

STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

THE PEOPLES GAS LIGHT	:	
AND COKE COMPANY	:	
	:	No. 09-_____
Proposed General Increase	:	
In Rates For Gas Service	:	

Direct Testimony of

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On behalf of
The Peoples Gas Light and Coke Company

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GLOSSARY OF ACRONYMS AND DEFINED TERMS

ACRONYM	DEFINED TERM
AFUDC	Allowance for Funds Used During Construction
β	Beta
b	Represents the retention rate that consists of the fraction of earnings that are not paid out as dividends
b x r	Represents internal growth
CAPM	Capital Asset Pricing Model
CCR	Corporate Credit Rating
CE	Comparable Earnings
DCF	Discounted Cash Flow
g	Growth rate
IGF	Internally Generated Funds
ICC	Illinois Commerce Commission
LDC	Local Distribution Companies
Lev	Leverage modification
LT	Long Term
MM	Modigliani & Miller
M&A	Merger & Acquisition
P-E	Price-earnings
PUHCA	Public Utility Holding Company Act
r	Represents the expected rate of return on common equity
Rf	Risk-free rate of return
Rm	Market risk premium
RP	Risk Premium
s	Represents the new common shares expected to be issued by a firm
s x v	Represents external growth
S&P	Standard & Poor's
v	Represents the value that accrues to existing shareholders from selling stock at a price different from book value

1 **I. INTRODUCTION AND SUMMARY OF RECOMMENDATION**

2 Q. Please state your name, occupation and business address.

3 A. My name is Paul Ronald Moul. My business address is 251 Hopkins Road, Haddonfield,
4 New Jersey 08033-3062. I am Managing Consultant at the firm P. Moul & Associates,
5 an independent financial and regulatory consulting firm. My educational background,
6 business experience and qualifications are provided in Peoples Gas Ex. PRM-1.1, which
7 follows my direct testimony.

8 Q. What is the purpose of your direct testimony?

9 A. My testimony presents evidence, analysis and a recommendation concerning the
10 appropriate cost of equity that the Illinois Commerce Commission (“ICC” or the
11 “Commission”) should allow The Peoples Gas Light and Coke Company (“Peoples Gas”
12 or the “Company”) an opportunity to earn as part of its weighted average cost of capital
13 (i.e., overall rate of return) incorporated into rates based on a 2010 test year. My analysis
14 and recommendation are supported by the detailed financial data contained in Peoples
15 Gas Ex. PRM-1.2 through Peoples Gas Ex. PRM-1.11. Additional evidence, in the form
16 of appendices, is contained in Peoples Gas Ex. PRM-1.12, which is divided into seven (7)
17 parts and includes Peoples Gas Ex. PRM-1.12A through PRM-1.12G. The items covered
18 in these appendices provide additional detailed information concerning the explanation
19 and application of the various financial models upon which I rely.

20 Q. Based upon your analysis, what is your conclusion concerning the appropriate cost of
21 common equity for the Company for this case?

22 A. My conclusion is that the Company’s rates should be based on a cost of common equity
23 of 12.00%. My recommended cost of equity has been included in the weighted average

24 cost of capital calculation discussed in the testimony of Company witness Bradley A.
25 Johnson. The weighted average cost of capital proposed by the Company would, if
26 adopted by the Commission, establish a compensatory level of return for the use of
27 capital and provide the Company with the ability to attract capital on reasonable terms.

28 Q. Have you also evaluated the reasonableness of the Company's capital structure ratios
29 from an industry perspective?

30 A. Yes. I have reviewed the capital structure ratios proposed by Mr. Johnson and confirmed
31 that they are reasonable. A 56% common equity ratio is consistent with investor
32 expectations. It is within one percentage point of the average of the common equity
33 ratios of the other gas companies that comprise the proxy group used in my cost of equity
34 models. It also conforms generally with the analyst forecasts that I discuss below.
35 Accordingly, I recommend that the Commission accept the capital structure ratios
36 proposed by the Company.

37 Q. How have you determined the cost of common equity in this case?

38 A. I have determined the cost of common equity for the Company using capital market and
39 financial data relied upon by investors to assess the relative risk, and hence the cost of
40 equity, for a natural gas utility such as Peoples Gas. In this regard, I relied on three well-
41 recognized "market" models to measure the cost of equity: Discounted Cash Flow
42 ("DCF"), Risk Premium, and Capital Asset Pricing Model ("CAPM"). I also considered,
43 as a check on my results using the three market models, the Comparable Earnings ("CE")
44 method. I applied these models and method with data from a proxy group of publicly
45 traded gas companies with risk profiles similar to Peoples Gas. I followed this approach
46 because stock market data is required to apply some of the cost of equity models. Since

47 the stock of Peoples Gas is not traded, the models that I used to measure the cost of
48 common equity for the Company were applied with market and financial data developed
49 from my proxy group of nine publicly traded natural gas companies. This is consistent
50 with Section 9-230 of the Illinois Public Utilities Act (220 ILCS 5/9-230), which requires
51 the Commission to determine a public utility's cost of equity without regard to its
52 increased risk resulting from its affiliation with non-utility companies.

53 Q. How did your selection process provide the companies that you included in the Gas
54 Group?

55 A. I began with the universe of gas utilities contained in the basic service of Value Line,
56 which consists of twelve companies. Through the application of my screening process, I
57 eliminated three companies. These were NiSource due to its electric and natural gas
58 pipeline/storage operations, Southwest Gas due to its location and UGI Corporation
59 because of its highly diversified businesses. The remaining nine companies are identified
60 on page 2 of Peoples Gas Ex. PRM-1.3. I will refer to these companies as the "Gas
61 Group" throughout my testimony.

62 Q. How have you performed your cost of equity analysis with the market data for the Gas
63 Group?

64 A. I have applied the models/methods identified above for estimating the cost of equity
65 using the average data for the Gas Group. I have not measured the cost of equity for each
66 of the individual companies within the Gas Group, because the determination of the cost
67 of equity for an individual company can be problematic. The use of group average data
68 from a portfolio of gas utilities reduces the effect of anomalous results for any individual
69 company.

70 Q. Please summarize your cost of equity analysis.

71 A. My cost of equity determination was derived from the results of the methods/models
72 identified above. In general, the use of more than one model provides a superior
73 foundation to arrive at the cost of equity. As I discuss later in my testimony, each model
74 relies on different assumptions, and each has its own limitations. In addition, at any point
75 in time, reliance on a single model can provide an incomplete measure of the cost of
76 equity depending upon extraneous factors that may influence market sentiment. The
77 specific application of these models will be described later in my testimony. The
78 following table provides a summary of the indicated costs of equity using each of these
79 approaches.

	<u>Gas Group</u>
DCF	10.58%
RP	12.50%
CAPM	12.51%

80
81 In reaching my rate of return recommendation of 12.00%, I assigned one-quarter
82 weight to DCF result and three-quarters weight to the Risk Premium and CAPM results
83 (i.e., $10.58\% \times .25 = 2.65\%$; $12.51\% \times .75 = 9.38\%$; $2.65\% + 9.38 = 12.03\%$). This
84 weighting approach is appropriate in the current capital market situation that I will
85 discuss in further detail in my direct testimony. This recommendation is further
86 supported by the results of the Comparable Earnings approach, which I have not used as a
87 direct basis for my recommended cost of equity, but have used as a confirming method.

88 Q. Does your cost of equity analysis and recommendation take into account the revenue
89 decoupling that the Commission approved in the Company's last rate case?

90 A. Yes. In its last rate case, the Commission authorized the Company to implement a tariff
91 provision that is designed to decouple forecast revenues from variations in sales related to
92 usage due to weather, economic conditions, energy efficiency efforts and other factors.
93 The provision is symmetrical in that it operates to provide credits to customer if usage is
94 higher than forecast and to establish charges if usage if lower than forecast. Seven of the
95 nine companies in my Gas Group have some form of revenue stabilization mechanism.
96 Those companies include: AGL Resources, Atmos Energy, New Jersey Resources,
97 Northwest Natural, Piedmont Natural, South Jersey Industries, and WGL Holdings.
98 Moreover, the Commission is currently considering decoupling for Nicor Gas. And one
99 additional company has a rate design intended to mitigate the effect of weather on
100 revenues. Therefore, the market prices of these companies' common equity reflect the
101 expectations of investors that the companies' revenues are stabilized to some extent by a
102 decoupling mechanism. Therefore my analysis generally reflects the impacts of
103 decoupling on investor expectations through the use of market-determined models.

104 Q. Does the existence of a decoupling mechanism reduce a utility's cost of equity?

105 A. In my opinion, no. While I recognize that the Commission made an adjustment to the
106 Company's cost of equity in the last rate case for the revenue stability mechanism, the
107 rationale for that adjustment cannot support an adjustment in this case. The adoption of a
108 decoupling mechanism is a one-time occurrence. The Commission's adjustment in the
109 Company's last rate case assumed that any effect of decoupling was not already
110 anticipated by investors and reflected in the Company's market-based cost of equity.

