

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

IN THE MATTER OF THE APPLICATION OF)	
QUESTAR GAS COMPANY TO INCREASE)	DOCKET NO. 07-057-13
DISTRIBUTION NON-GAS RATES AND)	
CHARGES AND MAKE TARIFF)	DPU EXHIBIT 3.0
MODIFICATIONS)	

PRE-FILED DIRECT TESTIMONY

WILLIAM POWELL, PHD

ON BEHALF OF THE

UTAH DIVISION OF PUBLIC UTILITIES

March 31, 2008

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2 ARTIE POWELL, PHD
3 DIVISION OF PUBLIC UTILITIES

4

5 **Q: Please state your name, business address, employer, and current position or**
6 **title for the record.**

7 A: My name is Dr. William (Artie) Powell, and my business address is 160 E 300 S,
8 Salt Lake City, 84114. My employer is the Division of Public Utilities in the
9 Utah Department of Commerce. My current position is Energy Section Manager.

10 **Q: Would you briefly describe your qualifications?**

11 A: Yes. I have doctorate degree in economics from Texas A&M University with an
12 emphasis in econometrics. From 1985 to 2006, I taught economics, econometrics,
13 and statistics at the university level. My employment with the Division of Public
14 Utilities began in 1996. Since starting with the Division, I have attended several
15 seminars and conferences including the NARUC Annual Studies Program and the
16 IPU Advanced Studies Program (2005), both at Michigan State University.
17 Among other assignments, I have acted as the Division's cost of capital witness in
18 several PacifiCorp and Questar Gas Company rate cases.

19 **Q: What is the purpose of your testimony in this proceeding?**

20 A: The purpose of my testimony today is three fold. First, I will review some
21 general concepts on establishing the cost of capital for a regulated monopoly.
22 Second, I will address a few remarks in response to the testimony of the

23 Company's witness Mr. Hevert; in particular, I will address his analysis of the
24 risk effects of revenue stabilization mechanisms ("RSM"). Third, I analyze the
25 potential of adjusting the Company's cost of equity capital given the
26 implementation of the Conservation Enabling Tariff ("CET") pilot.

27 I also review a recent Illinois Commerce Commission decision to reduce
28 the cost of equity capital for two gas companies after implementing a four-year
29 pilot program, which includes a revenue stabilization mechanism. Finally, I
30 compare testimony and recommendations by Company witness Mr. Hevert in a
31 recent Arkansas Public Service Commission case with his testimony in this case.
32 In the Arkansas case, Mr. Hevert recommends a 35 basis point reduction in
33 Centerpoint Energy's cost of equity capital upon adoption of a revenue
34 stabilization mechanism.

35 **Q: Can you summarize your conclusions and recommendations?**

36 A: It is the Commission's responsibility to choose a cost of equity capital that is fair
37 and reasonable. "The concept of a fair rate of return," according to Dr. Charles F.
38 Phillips, "represents a range or a zone of reasonableness."¹ On the one hand,
39 rates, including a return on equity capital, should not be set so low as to be

¹ Charles F. Phillips, "The Regulation of Public Utilities," [Arlington, Virginia: Public Utilities Reports, Inc., 1993], p. 375.

40 confiscatory. On the other hand, rates should not be set so high as to exploit
41 ratepayers.²

42 In my opinion, the Division's cost of capital witness, Mr. Charles
43 Peterson, establishes a reasonable range for the cost of equity capital for Questar
44 Gas Company ("QGC"). His recommendation of 9.25% is a fair and reasonable
45 cost of equity capital and is consistent with the guidelines set forth by the United
46 States Supreme Court in the *Bluefield* and *Hope* decisions. Given Mr. Peterson's
47 results and the results from my analysis, I find no evidence to support a reduction
48 in the Company's cost of capital due to the implementation of the CET.

