
First Mortgage Bonds 8 5/8%	8.63%	9/15/1991	9/15/2021	\$25,000,000	\$25,000,000	\$553,680	\$194,223	\$24,252,097	\$2,156,250	\$26,737	\$9,379	\$2,192,366
First Mortgage Bonds 8.0%	8.00%	2/15/1992	2/15/2007	\$25,000,000	\$25,000,000	\$186,821	\$69,515	\$24,743,664	\$2,000,000	\$30,501	\$11,349	\$2,041,850
First Mortgage Bonds 7 5/8%	7.63%	5/15/1993	5/15/2023	\$94,000,000	\$94,000,000	\$2,008,971	\$305,050	\$91,685,979	\$7,167,500	\$30,187	\$4,579	\$7,202,266
Total				\$144,000,000	\$144,000,000	\$2,749,472	\$568,788	\$140,681,740	\$11,323,750	\$87,425	\$25,307	\$11,436,482

	Coupon C2	Date Issued C3	Maturity Date C4	Original Principal Amount C7	Face Amount Outstanding C8	Unamortized Disc/(Prem) C9	Balances Issue Exp. C10	Carrying Value C10	Annualized Coupon Int. C11	Annualized Disc/(Prem) C13	Amortization Issue Exp. C14	Annualized Int. Exp. C15
Pollution Control Bonds												
Lansing- 6.30% Series A	6.30%	6/1/1994	5/1/2010	\$5,600,000	\$5,600,000	\$0	\$107,249	\$5,492,751	\$352,800	\$0	\$8,017	\$360,817
Lansing- 5.75% Series B	5.75%	6/1/1994	6/1/2003	\$1,000,000	\$1,000,000	\$0	\$8,851	\$991,149	\$57,500	\$0	\$3,288	\$60,788
Clinton- 6.35% Series A	6.35%	6/1/1994	12/1/2012	\$5,650,000	\$5,650,000	\$0	\$118,291	\$5,531,709	\$358,775	\$0	\$6,253	\$365,028
Clinton- 6.25% Series B	6.25%	6/1/1994	4/1/2009	\$1,000,000	\$1,000,000	\$0	\$18,238	\$981,762	\$62,500	\$0	\$1,601	\$64,101
Lansing- 4.30% Series	4.30%	11/30/1998	11/1/2008	\$2,300,000	\$2,300,000	\$0	\$63,121	\$2,236,879	\$98,900	\$0	\$5,728	\$104,628
Debuque- 4.30% Series	4.30%	11/30/1998	11/1/2005	\$2,650,000	\$2,650,000	\$0	\$63,192	\$2,586,808	\$113,950	\$0	\$9,463	\$123,413
Neal #4 - 4.2% Series	4.20%	3/23/1999	1/1/2013	\$7,700,000	\$7,700,000	\$0	\$119,765	\$7,580,235	\$323,400	\$0	\$3,075	\$326,475
Fox Lake #3- 4.05% Series	4.05%	2/11/1999	2/1/1999	\$3,250,000	\$3,250,000	\$0	\$75,280	\$3,174,720	\$131,625	\$0	\$3,985	\$135,610
Total				\$29,150,000	\$29,150,000	\$0	\$573,987	\$28,576,013	\$1,499,450	\$0	\$41,410	\$1,540,860

Required Debt	Coupon C2	Date Issued C3	Maturity Date C4	Original Principal Amount C7	Face Amount Outstanding C8	Unamortized Loss C9	Carrying Value C10	Annualized Coupon Int. C11	Annualized Disc/(Prem) C13	Amortization Issue Exp. C14	Annualized Loss C15	
10% FMB-due 2004							\$352,829	-\$352,829			\$57,605	
10 1/4% FMB-due 2005							\$235,547	-\$235,547			\$38,457	
7 3/4% FMB-due 1999							\$131,373	-\$131,373			\$1,974	
8 5/8% FMB-due 2001							\$830,207	-\$830,207			\$12,475	
8 3/8% FMB-due 2002							\$482,147	-\$482,147			\$7,245	
9% FMB-due 2008							\$1,748,357	-\$1,748,357			\$26,271	
Louisa 10 3/4% PCB-due 2012							\$86,544	-\$86,544			\$7,262	
Lansing A 7 1/4% PCB-due 2010							\$39,966	-\$39,966			\$2,988	
Lansing B 7 1/4% PCB-due 2003							\$3,185	-\$3,185			\$1,183	
Kapp A 7 1/8% PCB-due 2012							\$72,731	-\$72,731			\$3,844	
Kapp B 7 1/8% PCB-due 2009							\$11,823	-\$11,823			\$1,038	
Neal #3 6 3/8% PCB-due 2013							\$41,200	-\$41,200			\$3,433	
Fox Lake 6 3/8% PCB-Due 2010							\$18,869	-\$18,869			\$2,077	
Total				\$0	\$0	\$0	\$4,054,778	-\$4,054,778	\$0	\$0	\$0	\$165,852