111 Even if the adjustment was proper when decoupling was first adopted, it cannot be an
112 ongoing adjustment because once the decoupling rider is implemented, it becomes
113 embedded in investors' risk assessment of the Company. Once decoupling is adopted,
114 only its termination would require further adjustment; namely an increase in the cost of
115 equity would be necessary to reflect an increase in the same type of risk that was reduced
116 by decoupling. Moreover, it is important to recognize that the financial theories on which
117 the cost of equity is based recognize that investors value their investments on a long-term
118 basis. For example, the DCF formula explicitly assumes a growth rate approaching
119 infinity. In addition, variations in usage and revenues constitute a company-specific risk,
120 not an economic risk. Therefore, a decoupling mechanism that mitigates these factors
121 deals with unsystematic risk which is not addressed in the CAPM measure of the cost of
122 equity. Further, there are many items that affect earnings variability in addition to the
123 variability of revenues. So, while decoupling is intended to add stability to revenues, the
124 Company continues to face variability in operating and capital costs that will contribute
125 to earnings variability.

126 This is not to say that there are no financial benefits from decoupling
127 mechanisms, which do reduce the volatility in utility revenues which in turn can support
128 utility credit ratings. The mechanism will be viewed favorably by the credit rating
129 agencies (although I am not aware of any changes in credit ratings that were made solely
130 because a company implemented a decoupling mechanism). The mechanism will
131 therefore help the utility sustain its credit ratings. These beneficial impacts will be
132 manifested more in the area of the utility's cost of debt rather than its cost of equity.

133 **II. PROXY GROUP ANALYSIS**

134 Q. Is it necessary to conduct a fundamental risk analysis to provide a framework for a
135 determination of a utility's cost of equity?

136 A. Yes, it is. It is necessary to establish a company's relative risk position within its
137 industry through an analysis of various factors that bear upon investors' assessment of
138 overall risk. The items that influence investors' evaluation of risk and its required returns
139 are described in Peoples Gas Ex. PRM-1.12A. For this purpose, I compared the
140 Company to the S&P Public Utilities, an industry-wide proxy consisting of various
141 regulated businesses, and to the Gas Group.

142 Q. What are the components of the S&P Public Utilities and the Gas Group?

143 A. The S&P Public Utilities is a widely recognized index that is comprised of electric power
144 and natural gas companies. These companies are identified on page 3 of Peoples Gas Ex.
145 PRM-1.4.

146 Q. Is knowledge of a utility's bond rating an important factor in assessing its risk and cost of
147 capital?

148 A. Yes. Knowledge of a company's credit quality rating is important because the cost of
149 each type of capital is directly related to the associated risk of the firm. So while a
150 company's credit quality risk is shown directly by the rating and yield on its bonds, these
151 relative risk assessments also bear upon the cost of equity. A firm's cost of equity must
152 exceed its borrowing cost to recognize the higher risk of equity.

153 Q. How do the bond ratings compare for the Company, the Gas Group, and the S&P Public
154 Utilities?

155 A. For Peoples Gas, the Long Term (“LT”) issuer rating by Moody’s Investors Service
156 (“Moody’s”) is A1 and the corporate credit rating (“CCR”) by Standard and Poor’s
157 Corporation (“S&P”) is A-. These ratings focus upon the credit quality of the issuer of
158 the debt, rather than upon the debt obligation itself. As shown on page 2 of Peoples Gas
159 Ex. PRM-1.3, the average Moody’s LT issuer rating for the Gas Group is A3, and the
160 average S&P CCR rating is A. For the S&P Public Utilities, the average Moody’s
161 composite rating is Baa1 and BBB+ by S&P, as displayed on page 3 of Peoples Gas
162 Ex. PRM-1.4. The Moody’s bond rating is higher for the Company than the Gas Group
163 and the S&P Public Utilities. The S&P rating for the Company is slightly weaker than
164 the Gas Group, but slightly stronger than the S&P Public Utilities. Many of the financial
165 indicators that I will subsequently discuss are considered during the rating process.

166 Q. How do the financial data compare for the Company, the Gas Group, and the S&P Public
167 Utilities?

168 A. The broad categories of financial data that I will discuss are shown on Peoples Gas
169 Ex. PRM-1.2, Peoples Gas Ex. PRM-1.3, and Peoples Gas Ex. PRM-1.4. The data cover
170 the five-year period 2003-2007. The important categories of relative risk may be
171 summarized as follows:

172 Size. In terms of capitalization, the Company is somewhat smaller than the
173 average size of the Gas Group, and very much smaller than the average size of the S&P
174 Public Utilities. All other things being equal, a smaller company is riskier than a larger
175 company because a given change in revenue and expense has a proportionately greater
176 impact on a small firm.

177 Market Ratios. Market-based financial ratios, such as earnings/price ratios and
178 dividend yields, provide a partial measure of the investor-required cost of equity. If all
179 other factors are equal, investors will require a higher rate of return for companies that
180 exhibit greater risk, in order to compensate for that risk. That is to say, a firm that
181 investors perceive to have higher risks will experience a lower price per share in relation
182 to expected earnings.¹

183 There are no market ratios available for the Company because Peoples Energy
184 and in turn Integrys owns its stock. The five-year average price-earnings multiple for the
185 Gas Group was fairly similar to that of the S&P Public Utilities. The five-year average
186 dividend yields were somewhat higher for the Gas Group as compared to the S&P Public
187 Utilities. The average market-to-book ratios were fairly similar for the Gas Group and
188 the S&P Public Utilities.

189 Common Equity Ratio. The level of financial risk is measured by the proportion
190 of long-term debt and other senior capital that is contained in a company's capitalization.
191 Financial risk is also analyzed by comparing common equity ratios (the complement of
192 the ratio of debt and other senior capital). That is to say, a firm with a high common
193 equity ratio has lower financial risk, while a firm with a low common equity ratio has
194 higher financial risk. The five-year average common equity ratios based on total capital
195 were 55.9% for Peoples, 54.1% for the Gas Group and 43.5% for the S&P Public
196 Utilities. I have verified the reasonableness of the Company's common equity ratio by
197 considering analysts' forecasts, which influence investor expectations. I have compared
198 the Company's proposed common equity ratio to that of the Gas Group based upon data

¹For example, two otherwise similarly situated firms each reporting \$1.00 in earnings per share would have different market prices at varying levels of risk (i.e., the firm with a higher level of risk will have a lower share value, while the firm with a lower risk profile will have a higher share value).

199 widely available to investors from Value Line. In the case of the Value Line forecasts,
 200 and consistent with the Company's proposed common equity ratio, the common equity
 201 ratios are computed without regard to short-term debt. Those ratios are:

<u>Company</u>	<u>2008</u>	<u>2009</u>	<u>2011-13</u>
AGL Resources, Inc.	51.0%	52.0%	54.5%
Atmos Energy Corporation	49.0%	49.0%	49.0%
Laclede Group, Inc.	55.5%	55.0%	53.0%
New Jersey Resources Corp.	61.5%	62.0%	67.5%
NICOR, Inc.	67.0%	68.0%	73.0%
Northwest Natural Gas Co.	53.0%	52.0%	52.0%
Piedmont Natural Gas Company	52.5%	50.0%	53.0%
South Jersey Industries, Inc.	59.0%	59.5%	59.5%
WGL Holdings, Inc.	<u>62.3%</u>	<u>63.5%</u>	<u>66.5%</u>
Average	<u>56.8%</u>	<u>56.8%</u>	<u>58.7%</u>

Source: The Value Line Investment Survey, December 12, 2008

202 These forecasts show that the capital structure ratio proposed for this case for
 203 Peoples Gas is very close to the average ratio of the Gas Group, and therefore reflects
 204 about the same degree of financial risk as the Gas Group.

205 Return on Book Equity. Greater variability (i.e., uncertainty) of a firm's earned
 206 returns signifies relatively greater levels of risk, as shown by the coefficient of variation
 207 (standard deviation ÷ mean) of the rate of return on book common equity. The higher the
 208 coefficients of variation, the greater degree of variability. For the five-year period, the
 209 coefficients of variation were 1.923 (7.5% ÷ 3.9%) for the Company, 0.040 (0.5% ÷
 210 12.4%) for the Gas Group, and 0.112 (1.3% ÷ 11.6%) for the S&P Public Utilities. The
 211 Company's historical rates of return were much more variable than the Gas Group and
 212 the S&P Public Utilities.

213 Operating Ratios. I have also compared operating ratios (the percentage of
214 revenues consumed by operating expense, depreciation, and taxes other than income).²
215 The five-year average operating ratios were 93.9% for the Company, 89.5% for the Gas
216 Group, and 84.4% for the S&P Public Utilities.

217 Coverage. The level of fixed charge coverage (i.e., the multiple by which
218 available earnings cover fixed charges, such as interest expense) provides an indication of
219 the earnings protection for creditors. Higher levels of coverage, and hence earnings
220 protection for fixed charges, are usually associated with superior grades of
221 creditworthiness. The five-year average interest coverage (excluding Allowance for
222 Funds Used During Construction (“AFUDC”)) was 2.82 times for the Company,
223 4.22 times for the Gas Group and 3.11 times for the S&P Public Utilities.