49 **Q: Would you explain what you mean by the Supreme Court's guidelines?**

50 A: Yes. Although the Supreme Court has not defined specific rules for determining
51 what an appropriate range of reasonableness is, it has enunciated several
52 guidelines: "The landmark *Bluefield* and *Hope* cases establish the criterion that
53 the fair return be commensurate with those available on alternative investments of
54 comparable risk."³ Specifically, the relevant portion of the *Bluefield* decision
55 reads,

56 A public utility is entitled to such rates as will permit
57 it to earn a return on the value of the property which

² Phillips, pp. 375-382.

³Roger A. Morin, *Regulatory Finance: Utilities' Cost of Capital*, [Public Utilities Reports, Inc.; Arlington, Virginia], 1994, p. 33.

58 it employs for the convenience of the public equal to
59 that generally being made at the same time and in the
60 same general part of the country on investments in
61 other business undertakings which are attended by
62 corresponding risks and uncertainties.⁴

63 The Hope decision reads,

64 From the investor or company point of view it is
65 important that there be enough revenue not only for
66 operating expenses but also for the capital costs of
67 the business. These include service on debt and
68 dividends on the stock. ... By that standard the return
69 to the equity owner should be commensurate with
70 returns on investments in other enterprises having
71 corresponding risks.⁵

72 In addition to the criteria of earning a cost of capital commensurate with
73 other firms of comparable risk, the Supreme Court expressed the need for the
74 utility to (1) maintain its financial integrity, and (2) attract the capital necessary to
75 serve the public.⁶ As Dr. Phillips explains, “These three economic criteria are

⁴ *Bluefield Water Works & improvement Co. v. Public Service Commission of West Virginia* (262 U.S. 679, 1923).

⁵ *Federal Powers Commission v. Hope Natural Gas Company* (320 U.S. 391, 1944).

⁶ Phillips, p. 381. Also see, James C. Bonbright, “Principles of Public Utility Rates,” [New York, New York: Columbia University Press, 1961], especially chapter 15; and Alfred E. Kahn, “The Economics of Regulation: Principles and Institutions,” [Cambridge, Massachusetts: The MIT Press, 1988], especially pages 25-60.

76 interrelated and have been used widely for many years by regulatory commissions
77 throughout the country in determining the rate of return allowed public utilities.”⁷
78 Obviously, a reasonable range for the cost of equity capital under one set of
79 circumstances will not necessarily be reasonable under a different set.⁸

80 In general, I believe the approach taken in the past by Division witnesses
81 has been consistent with the principles or guidelines outlined by the Supreme
82 Court and, in particular, consistent with the principle of a reasonable range.

83 **Q: Are you aware that in its order in Docket No. 05-057-T01, the Commission**
84 **found that “the CET reduces Company risk”?**

85 A: Yes.

86 **Q: Are you familiar with the analyses performed by the Company’s witness, Mr.**
87 **Hevert, showing that the Company’s risk was probably not reduced by the**
88 **implementation of the CET pilot? If you are, would you like to comment on**
89 **his work?**

90 A: The answer to both of your questions is yes. Starting on page 50 and running
91 through page 53 of his direct testimony, Mr. Hevert presents the results of two
92 investigations from which he concludes, “there is no basis to assume that
93 investors would consider the Company so less risky than the proxy group that

⁷ Phillips, p. 382.

⁸ Phillips, p. 380; *Bluefield*.

94 they would measurably reduce their return requirements.”⁹ The two
95 investigations are an event study and a regression model. I would like to
96 comment on these two models in the reverse order from Mr. Hevert’s
97 presentation.

98 For his regression model, Mr. Hevert establishes a set of five utilities that
99 have implemented some form of RSM and regresses their weekly returns on the
100 average weekly return for a group of proxy companies. His results indicate that
101 the returns for the five companies do not differ statistically from those of the
102 proxy group. When Mr. Hevert refined the analysis to look at the periods prior
103 and post to the implementation, for only one of the five utilities, New Jersey
104 Resources, did the results indicate a decrease in risk. Mr. Hevert’s analysis
105 appears sound and the conclusions consistent with the results.