Total Long-Term Debt				\$173,150,000	\$173,150,000	\$2,749,472	\$5,197,553	\$165,202,975	\$12,823,200	\$87,425	\$66,717	\$13,143,194
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Embedded Cost of Long-Term Debt 7.96%

Interstate Power Company
Embedded Cost of Preferred Stock

Preferred Stock Issuance	Shares Outstanding	Balance Outstanding	Unamortized Premium	Unamortized Discount	Total Balance	Annual Dividends	Amortization of Expense	Discount	Total
4.36% Dividend Series	60,455	\$ 3,022,750	\$ 7,436		\$ 3,030,186	\$ 131,792	\$ -		\$ 131,792
4.68% Dividend Series	55,926	\$ 2,796,300	\$ 25,670		\$ 2,821,970	\$ 130,867	\$ -		\$ 130,867
7.76% Dividend Series	100,000	\$ 5,000,000	\$ 42,300		\$ 5,042,300	\$ 388,000	\$ -		\$ 388,000
6.40% Dividend Series	545,000	\$ 27,250,000		\$ 1,586,339	\$ 25,663,661	\$ 1,744,000	\$ -	\$ 93,543	\$ 1,837,543
Total Preferred Stock	761,381	\$ 38,069,050	\$ 75,406	\$ 1,586,339	\$ 36,558,117	\$ 2,394,659	\$ -	\$ 93,543	\$ 2,488,202

Embedded Cost of Preferred Stock 6.81%

**Interstate Power Company
Growth Rates**

Electric Sample

<u>Company</u>	<u>Zacks Earnings</u>	<u>IBES Earnings</u>	<u>Average</u>
1 Allegheny Energy	9.11%	10.00%	9.56%
2 Ameren Corp.	4.00%	5.00%	4.50%
3 American Electric Power	6.67%	7.00%	6.84%
4 Consolidated Edison	3.93%	4.30%	4.12%
5 Empire District		6.00%	6.00%
6 FPL Group	7.12%	7.00%	7.06%
7 Great Plains Energy	6.00%	5.00%	5.50%
8 Idacorp	10.00%	8.00%	9.00%
9 Nstar	6.40%	7.00%	6.70%

Gas Sample

<u>Company</u>	<u>Zacks Earnings</u>	<u>IBES Earnings</u>	<u>Average</u>
1 AGL Resources	6.85%	6.75%	6.80%
2 Atmos Energy Corp.	6.31%	6.33%	6.32%
3 Laclede Gas Company	7.50%	3.00%	5.25%
4 Nicor	6.38%	5.90%	6.14%
5 Northwest Natural Gas	6.25%	4.64%	5.45%
6 Peoples Energy Corporation	6.80%	5.57%	6.19%
7 Piedmont Natural Gas Company	6.75%	4.75%	5.75%
8 WGL Holding Company	5.88%	4.40%	5.14%

Interstate Power Company

Electric Sample

Company	Current Dividend				Next Dividend Payment Date	Stock Price
	D _{0,1}	D _{0,2}	D _{0,3}	D _{0,4}		
1 Allegheny Energy	\$ 0.430	\$ 0.430	\$ 0.430	\$ 0.430	12/28/2001	\$ 37.080
2 Ameren Corp.	-	0.635	0.635	0.635	12/28/2001	\$ 41.110
3 American Electric Power	0.600	0.600	0.600	0.600	3/8/2002	\$ 43.510
4 Consolidated Edison	0.550	0.550	0.550	0.550	3/15/2002	\$ 39.600
5 Empire District	-	0.320	0.320	0.320	12/15/2001	\$ 21.180
6 FPL Group	0.540	0.560	0.560	0.560	12/17/2001	\$ 55.010
7 Great Plains Energy	-	0.415	0.415	0.415	12/20/2001	\$ 24.610
8 Idacorp	0.465	0.465	0.465	0.465	2/28/2002	\$ 38.360
9 Nstar	0.515	0.515	0.515	0.515	2/1/2002	\$ 43.220