224 Quality of Earnings. Measures of earnings quality usually are revealed by the
225 percentage of AFUDC related to income available for common equity, the effective
226 income tax rate, and other cost deferrals. These measures of earnings quality usually
227 influence a firm’s internally generated funds because poor quality of earnings would not
228 generate high levels of cash flow. Quality of earnings has not been a significant concern
229 for the Company, the Gas Group or the S&P Public Utilities.

230 Internally Generated Funds. Internally generated funds (“IGF”) provide an
231 important source of new investment capital for a utility and represent a key measure of
232 credit strength. Historically, the five-year average percentage of IGF to capital
233 expenditures was 65.8% for the Company, 98.9% for the Gas Group and 106.5% for the
234 S&P Public Utilities.

²The complement of the operating ratio is the operating margin which provides a measure of profitability. The higher the operating ratio, the lower the operating margin.

235 Betas. The financial data that I have been discussing relate primarily to company-
236 specific risks. Market risk for firms with publicly-traded stock is measured by beta
237 coefficients. Beta coefficients attempt to identify systematic risk, i.e., the risk associated
238 with changes in the overall market for common equities. ³ Value Line publishes such a
239 statistical measure of a stock's relative historical volatility to the rest of the market. A
240 comparison of market risk is shown by the Value Line beta of 0.69 as the average for the
241 Gas Group (see page 2 of Peoples Gas Ex. PRM-1.3) and 0.80 as the average for the S&P
242 Public Utilities (see page 3 of Peoples Gas Ex. PRM-1.4).

243 Q. Please summarize your risk evaluation.

244 A. The risk of Peoples Gas is generally consistent with that of the Gas Group, but in many
245 respects its risk is higher. The Company's earnings variability has exceeded substantially
246 that of the Gas Group, its operating ratios were somewhat higher than the Gas Group, its
247 fixed charge coverages have been weaker than the Gas Group, and the Company's IGF to
248 construction has been lower than the Gas Group. The Company does have comparable
249 common equity ratios and earnings quality to the Gas Group. The Company's credit
250 rating by Moody's is stronger, but its S&P credit rating is slightly weaker. On balance,
251 the cost of equity developed from the Gas Group provides a conservative basis for
252 measuring the Company's cost of equity because many of the risk factors are lower for
253 the Gas Group and, overall, the Gas Group has lower risk than the Company.

³The procedure used to calculate the beta coefficient published by Value Line is described in Appendix H. A common stock that has a beta less than 1.0 is considered to have less systematic risk than the market as a whole and would be expected to rise and fall more slowly than the rest of the market. A stock with a beta above 1.0 would have more systematic risk.

254 **III. COST OF EQUITY – GENERAL APPROACH**

255 Q. Please describe the process you employed to determine the cost of equity for the
256 Company.

257 A. Although my fundamental financial analysis provides the required framework to establish
258 the risk relationships between the Company, the Gas Group and the S&P Public Utilities,
259 the cost of equity must be measured by standard financial models that I describe in
260 Peoples Gas Ex. PRM-1.12B. Differences in risk traits, such as size, business
261 diversification, geographical diversity, regulatory policy, financial leverage, and bond
262 ratings must be considered when analyzing the cost of equity indicated by the models.

263 It also is important to reiterate that no one method or model of the cost of equity
264 can be applied in an isolated manner. As noted in Peoples Gas Ex. PRM-1.12B, and
265 elsewhere in my direct testimony, each of the methods used to measure the cost of equity
266 contains certain incomplete and/or overly restrictive assumptions and constraints that are
267 not optimal. Therefore, I favor considering the results from a variety of methods. In this
268 regard, I applied each of the methods with data taken from the Gas Group and have
269 arrived at a cost of equity of 12.00% for the Company.

270 **IV. DISCOUNTED CASH FLOW ANALYSIS**

271 Q. Please describe your use of the Discounted Cash Flow approach to determine the cost of
272 equity.

273 A. The details of my use of the DCF approach and the calculations and evidence in support
274 of my conclusions are set forth in Peoples Gas Ex. PRM-1.12C. I will summarize them
275 here. The DCF model seeks to explain the value of an asset as the present value of future
276 expected cash flows discounted at the appropriate risk-adjusted rate of return. In its

277 simplest form, the DCF return on common stock consists of a current cash (dividend)
278 yield and future price appreciation (growth) of the investment.

279 Among other limitations of the model, there is a certain element of circularity in
280 the DCF method when applied in rate cases. This is because investors' expectations for
281 the future depend in part upon regulatory decisions. In turn, when regulators depend
282 upon the DCF model to set the cost of equity, they rely upon investor expectations that
283 already include an assessment of how regulators will decide rate cases. Due to this
284 circularity, the DCF model may not fully reflect the true risk of a utility.

285 As I describe in Peoples Gas Ex. PRM-1.12C, the DCF approach has other
286 limitations that diminish its usefulness in the ratesetting process where, as in this case, the
287 firm's market capitalization diverges significantly from the book value capitalization.
288 When this situation exists, the DCF method will lead to a misspecified cost of equity
289 when it is applied to a book value capital structure.

290 Q. Please explain the dividend yield component of a DCF analysis.

291 A. The DCF methodology requires the use of an expected dividend yield to establish the
292 investor-required cost of equity. The monthly dividend yields of the Gas Group for the
293 twelve months ended November 2008 are shown graphically on Peoples Gas
294 Ex. PRM-1.5. Those monthly dividend yields reflect an adjustment to the month-end
295 prices to reflect the build up of the dividend in the price that has occurred since the last
296 ex-dividend date (i.e., the date by which a shareholder must own the shares to be entitled
297 to the dividend payment – usually about two to three weeks prior to the actual payment).
298 An explanation of this adjustment is provided in Peoples Gas Ex. PRM-1.12C.

299 For the twelve months ending November 2008, the average dividend yield was
300 4.00% for the Gas Group based upon a calculation using annualized dividend payments
301 and adjusted month-end stock prices. The dividend yields for the more recent six- and
302 three- month periods were 3.90% and 3.88%, respectively. I have used, for the purpose
303 of my direct testimony, a dividend yield of 3.90% for the Gas Group, which represents
304 the six-month average yield. The use of this dividend yield reflects current capital costs,
305 while avoiding spot yields.

306 For the purpose of a DCF calculation, the average dividend yield must be adjusted
307 to reflect the prospective nature of the dividend payments i.e., the higher expected
308 dividends for the future. Recall that the DCF is an expectational model that must reflect
309 investor anticipated cash flows for the Gas Group. I have adjusted the six-month average
310 dividend yield in three different, but generally accepted manners, and used the average of
311 the three adjusted values as calculated in Peoples Gas Ex. PRM-1.12C. That adjusted
312 dividend yield is 4.03% for the Gas Group.

313 Q. Please explain the underlying factors that influence investor's growth expectations.

314 A. As noted previously, investors are interested principally in the future growth of its
315 investment (i.e., the price per share of the stock). As I explain in Peoples Gas
316 Ex. PRM-1.12C, future earnings per share growth represent the DCF model's primary
317 focus. This is because the model assumes a constant price-earnings multiple, which in
318 turn assumes that the price per share of stock will grow at the same rate as earnings per
319 share. In conducting a growth rate analysis, a wide variety of variables can be considered
320 when reaching a consensus of prospective growth. The variables that can be considered
321 include: earnings, dividends, book value, and cash flow stated on a per share basis.

322 Historical values for these variables can be considered, as well as analysts' forecasts that
323 are widely available to investors. A fundamental growth rate analysis also can be
324 formulated, which consists of internal growth ("b x r"), where "r" represents the expected
325 rate of return on common equity and "b" is the retention rate that consists of the fraction
326 of earnings that are not paid out as dividends. The internal growth rate can be modified
327 to account for sales of new common stock -- this is called external growth ("s x v"),
328 where "s" represents the new common shares expected to be issued by a firm and "v"
329 represents the value that accrues to existing shareholders from selling stock at a price
330 different from book value. Fundamental growth, which combines internal and external
331 growth, provides an explanation of the factors that cause book value per share to grow
332 over time. Hence, a fundamental growth rate analysis is duplicative of expected book
333 value per share growth.

334 Growth also can be expressed in multiple stages. This expression of growth
335 consists of an initial "growth" stage where a firm enjoys rapidly expanding markets, high
336 profit margins, and abnormally high growth in earnings per share. Thereafter, a firm
337 enters a "transition" stage where fewer technological advances and increased product
338 saturation begin to reduce the growth rate and profit margins come under pressure.
339 During the "transition" phase, investment opportunities begin to mature, capital
340 requirements decline, and a firm begins to pay out a larger percentage of earnings to
341 shareholders. Finally, the mature or "steady-state" stage is reached when a firm's
342 earnings growth, payout ratio, and return on equity stabilizes at levels where they remain
343 for the life of a firm. The three stages of growth assume a step-down of high initial
344 growth to lower sustainable growth. Even if these three stages of growth can be

345 envisioned for a firm, the third “steady-state” growth stage, which is assumed to remain
346 fixed in perpetuity, represents an unrealistic expectation because the three stages of
347 growth can be repeated. That is to say, the stages can be repeated where growth for a
348 firm ramps-up and ramps-down in cycles over time.