106 In his event study, Mr. Hevert examines the performance of the five
107 companies’ price/book ratios relative to the average price/book ratio for the proxy
108 group. The period examined runs from 90 days prior to the implementation of a
109 RSM to 90 days after. Although event studies are a common tool, I believe the
110 window around the events studied are usually much narrower, say 5 to 30 days.
111 Inspecting Chart 5 (page 51, between lines 1211 and 1212) in Mr. Hevert’s
112 testimony, it appears that a significant difference in the pre and post valuations

⁹ Mr. Robert B. Hevert, Direct Testimony, Docket No. 07-057-13, December 19, 2007, p. 53, lines 1276-1278.

113 may exist in this narrower window. The reason for the narrow window is that, in
114 a typical event study, until the event is publicly announced, the event is
115 “unknown.” For example, if the event is a merger between two companies, the
116 merger is supposedly unknown to the public before the announcement.

117 However, when a commission orders the implementation of a RSM, such
118 as the CET, there is generally a long and very public process leading up to the
119 event. For example, parties submitted testimony as early as January 2006 in
120 Docket No. 05-057-T01, but the Commission’s order approving the CET was
121 issued nine months later in September of that year. In other words, the event
122 horizon for implementation of RSM may be much longer than the 180 days (90
123 days on either side of the event) used by Mr. Hevert. Thus, looking at a shorter
124 time period, as indicated above, or looking at longer time period may yield
125 different results and conclusions than those posed by Mr. Hevert.

126 In conclusion, in general I believe Mr. Hevert’s analysis of how investors
127 react to the implementation of RSMs is sound. The conclusion to be drawn from
128 his analysis is that there is no evidence to support the assumption that investors
129 lower their required expected returns when a utility is allowed to use a RSM.
130 However, in a recent Arkansas Public Service Commission case, while Mr.
131 Hevert concluded that the introduction of a RSM there would not lower the risk of
132 Centerpoint Energy Corp., he recommend a 35 basis point reduction in
133 Centerpoint’s cost of equity capital. I will discuss this issue in more detail alter in

134 my testimony. Nevertheless, I start my own analysis with the assumption that
135 there is a decrease in the Company's risk associated with the implementation of
136 the CET.

137 **Q: Would you explain what you are assuming and why you start with that**
138 **assumption?**

139 A: The word assumption was probably misleading. I am really starting with the
140 hypothesis that when a utility is allowed to implement a RSM, such as the CET,
141 its risks should decline. I start at this point because this is exactly what the
142 Commission concluded in its order in Docket No. 05-057-T01. On page 11 of the
143 order, the Commission states, "the CET reduces Company risk."¹⁰

144 Intuitively, this conclusion makes sense: if, in the presence of a RSM, the
145 utility's revenues are more stable and more predictable over a period, say one
146 year, than they otherwise would be, the company's risk should be less, if
147 everything else remains the same. I believe this is what the Commission had in
148 mind when it stated,

149 Risk to Company earnings are changed in at least two
150 ways with the CET. First, the CET either reduces or
151 removes the risk associated with the deterioration of
152 earnings caused by declining use per customer,
153 depending on whether an accrual cap is included.

¹⁰ Commission Order, "In the Matter of Approval of the Conservation Enabling Tariff Adjustment Option and Accounting Orders," Docket No. 05-057-T01, November 5, 2007, p. 11.

154 For example, to the extent an accrual cap is in place
155 and shown to have a constraining affect, this risk is
156 reduced rather than removed. Second, the variation
157 in revenues is reduced because the number of
158 customers is less variable and more predictable than
159 customer usage.¹¹

160 **Q: Are you suggesting that the Commission should reduce Questar Gas' cost of**
161 **capital because of the implementation of the CET?**

162 A: Not necessarily. Intuitive conclusions sometimes do not withstand statistical or
163 other quantitative analysis. Additionally, for at least two reasons, even it could be
164 demonstrated that the Company's risk has been reduced this would not
165 necessarily justify, in my opinion, an adjustment to the Company's allowed rate
166 of return. First, as I articulated above, the Supreme Court's guidelines indicate
167 that the Company's return should be commensurate with returns on investments
168 in other enterprises having corresponding risks. To set a return for the Company
169 independent of (or without looking at) the returns for other companies with
170 comparable risks, would not only be inconsistent with the *Bluefield* and *Hope*
171 decisions, but also it would ignore the realities of the market. For example, as
172 Dr. Alfred Kahn explains, "The cost of capital, which is what a utility company
173 must match if it is to attract funds, is what investors could obtain by buying

¹¹ Commission Order, Docket No. 05-057-T01, p. 12.