Gas Sample

Company	Current Dividend				Next Dividend Payment Date	Stock Price
	D _{0,1}	D _{0,2}	D _{0,3}	D _{0,4}		
1 AGL Resources	\$ 0.270	\$ 0.270	\$ 0.270	\$ 0.270	3/1/2002	\$ 21.770
2 Atmos Energy Corp.	0.290	0.290	0.290	0.290	12/10/2001	\$ 21.220
3 Laclede Gas Company	-	0.335	0.335	0.335	1/2/2002	\$ 24.400
4 Nicor	0.415	0.440	0.440	0.440	2/1/2002	\$ 38.680
5 Northwest Natural Gas	0.310	0.310	0.310	0.315	2/15/2002	\$ 24.360
6 Peoples Energy Corporation	0.500	0.500	0.510	0.510	1/15/2002	\$ 39.160
7 Piedmont Natural Gas Company	0.365	0.385	0.385	0.385	1/15/2002	\$ 33.330
8 WGL Holding Company	0.310	0.315	0.315	0.315	2/1/2002	\$ 27.800

**Interstate Power Company
Expected Quarterly Dividends**

Electric Sample

Company	D _{1,1}	D _{1,2}	D _{1,3}	D _{1,4}
Allegheny Energy	\$ 0.471	\$ 0.471	\$ 0.471	\$ 0.471
Ameren Corp.	0.635	0.664	0.664	0.664
American Electric Power	0.641	0.641	0.641	0.641
Consolidated Edison	0.573	0.573	0.573	0.573
Empire District	0.320	0.339	0.339	0.339
FPL Group	0.560	0.600	0.600	0.600
Great Plains Energy	0.415	0.438	0.438	0.438
Idacorp	0.507	0.507	0.507	0.507
Nstar	0.550	0.550	0.550	0.550

Gas Sample

Company	D _{1,1}	D _{1,2}	D _{1,3}	D _{1,4}
AGL Resources	0.288	0.288	0.288	0.288
Atmos Energy Corp.	0.295	0.295	0.295	0.295
Laclede Gas Company	0.335	0.353	0.353	0.353
Nicor	0.440	0.467	0.467	0.467
Northwest Natural Gas	0.315	0.315	0.315	0.332
Peoples Energy Corporation	0.510	0.510	0.542	0.542
Piedmont Natural Gas Company	0.385	0.407	0.407	0.407
WGL Holding Company	0.315	0.331	0.331	0.331

**Interstate Power Company
DCF- Cost of Equity Estimate**

Electric Sample

	<u>Company</u>	<u>Cost of Equity Estimate</u>
1	Allegheny Energy	15.01%
2	Ameren Corp.	11.24%
3	American Electric Power	12.96%
4	Consolidated Edison	10.07%
5	Empire District	12.74%
6	FPL Group	11.61%
7	Great Plains Energy	12.99%
8	Idacorp	14.53%
9	Nstar	12.03%
	Average	12.58%

Gas Sample

	<u>Company</u>	<u>Cost of Equity Estimate</u>
1	AGL Resources	12.31%
2	Atmos Energy Corp.	12.25%
3	Laclede Gas Company	11.26%
4	Nicor	11.11%
5	Northwest Natural Gas	10.89%
6	Peoples Energy Corporation	11.83%
7	Piedmont Natural Gas Company	10.80%
8	WGL Holding Company	10.03%
	Average	11.31%

Interstate Power Company

Risk Premium Analysis

Interest Rates as of November 14, 2001

U.S. Treasury Bills		U.S. Treasury Bonds	
Discount Rate	Effective Yield	Bond Equivalent Yield	Effective Yield
1.84%	1.89%	5.02%	5.08%

Risk Premium Cost of Equity Estimates
 Risk-Free Rate Proxy is the U.S. Treasury Bond

Electric Sample

Risk-Free Rate	Beta	Risk Premium	Cost of Common Equity
5.08%	0.51	(15.30% - 5.08%)	10.30%

Gas Sample

Risk-Free Rate	Beta	Risk Premium	Cost of Common Equity
5.08%	0.58	(15.30% - 5.08%)	10.96%

**Interstate Power Company
 Risk Comparison**

Electric Sample

<u>Company</u>	<u>S&P Rating</u>	<u>S&P Business Position</u>
1 Allegheny Energy Inc.	A	5
2 Ameren Corp.	A+	5
3 American Electric Power	A-	4
4 Consolidated Edison	A	5
5 Empire District	A-	5
6 FPL Group	A	6
7 Great Plains Energy	A-	6
8 Idacorp	A+	5
9 Nstar	A	3
Average	A	4.89

Gas Sample

<u>Company</u>	<u>S&P Rating</u>	<u>S&P Business Position</u>
1 AGL Resources	A-	3
2 Atmos Energy Corp.	A-	4
3 Laclede Gas Company	AA-	3
4 Nicor	AA	3
5 Northwest Natural Gas	A	3
6 Peoples Energy Corporation	A+	4
7 Piedmont Natural Gas Company	A	3
8 WGL Holdings Inc.	AA-	3
Average	A/A+	3.25
Interstate Power Company	A+	4