349 Q. What investor-expected growth rate is appropriate in a DCF calculation?

350 A. Investors consider both company-specific variables and overall market sentiment (i.e.,
351 level of inflation rates, interest rates, economic conditions, etc.) when balancing a
352 company’s capital gains expectations with its dividend yield requirements. I follow an
353 approach that is not rigidly formatted because investors are not influenced by a single set
354 of company-specific variables weighted in a formulaic manner. Therefore, in my
355 opinion, all relevant growth rate indicators using a variety of techniques must be
356 evaluated when formulating a judgment of investor expected growth.

357 Q. What company-specific data have you considered in your growth rate analysis?

358 A. I have considered the growth in the financial variables shown on Peoples Gas Ex. PRM-
359 1.6 and Peoples Gas Ex. PRM-1.7. The bar graph provided on Peoples Gas Ex. PRM-1.6
360 shows the historical growth rates in earnings per share, dividends per share, book value
361 per share, and cash flow per share for the Gas Group. The historical growth rates were
362 taken from the Value Line publication that provides these data. As shown on Peoples
363 Gas Ex. PRM-1.6, the historical growth of earnings per share was in the range of 4.56%
364 to 7.39% for the Gas Group.

365 Peoples Gas Ex. PRM-1.7 provides projected earnings per share growth rates
366 taken from analysts’ forecasts compiled by IBES/First Call and Zacks and from the Value
367 Line publication. IBES/First Call and Zacks represent reliable authorities of projected

368 growth upon which investors rely. The IBES/First Call and Zacks forecasts are limited to
369 earnings per share growth, while Value Line makes projections of other financial
370 variables. The Value Line forecasts of dividends per share, book value per share, and
371 cash flow per share have also been included on Peoples Gas Ex. PRM-1.7 for the Gas
372 Group.

373 Although five-year forecasts usually receive the most attention in the growth
374 analysis for DCF purposes, present market performance has been strongly influenced by
375 short-term earnings forecasts. Each of the major publications provides earnings forecasts
376 for the current and subsequent year. These short-term earnings forecasts receive
377 prominent coverage, and indeed they dominate these publications.

378 Q. Is a five-year investment horizon associated with the analysts' forecasts consistent with
379 the DCF model?

380 A. Yes. In fact, it illustrates that the infinite form of the model contains an unrealistic
381 assumption. Rather than viewing the DCF in the context of an endless stream of growing
382 dividends (e.g., a century of cash flows), the growth in the share value (i.e., capital
383 appreciation, or capital gains yield) is most relevant to investors' total return
384 expectations. Hence, the sale price of a stock can be viewed as a liquidating dividend
385 that can be discounted along with the annual dividend receipts during the investment-
386 holding period to arrive at the investor expected return. The growth in the price per share
387 will equal the growth in earnings per share absent any change in price-earnings ("P-E")
388 multiple -- a necessary assumption of the DCF. As such, my company-specific growth
389 analysis, which focuses principally upon five-year forecasts of earnings per share growth,
390 conforms with the type of analysis that influences the total return expectation of

391 investors. Moreover, academic research focuses on five-year growth rates as they
392 influence stock prices. Indeed, if investors really required forecasts which extended
393 beyond five years in order to properly value common stocks, then I am sure that some
394 investment advisory service would begin publishing that information for individual
395 stocks in order to meet the demands of investors. The absence of such a publication
396 signals that investors do not require infinite forecasts in order to purchase and sell stocks
397 in the marketplace.

398 Q. What specific evidence have you considered in the DCF growth analysis?

399 A. As to the five-year forecast growth rates, Peoples Gas Ex. PRM-1.7 indicates that the
400 projected earnings per share growth rates for the Gas Group are 5.27% by IBES/First
401 Call, 6.96% by Zacks, and 5.50% by Value Line. The Value Line projections indicate
402 that earnings per share for the Gas Group will grow prospectively at a higher rate (i.e.,
403 5.50%) than the dividends per share (i.e., 4.00%), which indicates a declining dividend
404 payout ratio for the future. As indicated earlier, and in Peoples Gas Ex. PRM-1.12C,
405 with the constant price-earnings multiple assumption of the DCF model, growth for these
406 companies will occur at the higher earnings per share growth rate, thus producing the
407 capital gains yield expected by investors.

408 Q. What conclusion have you drawn from these data regarding the applicable growth rate to
409 be used in the DCF model?

410 A. Ideally historical and projected earnings per share and dividends per share growth
411 indicators would be used to provide an assessment of investor growth expectations for a
412 firm; however, the circumstances of the Gas Group mandate that the greater emphasis be
413 placed upon projected earnings per share growth. Projections of future earnings growth

414 provide the principal focus of investor expectations. In this regard, it is worthwhile to
415 note that Professor Myron Gordon, the foremost proponent of the DCF model in rate
416 cases, concluded that the best measure of growth in the DCF model is a forecast of
417 earnings per share growth.⁴ Hence, to follow Professor Gordon's findings, projections of
418 earnings per share growth, such as those published by IBES/First Call, Zacks,
419 Reuters/Market Guide, and Value Line, represent a reasonable assessment of investor
420 expectations.

421 It is appropriate to consider all forecasts of earnings growth rates that are
422 available to investors. In this regard, I have considered the forecasts from IBES/First
423 Call, Zacks, and Value Line. The IBES/First Call and Zacks growth rates are consensus
424 forecasts taken from a survey of analysts that make projections of growth for these
425 companies. The IBES/First Call and Zacks estimates are obtained from the Internet and
426 are widely available to investors free-of-charge. First Call is probably quoted most
427 frequently in the financial press when reporting on earnings forecasts. The Value Line
428 forecasts are also widely available to investors and can be obtained by subscription or
429 free-of-charge at most public and collegiate libraries.

430 The forecasts of earnings per share growth, as shown on Peoples Gas
431 Ex. PRM-1.7 provide a range of growth rates of 5.27% to 6.96%. Although the DCF
432 growth rates cannot be established solely with a mathematical formulation, it is my
433 opinion that an investor-expected growth rate of 6.00% is within the array of earnings per
434 share growth rates shown by the analysts' forecasts. The Value Line forecast of dividend

⁴ Gordon, Gordon & Gould, "Choice Among Methods of Estimating Share Yield," The Journal of Portfolio Management (Spring 1989).

435 per share growth is inadequate in this regard due to the forecast decline in the dividend
436 payout that I previously described.

437 Q. Are the dividend yield and growth components of the DCF adequate to explain the rate of
438 return on common equity when it is used in the calculation of the weighted average cost
439 of capital?

440 A. Only if the capital structure ratios are measured with the market value of debt and equity.
441 If book values are used to compute the capital structure ratios, then an adjustment is
442 required.

443 Q. Please explain why.

444 A. If regulators use the results of the DCF (which are based on the market price of the stock
445 of the companies analyzed) to compute the weighted average cost of capital with a book
446 value capital structure used for ratesetting purposes, those results will not reflect the
447 higher level of financial risk associated with the book value capital structure. Where, as
448 here, a stock's market price diverges from a utility's book value, the potential exists for a
449 financial risk difference, because the capitalization of a utility measured at its market
450 value contains more equity, less debt and therefore less risk than the capitalization
451 measured at its book value.

452 This shortcoming of the DCF has persuaded one regulatory agency to adjust the
453 cost of equity upward to make the return consistent with the book value capital structure.
454 Provisions for this risk difference were made by the Pennsylvania Public Utility
455 Commission in the following cases:

- 456 • January 10, 2002 for Pennsylvania-American Water Company in Docket
457 No. R-00016339 -- 60 basis points adjustment.

- 458 • August 1, 2002 for Philadelphia Suburban Water Company in Docket
459 No. R-00016750 -- 80 basis points adjustment.
- 460 • January 29, 2004 for Pennsylvania-American Water Company in Docket
461 No. R-00038304 (affirmed by the Commonwealth Court on November 8, 2004) --
462 60 basis points adjustment.
- 463 • August 5, 2004 for Aqua Pennsylvania, Inc. in Docket No. R-00038805 – 60 basis
464 points adjustment.
- 465 • December 22, 2004 for PPL Electric Utilities Corporation in Docket
466 No. R-00049255 -- 45 basis points.
- 467 • February 8, 2007 for PPL Gas Utilities Corporation in Docket No. R-00061398 --
468 70 basis points adjustment.

469 It must be recognized that in order to make the DCF results relevant to the
470 capitalization measured at book value (as is done for rate setting purposes); the
471 market-derived cost rate cannot be used without modification. As I will explain later in
472 my testimony, the results of the DCF model can be modified to account for differences in
473 risk when the book value capital structure contains more financial leverage than the
474 market value capital structure.

475 Q. But, in the Company’s last rate case (Docket No. 07-0242), the Commission declined to
476 adopt your leverage adjustment. Do you agree with the Commission’s reasoning in this
477 regard?

478 A. No. Although accurately describing the financial leverage adjustment that I proposed in
479 that case, the Commission was mistaken in linking it to another adjustment to the DCF
480 that was rejected in the Ameren Order (Docket Nos. 06-0070/06-0071/06-0072) that the
481 Commission cited. Perhaps a better explanation on my part would clarify the distinction
482 between these approaches.