174 securities of other companies in the open market – not what the companies
175 themselves earn on a dollar of additional investment.”¹² Second, risk is neither a
176 single dimensional concept nor is it static. Just because one item, in this case the
177 CET, reduces risk from one perspective, does not necessarily mean that the
178 Company’s overall risk has declined – other items affecting risk could change in
179 such a way to increase risk. Again, the Supreme Court’s guidelines suggest that
180 the cost of capital to the regulated utility being studied should be commensurate
181 with the costs of capital for other companies with similar risks.

182 In order to justify an adjustment to the Company’s cost of capital, you
183 need to demonstrate two objectives. First, that the cost of capital for the utility
184 with a RSM is different (less) than that of other utilities without a RSM and
185 second, quantify the magnitude of that difference. Although Mr. Hevert’s
186 regression analysis previously described is intended to address the first objective,
187 it does not address the second.

188 **Q: Have you performed an analysis to address both objectives?**

189 A: Yes, I have.

190 **Q: Would you explain your analysis and results?**

¹² Kahn, p. 52.

191 A: Certainly. To address both objectives, I want to estimate a regression model of
192 the following form:

193
$$y_i = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \varepsilon_i \quad (1)$$

194 where:

195 y_i measures the cost of capital for utility i ;
196 X_1 measures the presence of RSM;
197 X_2 measures other factors that effect the cost of capital;
198 ε_i is an error term; and
199 α , β_1 and β_2 are respectively the intercept and slope parameters to be
200 estimated.

201 To begin, I chose the proxy group of gas utilities described by Mr. Hevert
202 on pages 47 and 48 of his direct testimony. This proxy group consists of eight
203 utilities with varying degrees of throughput covered by a RSM. For convenience,
204 I reproduce Mr. Hevert's Table 6 with three additional columns. (See Table 1).
205 Based on Mr. Hevert's description, there are at least two ways to measure the
206 presence of RSM (X_1) for the regression in Equation (1). These are indicated in
207 columns three and four in Table 1. The third column labeled RSM Indicator, is a
208 variable indicating the either the presence of a RSM (1) or its absence (0). The
209 fourth column labeled RSM Rank is a variable that ranks the presence of a RSM
210 by how much of the utility's throughput is covered by the RSM. Following Mr.
211 Hevert's description, 0 indicates that none of the utility's throughput is covered, 1

212 (one) indicates that up to 50% is covered, and 2 indicates that more than 50% is
 213 covered.

214 The last column labeled Financial Risk is a variable based on Value Line's
 215 Financial Risk Measure. For the eight firms in this proxy group, Value Line's
 216 Financial Risk measure runs from B to A. I assigned a numerical value to each of
 217 these designations I assigned a numerical value: B = 1, B+ = 2, B++ = 3, and A =
 218 4. For the cost of capital, I estimated the cost of equity using information pulled
 219 from Value Line reports for each of these companies. The data and estimates for
 220 this step are reported in DPU Exhibit 3.1 attached to this testimony.

221 **Table 1: RSM Classification**

Company	Percent of Residential and Commercial Throughput Subject to RSM	RSM Indicator	RSM Rank	Financial Risk
AGL Resources	50%+	1	2	3
Atmos Energy	< 50%	1	1	2
New Jersey Resources	50%+	1	2	4
Nicor Inc.	0	0	0	4
Northwest Natural	50%+	1	2	4
Piedmont Natural Gas	50%+	1	2	3
South Jersey Industries	50%+	1	2	3
Southwest Gas	< 50%	1	1	1

222

223 Recall, the working hypothesis for this exercise is that the presence of a
224 RSM should reduce the utility's risk. If this hypothesis is correct, the slope
225 coefficients on RSM indicator and RSM Rank variables should be negative.
226 Likewise, the slope coefficient on the Financial Strength Variable should be
227 negative – the greater the financial strength of the company, the lower the risk.
228 To test this hypothesis I ran four regressions. In the first regression, I regressed
229 the cost of equity on the RSM indicator variable. In the second regression, I
230 regressed the cost of equity against the RSM rank variable. For the third and
231 fourth regressions, I added the Financial Strength variable to each of the first two
232 regression models. The results of these regressions are attached to this testimony
233 in DPU Exhibit 3.2.

234 In each of the four regressions, the RSM slope estimates are statistically
235 insignificant – statistically their values are not significantly different from zero
236 (i.e., given the results of the regression estimates and other sample information,
237 we fail to reject the null hypothesis that the coefficients are equal to zero). In the
238 first and third regressions, the RSM Indicator slope estimate is of the wrong sign
239 – the sign is positive whereas it was expected to be negative. In the second and
240 fourth regressions, the RSM Rank slope estimates are negative (but statistically
241 insignificant). In the third and fourth regressions, the Financial Strength slope
242 estimates are of the expected sign (negative). In the third regression, which
243 includes the RSM Indicator variable, the slope estimate for the Financial Strength

244 variable is statistically significant (i.e., based on the estimates and other
245 information in the sample, we reject the null hypothesis that the slope parameter is
246 equal to zero); it is not statistically significant in the fourth regression.

247 **Q: What conclusions do you draw from this analysis?**

248 A: Looking at the regressions results, it appears that regressions two and four offer
249 the only evidence, albeit very weak evidence, of a reduction in Questar Gas' cost
250 of equity capital due to the implementation of the CET. In these regressions, the
251 estimates are negative as expected. For example, regression two indicates that
252 given a RSM you would reduce the cost of equity capital by about 24 basis points.
253 Regression four indicates a reduction of about 1 basis point.

254 However, I do not believe that either of these reductions is justifiable.
255 First, although the cost of capital will vary with risk, there is no strong evidence
256 that the presence of a RSM such as the CET systematically reduces the risk of the
257 utility under consideration compared to its peers. Second, remember the
258 coefficient estimates from these models are statistically insignificant and,
259 therefore, are not reliable. For example, in regression two, the 95% confidence
260 interval for the slope estimates of the RSM Rank variable extends from -0.022 to
261 0.017 – statistically speaking, based on the results from this regression, any
262 adjustment between -220 basis points to 117 basis points is equally valid.
263 Therefore, I conclude that there does not appear to be an empirical justification

264 for reducing Questar Gas' cost of capital due to the implementation of the CET
265 pilot.

266 **Q: Is there any other evidence that a reduction in Questar Gas' cost of equity**
267 **capital may be justified?**

268 A: Yes, I am aware of two pieces of information that may be of value to the
269 Commission. First, in a recent Illinois case, Docket Nos. 07-0241 and 07-0242,
270 the Illinois Commerce commission lowered the cost of equity capital by ten (10)
271 basis points for People's Gas and North Shore due to the implementation of a
272 Volume Balancing Adjustment ("VBA") mechanism. The VBA is similar in its
273 intent to the CET in that it adjusts for the difference between allowed revenues
274 per customer and the actual revenues per customer. In its order, the Illinois
275 Commerce Commission states,

276 The Commission finds that the Rider VBA will
277 lessen the Utilities' risk associated with their cash
278 flow. Moreover, we agree with the staff's
279 recommendation that there should be a downward
280 adjustment to the cost of common equity to account
281 for the reduced risk associated with the accepted
282 riders. ... While this record in this case lacks an
283 exact calculation of the reduction in risk due to the
284 Rider VBA, we note that determining the cost of
285 common equity is not an exact science. ... overall,
286 we find it reasonable to reduce the return on common

287 equity by ten (10) basis points for the duration [four
288 years] of the pilot program. ...