483 The adjustment that I label as a “leverage adjustment” is merely a convenient way
484 of relating the result of the simple DCF model (i.e., $D/P + g$), which is premised on a
485 market-value capital structure, to results appropriate for the capital structure used in
486 ratemaking, which is computed with book value weights rather than market value
487 weights. To do so, I identify a separate leverage “adjustment,” but there is no need to do
488 so other than providing separate identification for this factor. If I expressed my return
489 solely in the context of the book value weights that we use to set the weighted average
490 cost of capital, and ignore the familiar $D/P + g$ expression entirely, then there would be
491 no separate element to reflect the financial leverage change. This is because the equity
492 return applicable to the book value common equity ratio is equal to 9.30%, which is the
493 return for my proxy group applicable to its equity with no debt in its capital structure
494 (i.e., the cost of capital is equal to the cost of equity with a 100% equity ratio) plus 1.27%
495 compensation for having a 43.79% debt ratio, plus 0.01% for having a 0.21% preferred
496 stock ratio. The sum of the parts is 10.58% ($9.30\% + 1.27\% + 0.01\%$) and there is no
497 need to even address the cost of equity in terms of $D/P + g$. To express this same return
498 in the context of the familiar DCF model, I summed the 4.03% dividend yield, the 6.00%
499 growth rate, and the 0.55% for the leverage adjustment in order to arrive at the same
500 10.58% ($4.03\% + 6.00\% + 0.55\%$) return. I know of no means to mathematically solve
501 for the 0.55% leverage adjustment by expressing it in the terms of any particular
502 relationship of market price to book value. The 0.55% adjustment is merely a convenient
503 way to compare the 10.58% return computed directly with the Modigliani & Miller
504 formulas to the 10.03% return generated by the DCF model based on a market value
505 capital structure. My only point is that when we use a market-determined cost of equity

506 developed from the DCF model, it reflects a level of financial risk that is different (in this
507 case, lower) from the capital structure stated at book value.

508 Q. Is your leverage adjustment dependent upon the market valuation or book valuation from
509 an investor's perspective?

510 A. The only perspective that is important to investors is the return that they can realize on
511 the market value of its investment. As I have measured the DCF, the simple yield (D/P)
512 plus growth (g) provides a return applicable strictly to the price (P) that an investor is
513 willing to pay for a share of stock. The DCF formula is derived from the standard
514 valuation model: $P = D/(k-g)$, where P = price, D = dividend, k = the cost of equity, and
515 g = growth in cash flows. By rearranging the terms, we obtain the familiar DCF
516 equation: $k = D/P + g$. All of the terms in the DCF equation represent investors'
517 assessment of expected future cash flows that they will receive in relation to the value
518 that they set for a share of stock (P). The need for the leverage adjustment arises when
519 the results of the DCF model (k) are to be applied to a capital structure that is different
520 than indicated by the market price (P). From the market perspective, the financial risk of
521 the Gas Group is accurately measured by the capital structure ratios calculated from the
522 market capitalization of a firm. If the ratesetting process utilized the market
523 capitalization ratios, then no additional analysis or adjustment would be required, and the
524 simple yield (D/P) plus growth (g) components of the DCF would satisfy the financial
525 risk associated with the market value of the equity capitalization. Since the ratesetting
526 process uses a different set of ratios calculated from the book value capitalization, then
527 further analysis is required to synchronize the financial risk of the book capitalization
528 with the required return on the book value of the equity. This adjustment is developed

529 through precise mathematical calculations, using well recognized analytical procedures
530 that are widely accepted in the financial literature. To arrive at that return, the rate of
531 return on common equity is the unleveraged cost of capital (or equity return at 100%
532 equity) plus one or more terms reflecting the increase in financial risk resulting from the
533 use of leverage in the capital structure. Multiple terms are used in the case of debt and
534 preferred stock. The resulting return is the one that is necessary for the utility to earn on
535 its book value capital structure in order to earn the return that is based on the market
536 value capital structure.

537 Q. Are there specific factors that influence market-to-book ratios that determine whether the
538 leverage adjustment should be made?

539 A. No. The leverage adjustment is not intended, nor was it designed, to address the reasons
540 that stock prices vary from book value. Hence, any observations concerning market
541 prices relative to book are not on point. The leverage adjustment deals with the issue of
542 financial risk and does not transform the DCF result to a book value return through a
543 market-to-book adjustment. Again, the leverage adjustment that I propose is based on the
544 fundamental financial precept that the cost of equity is equal to the rate of return for an
545 unleveraged firm (i.e., where the overall rate of return equates to the cost of equity with a
546 capital structure that contains 100% equity) plus the additional return required for
547 introducing debt and/or preferred stock leverage into the capital structure.

548 Further, as noted previously, the relatively high market prices of utility stocks
549 cannot be attributed solely to the notion that these companies are expected to earn a
550 return on equity that differs from its cost of equity. Stock prices above book value are
551 common for utility stocks, and indeed the stock prices of non-regulated companies

552 exceed book values by even greater margins. In this regard, according to the Barron's
553 issue of December 8, 2008, the major market indices' market-to-book ratios are well
554 above unity. The Dow Jones Utility index traded at a multiple of 1.71 times book value,
555 which is below the market multiple of other indices. For example, the S&P Industrial
556 index was at 2.13 times book value, and the Dow Jones Industrial index was at 2.77 times
557 book value. It is difficult to accept that the vast majority of all firms operating in our
558 economy are generating returns far in excess of their cost of capital. Certainly, in our
559 free-market economy, competition should contain such "excesses" if they indeed exist.

560 Finally, the leverage adjustment adds stability to the final DCF cost rate. That is
561 to say, as the market capitalization increases relative to its book value, the leverage
562 adjustment increases while the simple yield (D/P) plus growth (g) result declines. The
563 reverse is also true that when the market capitalization declines, the leverage adjustment
564 also declines as the simple yield (D/P) plus growth (g) result increases.

565 Q. What are the implications of a DCF derived return that is related to market value when
566 the results are applied to the book value of a utility's capitalization?

567 A. The capital structure ratios measured at the utility's book value show more financial
568 leverage, and higher risk, than the capitalization measured at its market value. Please
569 refer to Peoples Gas Ex. PRM-1.12C for the comparison. This means that a market-
570 derived cost of equity, using models such as DCF and CAPM, reflects a level of financial
571 risk that is different -- in this instance, much lower -- from that shown by the book value
572 capitalization. Hence, it is necessary to develop a cost of equity that reflects the higher
573 financial risk related to the book value capitalization used for ratesetting purposes.
574 Failure to make this modification would result in a mismatch of the lower financial risk

575 related to market value used to measure the cost of equity and the higher financial risk of
576 the book value capital structure used in the ratesetting process. That is to say, the cost of
577 equity for the Gas Group that is related to the 56.00% common equity ratio using book
578 value has higher financial risk than the 69.30% common equity ratio using market values.
579 Because the ratesetting process utilizes the book value capitalization, it is necessary to
580 adjust the market-determined cost of equity for the higher financial risk related to the
581 book value of the capitalization. Absent this adjustment, and holding all other variables
582 equal, the utility cannot earn its authorized return, which is derived from a stock market
583 prices that reflects the financial risk associated with that price.

584 Q. How is the DCF-determined cost of equity adjusted for the financial risk associated with
585 the book value of the capitalization?

586 A. In pioneering work, Nobel laureates Modigliani and Miller developed several theories
587 about the role of leverage in a firm's capital structure. As part of that work, Modigliani
588 and Miller established that, as the borrowing of a firm increases, the expected return on
589 stockholders' equity also increases⁵. This principle is the basis for my leverage
590 adjustment which recognizes that the expected return on equity increases with the
591 increased risk associated with the higher financial leverage shown by the book value
592 capital structure, as compared to the market value capital structure that contains lower
593 financial risk. Modigliani and Miller proposed several approaches to quantify the equity
594 return associated with various degrees of debt leverage in a firm's capital structure.
595 These formulas point toward an increase in the equity return associated with the higher

⁵ F. Modigliani and M.H. Miller "The Cost of Capital, Corporation Finance, and the Theory of Investments," American Economic Review (June 1958), at 261-297; F. Modigliani and M.H. Miller, "Taxes and the Cost of Capital: A Correction," American Economic Review (June 1963), 433-443.

596 financial risk of the book value capital structure. Simply stated, the leverage adjustment
597 contains no factor for a particular market-to-book ratio. It merely expresses the cost of
598 equity as the unleveraged return plus compensation for the additional risk of introducing
599 debt and/or preferred stock into the capital structure. There can be no dispute that a
600 firm's financial risk varies with the relative amount of leverage contained in its capital
601 structure. As detailed in Peoples Gas Ex. PRM-1.12C, the Modigliani and Miller theory
602 shows that the cost of equity increases by 0.55% (10.58% - 10.03%) when the book value
603 of equity, rather than the market value of equity, is used for ratesetting purposes.

604 Q. Please provide the DCF return based upon your preceding discussion of dividend yield,
605 growth, and leverage.

606 A. As explained previously, I have utilized a six-month average dividend yield (" D_1/P_0 ")
607 adjusted in a forward-looking manner for my DCF calculation. This dividend yield is
608 used in conjunction with the growth rate (" g ") previously developed. The DCF also
609 includes the leverage modification (" $lev.$ ") required when the book value equity ratio is
610 used in determining the weighted average cost of capital in the ratesetting process rather
611 than the market value equity ratio related to the price of stock. The resulting DCF cost
612 rate is:

$$D_1/P_0 + g + lev. = k$$

Gas Group 4.03% + 6.00% + 0.55% = 10.58%

613 The DCF result shown above represents the simplified (i.e., Gordon) form of the
614 model that contains a constant growth assumption. I should reiterate, however, that the
615 DCF indicated cost rate provides an explanation of the rate of return on common stock

616 market prices without regard to the prospect of a change in the price-earnings multiple.
617 An assumption that there will be no change in the price-earnings multiple is not
618 supported by the realities of the equity market, because price-earnings multiples do not
619 remain constant. This is one of the constraints of this model that makes it important to
620 consider other model results when determining a company's cost of equity. As I noted
621 previously in my testimony, there are factors that add to the Company risk. Hence, use of
622 the DCF results from the Gas Group provides a conservative measure of the Company
623 cost of equity due to its higher risk profile.

624 **V. RISK PREMIUM ANALYSIS**

625 Q. Please describe your use of the risk premium approach to determine the cost of equity.

626 A. The details of my use of the Risk Premium approach and the evidence in support of my
627 conclusions are set forth in Peoples Gas Ex. PRM-1.12E. I will summarize them here.
628 With this method, the cost of equity capital is determined by corporate bond yields plus a
629 premium to account for the fact that common equity is exposed to greater investment risk
630 than debt capital. As with other models of the cost of equity, the Risk Premium approach
631 has its limitations, including potential imprecision in the assessment of the future cost of
632 corporate debt and the measurement of the risk-adjusted common equity premium.

633 Q. What long-term public utility debt cost rate did you use in your risk premium analysis?

634 A. In my opinion, a 7.00% yield represents a reasonable estimate of the prospective yield on
635 long-term A-rated public utility bonds. The Moody's index and the Blue Chip forecasts
636 support this figure.

637 The historical yields for long-term public utility debt are shown graphically on
638 page 1 of Peoples Gas Ex. PRM-1.8. For the twelve months ended November 2008, the

639 average monthly yield on Moody's A-rated index of public utility bonds was 6.50%. For
640 the six and three-month periods ended November 2008, the yields were 6.80% and
641 7.22%, respectively. During the twelve-months ended November 2008, the range of the
642 yields on A-rated public utility bonds was 6.02% to 7.60%. Since December 2007, many
643 critical events have occurred that influence the yields on long-term corporate debt. They
644 include: (i) the collapse of The Bear Stearns Company and its acquisition by JPMorgan
645 Chase & Co. with the aid of the Federal Reserve Bank of New York announced on
646 March 16, 2008; (ii) the failure of IndyMac on July 11, 2008, which was at the time the
647 third-largest banking failure in U.S. history, after a "run on the bank" by depositors;
648 (iii) the placement of the government-sponsored enterprises ("GSE") Federal National
649 Mortgage Association (Fannie Mae) and Freddie Mac into conservatorship on
650 September 7, 2008 by the Federal Housing Finance Agency; (iv) the largest bankruptcy
651 filing in history by Lehman Brothers Holding, Inc. on September 15, 2008; (v) the
652 acquisition of the banking operations of Washington Mutual, then the largest U.S.
653 savings bank, by JPMorgan Chase on September 24, 2008, (Washington Mutual's
654 holding company subsequently filed for bankruptcy protection); (vi) the rescue of Merrill
655 Lynch & Co., Inc. by Bank of America on September 15, 2008, with assistance of the
656 Federal government; (vii) the effective nationalization on September 23, 2008, of
657 American International Group, then the world's largest insurance company, through the
658 acquisition of 79.9% of its equity by the U.S. Treasury and (viii) other significant events
659 affecting financial markets globally. In response to these events, on October 3, 2008,
660 Congress passed and the President signed the Emergency Economic Stabilization Act of
661 2008, which, among other provisions, provides the mechanism to deploy up to

662 \$700 billion through the Troubled Asset Relief Program (“TARP”) to address urgent
663 needs created by the credit crisis the country has experienced. Then, the Federal Reserve
664 Board instituted its Commercial Paper Funding Facility (“CPFF”), which was authorized
665 on October 7, 2008, and it participated in coordinated efforts by major central banks to
666 support financial stability and to maintain flows of credit in the banking system. These
667 programs included a \$75 billion Term Auction Facility (“TAF”), a future TAF auction
668 totaling \$150 billion, and an increase to \$620 billion of swap authorizations with central
669 banks in Canada, England, Japan, Denmark, the European Union, Norway, Australia,
670 Sweden, and Switzerland. In the months since these events disrupted the capital markets,
671 the financial market turmoil has continued into early 2009.

672 Q. What forecasts of interest rates have you considered in your analysis?

673 A. I have determined the prospective yield on A-rated public utility debt by using the Blue
674 Chip Financial Forecasts (“Blue Chip”) along with the spread in the yields that I describe
675 above and in Peoples Gas Ex. PRM-1.12D. The Blue Chip is a reliable authority and
676 contains consensus forecasts of a variety of interest rates compiled from a panel of
677 banking, brokerage, and investment advisory services. In early 1999, Blue Chip stopped
678 publishing forecasts of yields on A-rated public utility bonds because the Federal Reserve
679 deleted these yields from its Statistical Release H.15. To independently project a forecast
680 of the yields on A-rated public utility bonds, I have combined the forecast yields on long-
681 term Treasury bonds published on December 1, 2008, and the yield spread of 2.75%. As
682 shown on page 5 of Peoples Gas Ex. PRM-1.8, A-rated public utility bonds have yielded
683 more than Treasury bonds by 2.87% as the three month average, 2.31% as the six month
684 average, and 2.02% as the twelve months average. From these averages, 2.75%

685 represents a reasonable spread for the yield on A-rated public utility bonds over Treasury
 686 bonds. For comparative purposes, I also have shown the Blue Chip forecasts of
 687 Aaa-rated and Baa-rated corporate bonds. These forecasts are:

Blue Chip Financial Forecasts						
Year	Quarter	Corporate		30-Year	A-rated Public Utility	
		Aaa-rated	Baa-rated	Treasury	Spread	Yield
2008	4th	6.2%	8.9%	4.2%	2.75%	6.95%
2009	1st	6.0%	8.6%	4.1%	2.75%	6.85%
2009	2nd	6.0%	8.3%	4.2%	2.75%	6.95%
2009	3rd	5.9%	8.0%	4.3%	2.75%	7.05%
2009	4th	6.0%	8.0%	4.4%	2.75%	7.15%
2010	1st	6.1%	7.9%	4.6%	2.75%	7.35%

688 Q. Are there additional forecasts of interest rates that extend beyond those shown above?

689 A. Yes. Twice yearly, Blue Chip provides long-term forecasts of interest rates. In its
 690 December 1, 2008 publication, Blue Chip published forecasts of interest rates are
 691 reported to be:

Blue Chip Financial Forecasts			
<u>Averages</u>	Corporate		30-Year
	Aaa-rated	Baa-rated	Treasury
2010-14	6.4%	7.6%	5.2%
2015-19	6.6%	7.7%	5.6%

692 Given these forecasted interest rates, a 7.00% yield on A-rated public utility
 693 bonds represents a reasonable expectation.

694 Q. What equity risk premium have you determined for public utilities?

695 A. Peoples Gas Ex. PRM-1.12E provides a discussion of the financial returns that I relied
 696 upon to develop the appropriate equity risk premium for the S&P Public Utilities. I have
 697 calculated the equity risk premium by comparing the market returns on utility stocks and

698 the market returns on utility bonds. I chose the S&P Public Utility index for the purpose
699 of measuring the market returns for utility stocks. The S&P Public Utility index is
700 reflective of the risk associated with regulated utilities, rather than some broader market
701 indexes, such as the S&P 500 Composite index. The S&P Public Utility index is a subset
702 of the overall S&P 500 Composite index. Use of the S&P Public Utility index reduces
703 the role of judgment in establishing the risk premium for public utilities. With the equity
704 risk premiums developed for the S&P Public Utilities as a base, I derived the equity risk
705 premium for the Gas Group.

706 Q. What equity risk premium for the S&P Public Utilities have you determined for this case?

707 A. To develop an appropriate risk premium, I analyzed the results for the S&P Public
708 Utilities by averaging (i) the midpoint of the range shown by the geometric mean and
709 median and (ii) the arithmetic mean. I employed this procedure in order to provide a
710 comprehensive way of measuring the central tendency of the historical returns. As
711 shown by the values set forth on page 2 of Peoples Gas Ex. PRM-1.9, the indicated risk
712 premiums for the various time periods analyzed are 5.51% (1928-2007), 6.58%
713 (1952-2007), 6.08% (1974-2007), and 6.37% (1979-2007). The selection of the shorter
714 periods taken from the entire historical series is designed to provide a risk premium that
715 conforms more nearly to present investment fundamentals, and removes some of the
716 more distant data from the analysis.

717 Q. Do you have further support for the selection of the time periods used in your equity risk
718 premium determination?