289 [T]he resulting ROEs for Peoples Gas and North
290 Shore are 10.29% and 10.09, respectively.
291 Additionally, the Commission deems it appropriate to
292 reduce the Companies' ROEs by ten (10) basis points
293 to reflect the reduction in risk associated with the
294 Rider VBA pilot program. Therefore the
295 Commission finds reasonable and supported by the
296 record the resulting value of ROEs of 10.19% for
297 People's Gas and 9.99% for North Shore.¹³

298 Second, in a recent case before the Arkansas Public Service Commission,
299 Docket No. 06-161-U, Questar Gas' witness in this case, Mr. Hevert,
300 recommended a 35 basis point reduction in the cost of equity capital for
301 Centerpoint Energy Resources Corporation for whom he was testifying.
302 Interestingly, in the Arkansas case, Mr. Hevert uses similar language and analysis
303 as he does in this case to explain why he did not believe the introduction of a Trial
304 Billing Determinant Adjustment Clause ("TBDAC") in Arkansas would reduce
305 the risk for Centerpoint Energy.¹⁴ (For convenience, relevant pages from Mr.
306 Hevert's testimony in the Arkansas Public Service Commission case are attached

¹³ State of Illinois, Illinois Commerce Commission, "Order," Docket Nos. 07-0241 and 07-0242 Consolidated, February 5, 2008, pp. 99, 100.

¹⁴ Compare Mr. Hevert's testimony in the Arkansas case, pages 54 to 62, with his testimony in this case, pages 45 to 53.

307 to this testimony as DPU Exhibit 3.3). In particular, in the Arkansas case Mr.
308 Hevert argues,

309 Acceptance by the Commission of the proposed
310 TBDAC Rider would not make the Company less
311 risky than the proxy group companies to the extent
312 that those companies have employed some method to
313 address declining use per customer concerns.¹⁵

314 Despite this conclusion, Mr. Hevert recommends a 35 basis point
315 reduction in Centerpoint's cost of equity capital:

316 In the event the Commission accepts the Company's
317 proposed TBDAC, I would recommend a downward
318 adjustment of 35 basis points.¹⁶

319 **Q: What do you understand as the basis of Mr. Hevert's recommendation in the**
320 **in the Arkansas case?**

321 A: Mr. Hevert based his reduction recommendation on an analysis of the "credit
322 spread associated with one earnings notch difference among three ratings

¹⁵ Robert B. Hevert, "Direct Testimony of Robert B. Hevert, President of Concentric Energy Advisors, Inc., on Behalf of Centerpoint Energy Resources Corp.," Before the Arkansas Public Service Commission, Docket No. 06-161-U, January 16, 2007, p. 55, lines 8-10.

¹⁶ Robert B. Hevert, Arkansas Public Service Commission Docket No. 06-161-U, P. 62, lines 9-10.

323 categories.”¹⁷ Mr. Hevert reports a range of differences between 18 and 41 basis
324 points with an average difference of 25 basis points.

325 **Q: What conclusions do you draw from Mr. Hevert’s analysis and**
326 **recommendation in the Arkansas case?**

327 A: As Mr. Hevert points out in his Arkansas testimony, there is not necessarily a one-
328 to-one relationship between the costs of equity and debt capital.¹⁸ Also, the
329 implementation of the CET does not necessarily mean a rating agency will reduce
330 Questar Gas’ cost of debt. Finally, as I previously explained, to the extent
331 Questar Gas’ comparable companies have similar RSM to the CET, any
332 adjustments in the Company’s cost of equity should be captured in the analysis
333 establishing a reasonable range. I believe the analysis performed by Division
334 witness, Mr. Peterson, does capture any such potential adjustments. Therefore, I
335 believe no reduction in Questar Gas’ cost of equity capital is warranted at this
336 time.

337 However, based on Mr. Hevert’s analysis and recommendation in the
338 Arkansas case, I would say a reduction in the cost of equity for Questar in the
339 range of 10 to 25 basis points may be partially supportable.

¹⁷ Robert B. Hevert, Arkansas Public Service Commission Docket No. 06-161-U, P. 61, lines 1-2.

¹⁸ Robert B. Hevert, Arkansas Public Service Commission Docket No. 06-161-U, p. 62, footnote 55.

340 **Q: Does that conclude your prepared testimony?**

341 A: Yes it does.