719 A. Yes. First, the terminal year of my analysis presented in Peoples Gas Ex. PRM-1.9
720 represents the returns realized through 2007. Second, the selection of the initial year of

721 each period was based upon the financial market defining events that are described in
722 Peoples Gas Ex. PRM-1.12E. These events were fixed in history and cannot be
723 manipulated as later financial data becomes available. That is to say, using the Treasury-
724 Federal Reserve Accord as a defining event, the year 1952 is fixed as the beginning point
725 for the measurement period regardless of the financial results that subsequently occurred.
726 Likewise, 1974 represented a benchmark year because it followed the 1973 Arab Oil
727 embargo. Also, the year 1979 was chosen because it began the deregulation of the
728 financial markets. I consistently use these periods in my work, and additional data are
729 merely added to the earlier results when they become available. The periods chosen are
730 therefore not driven by the desired results of the study.

731 Q. What conclusions have you drawn from these data?

732 A. Using the summary values provided on page 2 of Peoples Gas Ex. PRM-1.9, the
733 1928-2007 period provides the lowest indicated risk premium, while the 1952-2007
734 period provides the highest risk premium for the S&P Public Utilities. Within these
735 bounds, a common equity risk premium of 6.23% ($6.08\% + 6.37\% = 12.45\% \div 2$) is
736 shown from data covering the periods 1974-2007 and 1979-2007. Therefore, 6.23%
737 represents a reasonable risk premium for the S&P Public Utilities in this case.

738 As noted earlier in my fundamental risk analysis, differences in risk
739 characteristics must be taken into account when applying the results for the S&P Public
740 Utilities to the Gas Group. I recognized these differences in the development of the
741 equity risk premium in this case. I previously enumerated various differences in
742 fundamentals between the Gas Group and the S&P Public Utilities, including size, market
743 ratios, common equity ratio, return on book equity, operating ratios, coverage, quality of

744 earnings, internally generated funds, and betas. In my opinion, these differences indicate
745 that 5.50% represents a reasonable common equity risk premium in this case. This
746 represents approximately 88% ($5.50\% \div 6.23\% = 0.88$) of the risk premium of the S&P
747 Public Utilities and is reflective of the risk of the Gas Group compared to the S&P Public
748 Utilities.

749 Q. What common equity cost rate did you determine using this risk premium analysis?

750 A. The cost of equity (i.e., “k”) is represented by the sum of the prospective yield for long-
751 term public utility debt (i.e., “i”), and the equity risk premium (i.e., “RP”). The Risk
752 Premium approach provides a cost of equity of:

$$\begin{array}{rccccccc} & i & + & RP & = & k & \\ & \text{Gas Group} & & & & & \\ & 7.00\% & + & 5.50\% & = & 12.50\% & \end{array}$$

753 **VI. CAPITAL ASSET PRICING MODEL**

754 Q. Have you used the Capital Asset Pricing Model to measure the cost of equity in this case?

755 A. Yes, I have used the Capital Asset Pricing Model (“CAPM”) in addition to my other
756 methods. As with other models of the cost of equity, the CAPM contains a variety of
757 assumptions and shortcomings that I discuss in Peoples Gas Ex. PRM-1.12F. Therefore,
758 this method should be used with other methods to measure the cost of equity, as each will
759 complement the other and will provide a result that will alleviate the unavoidable
760 shortcomings found in each method.

761 Q. What are the features of the CAPM as you have used it?

762 A. The CAPM uses the yield on a risk-free interest bearing obligation plus a rate of return
763 premium that is proportional to the systematic risk of an investment. The details of my

764 use of the CAPM and evidence in support of my conclusions are set forth in Peoples Gas
765 Ex. PRM-1.12F. To compute the cost of equity with the CAPM, three components are
766 necessary: a risk-free rate of return (“Rf”), the beta measure of systematic risk (“β”), and
767 the market risk premium (“Rm-Rf”) derived from the total return on the market of
768 equities reduced by the risk-free rate of return. The CAPM specifically accounts for
769 differences in systematic risk (i.e., market risk as measured by the beta) between an
770 individual firm or group of firms and the entire market of equities. As such, to calculate
771 the CAPM it is necessary to employ firms with traded stocks. In this regard, I performed
772 a CAPM calculation for the Gas Group. In contrast, my Risk Premium approach also
773 considers industry- and company-specific factors because it is not limited to measuring
774 just systematic risk. As a consequence, the Risk Premium approach is more
775 comprehensive than the CAPM. In addition, the Risk Premium approach provides a
776 better measure of the cost of equity because it is founded upon the yields on corporate
777 bonds rather than Treasury bonds.

778 Q. What betas have you considered in the CAPM?

779 A. For my CAPM analysis, I initially considered the Value Line betas. As shown on page 1
780 of Peoples Gas Ex. PRM-1.10, the average beta is 0.69 for the Gas Group.

781 Q. What betas have you used in the CAPM determined cost of equity?

782 A. The betas must reflect of the financial risk associated with the ratesetting capital structure
783 that is measured at book value. Therefore, Value Line betas cannot be used directly in
784 the CAPM, unless those betas are applied to a capital structure measured with market
785 values. To develop a CAPM cost rate applicable to a book value capital structure, the
786 Value Line (market value) betas have been unleveraged and releveraged for the book

787 value common equity ratios using the Hamada formula.⁶ This adjustment has been made
 788 with the formula:

789
$$\beta l = \beta u [1 + (1 - t) D/E + P/E]$$

790 where βl = the leveraged beta, βu = the unleveraged beta, t = income tax rate, D =
 791 debt ratio, P = preferred stock ratio, and E = common equity ratio. The betas published
 792 by Value Line have been calculated with the market price of stock and therefore are
 793 related to the market value capitalization. By using the formula shown above and the
 794 capital structure ratios measured at market value, the beta would become 0.54 for the Gas
 795 Group if it employed no leverage and was 100% equity financed. With the unleveraged
 796 beta as a base, I calculated the leveraged beta of 0.82 for the book value capital structure
 797 of the Gas Group. The betas and its corresponding common equity ratios are:

798

Market Values		Book Values	
Beta	Common Equity Ratio	Beta	Common Equity Ratio
0.69	69.30%	0.82	56.00%

799 The book value leveraged beta that I will employ in the CAPM cost of equity is
 800 0.82 for the Gas Group.
 801

- 802 Q. What risk-free rate have you used in the CAPM?
- 803 A. For reasons explained in Peoples Gas Ex. PRM-1.12D, I have employed the yields on
 804 20-year Treasury bonds using both historical and forecast data to match the longer-term
 805 horizon associated with the ratesetting process. As shown on pages 2 and 3 of Peoples
 806 Gas Ex. PRM-1.10, I provided the historical yields on Treasury notes and bonds. For the

⁶ Robert S. Hamada, "The Effects of the Firm's Capital Structure on the Systematic Risk of Common Stocks" *The Journal of Finance* Vol. 27, No. 2, Papers and Proceedings of the Thirtieth Annual Meeting of the American Finance Association, New Orleans, Louisiana, December 27-29, 1971 (May 1972), pp.435-452

807 twelve months ended November 2008, the average yield was 4.48%, as shown on page 3
808 of that schedule. For the six- and three-months ended November 2008, the yields on 20-
809 year Treasury bonds were 4.49% and 4.35%, respectively. During the twelve-months
810 ended November 2008, the range of the yields on 20-year Treasury bonds was 4.27% to
811 4.74%. As shown on page 4 of Peoples Gas Ex. PRM-1.10, forecasts published by Blue
812 Chip on December 1, 2008 indicate that the yields on long-term Treasury bonds are
813 expected to be in the range of 4.1% to 4.6% during the next six quarters. The longer term
814 forecasts described previously (see Blue Chip Financial Forecast shown on page 31)
815 show that the yields on Treasury bonds will average 5.2% from 2010 through 2014 and
816 5.6% for 2015 to 2019. For reasons explained previously, forecasts of interest rates
817 should be emphasized at this time. Hence, I have used a 4.25% risk-free rate of return for
818 CAPM purposes, which considers not only the Blue Chip forecasts, but also the recent
819 trend in the yields on long-term Treasury bonds.

820 Q. What market premium have you used in the CAPM?

821 A. The market premium is developed by averaging historical market performance and the
822 forecasts. With regard to the forecast data, I have relied upon the Value Line forecasts of
823 capital appreciation and the dividend yield on the 1,700 stocks in the Value Line Survey.
824 According to the September 12, 2008, edition of The Value Line Investment Survey
825 Summary and Index, (see page 5 of Peoples Gas Ex. PRM-1.10) the total return on the
826 universe of Value Line equities is:

827						
828		Dividend		Median		Median
829		<u>Yield</u>	+	<u>Potential</u>	=	<u>Total</u>
830						<u>Return</u>
831	As of September 12, 2008	2.2%	+	15.02% ⁷	=	17.22%

832 The tabulation shown above provides the dividend yield and capital gains yield of
833 the companies followed by Value Line. Another measure of the total market return is
834 provided by the DCF return on the S&P 500 Composite index. The return is shown.

<u>DCF Result for the S&P 500 Composite</u>					
	D/P	(1+.5g)	+	g	= k
	3.14%	(1.0537)	+	10.74%	= 14.05%
where:	Price (P)	at 30-Nov-2008	=	896.24	
	Dividend (D)	for 3rd Qtr. '08	=	7.04	
	Dividend (D)	annualized	=	28.16	
	Growth (g)	First Call EpS	=	10.74%	

835 Using these indicators, the total market return is 15.64% (17.22% + 14.05% =
836 31.27% ÷ 2) using both the Value Line and S&P derived returns. With the 15.64%
837 forecast market return and the 4.25% risk-free rate of return, an 11.39% (15.64% -
838 4.25%) market premium is indicated using forecast market data.

839 With regard to the historical data, I provided the rates of return from long-term
840 historical time periods that have been widely used in the investment and academic
841 community over the past several years, as shown on page 6 of Peoples Gas
842 Ex. PRM-1.10. These data are published by Ibbotson Associates in its Stocks, Bonds,
843 Bills and Inflation ("SBBI") for the period 1926-2007. From the data provided on page 6
844 of Peoples Gas Ex. PRM-1.10, I calculated a market premium using the common stock

⁷The estimated median appreciation potential is forecast to be 75% for 3 to 5 years hence. The annual capital gains yield at the midpoint of the forecast period is 15.02% (i.e., 1.75^{.25} - 1).

845 arithmetic mean returns of 12.3% less government bond arithmetic mean returns of 5.8%,
846 resulting in the historical market premium of 6.5% (12.3% - 5.8%).

847 The resulting market premium for purposes of my CAPM analysis is 8.95% (6.5%
848 + 11.39% = 17.89% ÷ 2), which represents the average market premium using the
849 historical (6.5%) and forecast (11.39%) data.

850 Q. Are there adjustments to the CAPM results that are necessary to fully reflect the rate of
851 return on common equity?

852 A. Yes. The technical literature supports an adjustment relating to the size of the company
853 or portfolio for which the calculation is performed. As the size of a firm decreases, its
854 risk and, hence, its required return increases. Moreover, in his discussion of the cost of
855 capital, Professor Brigham has indicated that smaller firms have higher capital costs than
856 otherwise similar larger firms (see Fundamentals of Financial Management, 5th Edition,
857 page 623). Also, the Fama/French study (see "The Cross-Section of Expected Stock
858 Returns," The Journal of Finance, June 1992) established that size of a firm helps explain
859 stock returns. In an October 15, 1995 article in Public Utility Fortnightly, entitled
860 "Equity and the Small-Stock Effect," it was demonstrated that the CAPM could
861 understate the cost of equity significantly according to a company's size. Indeed, it was
862 demonstrated in the SBBI Yearbook that the returns for stocks in lower deciles (i.e.,
863 smaller stocks) had returns in excess of those shown by the simple CAPM. In this regard,
864 the Gas Group has an average market capitalization of its equity of \$1,701 million, which
865 would make them a low-cap portfolio. The low-cap market capitalization would indicate
866 a size premium of 1.65%. However, for my CAPM analysis, I have adopted a more

867 conservative size adjustment of 0.92%, which represents the mid-cap adjustment. Absent
868 such an adjustment, the CAPM would understate the required return.

869 Q. What CAPM result have you determined using the CAPM?

870 A. Using the 4.25% risk-free rate of return, the leverage adjusted beta of 0.82 for the Gas
871 Group, the 8.95% market premium, and the size adjustment, the following result is
872 indicated.

$$R_f + \beta \times (R_m - R_f) + size = k$$

Gas Group 4.25% + 0.82 x (8.95%) + 0.92% = 12.51%

873 As compared to the DCF model, the results of the CAPM are more broadly based and
874 consider specific risk factors, such as those related to small size.

875 **VII. COMPARABLE EARNINGS APPROACH**

876 Q. How have you applied the Comparable Earnings approach in this case?

877 A. The technical aspects of the Comparable Earnings approach are set forth in Peoples Gas
878 Ex. PRM-1.12G. Because regulation is a substitute for competitively-determined prices,
879 the returns realized by non-regulated firms with comparable risks to a public utility
880 provide useful insight into a fair rate of return. In order to identify the appropriate return,
881 it is necessary to analyze returns earned (or realized) by other firms within the context of
882 the Comparable Earnings standard. The firms selected for the Comparable Earnings
883 approach should be companies whose prices are not subject to cost-based price ceilings
884 (i.e., non-regulated firms) so that circularity is avoided. There are two avenues available
885 to implement the Comparable Earnings approach. One method would involve the

886 selection of another industry (or industries) with comparable risks to the public utility in
887 question, and the results for all companies within that industry would serve as a
888 benchmark. The second approach requires the selection of parameters that represent
889 similar risk traits for the public utility and the comparable risk companies. Using this
890 approach, the business lines of the comparable companies become unimportant. The
891 latter approach is preferable with the further qualification that the comparable risk
892 companies exclude regulated firms in order to avoid the circular reasoning implicit in the
893 use of the achieved earnings/book ratios of other regulated firms. The United States
894 Supreme Court has held that:

895 A public utility is entitled to such rates as will permit it to earn a
896 return on the value of the property which it employs for the convenience
897 of the public equal to that generally being made at the same time and in
898 the same general part of the country on investments in other business
899 undertakings which are attended by corresponding risks and
900 uncertainties.... The return should be reasonably sufficient to assure
901 confidence in the financial soundness of the utility and should be
902 adequate, under efficient and economical management, to maintain and
903 support its credit and enable it to raise the money necessary for the proper
904 discharge of its public duties. Bluefield Water Works vs. Public Service
905 Commission, 262 U.S. 668 (1923).

906 Therefore, it is important to identify the returns earned by firms that compete for
907 capital with a public utility. This can be accomplished by analyzing the returns of
908 non-regulated firms that are subject to the competitive forces of the marketplace.

909 Q. How have you implemented the Comparable Earnings approach?

910 A. In order to implement the Comparable Earnings approach, non-regulated companies were
911 selected from the Value Line Investment Survey for Windows that have six categories
912 (see Peoples Gas Ex. PRM-1.12G for definitions) of comparability designed to reflect the
913 risk of the Gas Group. These screening criteria were based upon the range as defined by

914 the rankings of the companies in the Gas Group. The items considered were: Timeliness
915 Rank, Safety Rank, Financial Strength, Price Stability, Value Line betas, and Technical
916 Rank. The identities of the companies comprising the Comparable Earnings group and
917 its associated rankings within the ranges are identified on page 1 of Peoples Gas
918 Ex. PRM-1.11.

919 Value Line data was relied upon because it provides a comprehensive basis for
920 evaluating the risks of the comparable firms. As to the returns calculated by Value Line
921 for these companies, there is some downward bias in the figures shown on page 2 of
922 Peoples Gas Ex. PRM-1.11 because Value Line computes the returns on year-end rather
923 than average book value. If average book values had been employed, the rates of return
924 would have been slightly higher. Nevertheless, these are the returns considered by
925 investors when taking positions in these stocks. Because many of the comparability
926 factors, as well as the published returns, are used by investors for selecting stocks, and to
927 the extent that investors rely on the Value Line service to gauge its returns, it is,
928 therefore, an appropriate database for measuring comparable return opportunities.

929 Q. What data have you used in your Comparable Earnings analysis?

930 A. I have used both historical realized returns and forecasted returns for non-utility
931 companies. As noted previously, I have not used returns for utility companies in order to
932 avoid the circularity that arises from using regulatory-influenced returns to determine a
933 regulated return. It is appropriate to consider a relatively long measurement period in the
934 Comparable Earnings approach in order to cover conditions over an entire business cycle.
935 A ten-year period (5 historical years and 5 projected years) is sufficient to cover an
936 average business cycle. Unlike the DCF and CAPM, the results of the Comparable

937 Earnings method can be applied directly to the book value capitalization because, the
938 nature of the analysis relates to book value. Hence, Comparable Earnings does not
939 contain the potential misspecification contained in market models when the market
940 capitalization and book value capitalization diverge significantly. The historical rate of
941 return on book common equity was 14.6% using the median value as shown on page 2 of
942 Peoples Gas Ex. PRM-1.11. The forecast rates of return, as published by Value Line are
943 shown by the 12.8% median values also provided on page 2 of Peoples Gas
944 Ex. PRM-1.11.

945 Q. What rate of return on common equity have you determined in this case using the
946 Comparable Earnings approach?

947 A. The average of the historical and forecast median rates of return is:

	<u>Historical</u>	<u>Forecast</u>	<u>Average</u>
Comparable Earnings Group	14.60%	12.8%	13.70%

948 As noted previously, I have used the results from the Comparable Earnings
949 method to confirm the results of the market based models.

950 **VIII. CONCLUSION ON COST OF EQUITY**

951 Q. What is your conclusion concerning Company cost of common equity?

952 A. Based upon the application of a variety of methods and models described previously, it is
953 my opinion that the reasonable cost of common equity is 12.00% for the Company. It is
954 essential that the Commission employ a variety of techniques to measure the Company
955 cost of equity because of the limitations/infirmities that are inherent in each method.

956 Q. Does this conclude your direct testimony at this time?

957 A. Yes, it does.