Exhibit No. ___T (RAM-11T)
Docket No. UG-060256
Witness: Dr. Roger Morin

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

CASCADE NATURAL GAS CORPORATION **Complainant,** **v.** **WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION** **Respondent.**	**DOCKET NO. UG-060256**

REBUTTAL TESTIMONY OF

Dr. Roger Morin

Cost of Capital

September 12, 2006

REBUTTAL TESTIMONY
OF
DR. ROGER A. MORIN
ON BEHALF OF
CASCADE NATURAL GAS CORPORATION

Q. PLEASE STATE YOUR NAME, ADDRESS, AND OCCUPATION.

A. My name is Dr. Roger A. Morin. My business address is Georgia State University, Robinson College of Business, University Plaza, Atlanta, Georgia, 30303. I am Professor of Finance at the College of Business, Georgia State University and Professor of Finance for Regulated Industry at the Center for the Study of Regulated Industry at Georgia State University. I am also a principal in Utility Research International, an enterprise engaged in regulatory finance and economics consulting to business and government.

Q. ARE YOU THE SAME DR. MORIN WHO PREVIOUSLY FILED DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes, I am.

Q. PLEASE DESCRIBE THE PURPOSE OF YOUR REBUTTAL TESTIMONY.

A. I have been asked to rebut the cost of capital testimony submitted by David C. Parcell on behalf of Commission Staff in this proceeding.

Q. **DO YOU AGREE WITH MR. PARCELL'S RECOMMENDATIONS?**

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A. Mr Parcell's recommended 8.43% target Rate of Return (ROR) for Cascade is clearly short of a reasonable outcome. Similar to my methodology, Mr Parcell developed his ROR recommendation based on his development of both a required Return on Equity (ROE) assumption and an assumed ratio between debt and equity (D/E). I disagree with Mr. Parcell on both his assumptions.

Mr. Parcell's recommended 9.75% ROE doesn't pass the simplest comparisons. It is lower than that the authorized return of **every** utility in the two gas benchmark groups he used and lower than all but one of the electric utilities benchmarked. The range of average ROE for the three groups is 10.72-11.0% as compared to Mr. Parcell's recommended 9.75%. Decisions from this Commission in the last few years supported 10.2%, 10.3% and 10.4% ROE's for much larger utilities. Mr. Parcell's 9.75% recommendation doesn't align with these outcomes, especially when one considers rising return requirements since these decisions, as evidenced by interest rate increases. In addition, Mr. Parcell fails to address risks specific to Cascade in his analysis. Given Cascade's higher operating risk due to its small size, higher dependence on industrial customers and its customer base in communities with more volatile employment levels; one must factor in an increase to the benchmark-indicated ROE to arrive at an appropriate ROE for Cascade. These simple comparisons imply that the minimum reasonable ROE for Cascade would be about 10.75-11.0%, before adding for Cascade-specific risks.

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Mr Parcell's recommended capital structure contributes to a further understatement of Cascade's required ROR as a result of focusing on a single snapshot D/E ratio for Cascade and not acknowledging industry norms and investor expectations. He also fails to recognize that Cascade had publicly filed data for two subsequent quarters demonstrating that the December 31, 2005 snapshot was not reflective of either Cascade's current ratios nor its ability to achieve the industry norm of 50% debt and 50% equity within a few years. The requirements of Wall Street and individual investors determine the appropriate capital structure for operations and assets similar to Cascade's. Given that Cascade has already significantly improved its ratios from last December 31 and has demonstrated its ability to achieve a 50/50 capital structure, its rate calculations need to be on that basis. Cascade's approved ROR should be calculated using a 50% debt and 50% equity capital structure.Combining these indicators, Mr. Parcell's recommended ROR of 8.43% is almost 75 basis points lower than the minimum supportable by the benchmarks both of us used.

Q. PLEASE SUMMARIZE MR. PARCELL'S RATE OF RETURN RECOMMENDATION.

A. Mr. Parcell recommends that a return of 9.75% be employed on the common equity capital of Cascade Natural Gas Corporation (CNGC or the Company). In determining CNGC's cost of equity, Mr. Parcell applies a Discounted Cash Flow (DCF) analysis to three groups of utilities. For the growth component of his DCF analysis, he uses a blend of analysts' growth forecasts, historical growth rates, and the earnings retention method. Mr. Parcell's DCF estimates from the three groups, summarized on page 27 of his testimony, indicate estimates of CNGC's cost of

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equity in the range of 8.4% - 10.8%. Mr. Parcell remarks that he has focused on the upper portion of the DCF calculations, that is, a range of 9.5% to 10.8% from the high estimates reported on page 27. The midpoint of that range is 10.2%. It is not clear how Mr. Parcell arrived at a recommendation of 9.75% from these estimates.

Mr. Parcell also applies a Capital Asset Pricing Model (CAPM) analysis to the same three groups of companies, using long-term Treasury bond yields as proxies for the risk-free rate and Value Line beta estimates. Lastly, Mr. Parcell performs a Comparable Earnings analysis on a sample of utilities and a sample of unregulated industrial companies. From the three analyses, Mr. Parcell concludes that CNGC's cost of common equity capital lies in the range of 9.0% – 10.3% (page 37) and recommends the approximate midpoint of this range as CNGC's cost of common equity.

Q. DO YOU AGREE WITH CERTAIN ASPECTS OF MR. PARCELL'S TESTIMONY?

A. Yes, I do. I agree with his choice of comparable groups, his use of analysts' growth forecasts as proxies for the DCF growth component, his risk-free rate proxy in the CAPM, and his beta estimates in the CAPM.

Q. PLEASE SUMMARIZE THE ASPECTS OF MR. PARCELL'S TESTIMONY WITH WHICH YOU DO NOT AGREE.

A. I have the following specific comments:

1. Allowed Returns on Equity. Mr. Parcell's recommended return on equity (ROE) is outside the zone of currently allowed rates of return for natural gas utilities in the United States

and for his sample companies. The average allowed return for natural gas utilities in the years 2003, 2004, 2005, and 2006 is 11.0%, 10.6%, 10.5%, and 10.6%, respectively. For the each of the three groups of utilities on which he relies, the currently authorized ROEs average 11.0%, 10.8%, and 10.72%, respectively. These authorized returns exceed by a significant margin Mr. Parcell's 9.75% recommended return for CNGC.

2. The DCF Model Understates the Cost of Equity. It is well known that application of the standard DCF model to utility stocks understates investors' expected return when the Market-to-Book (M/B) ratio exceeds unity. This is particularly relevant in the current capital market environment where utility stocks are trading at M/B ratios well above unity.

3. Understated Dividend Yield. Mr. Parcell's dividend yield component is understated because it is not consistent with the annual form of the DCF model. It is inappropriate to increase the dividend yield by adding one-half of the future growth rate (1 + ½g) to the spot dividend yield. The appropriate manner of computing the expected dividend yield when using the standard annual DCF model which Mr. Parcell uses is to add the *full* growth rate rather than *one-half* of the growth rate. This error understates the DCF results by about 15 basis points.

4. Flotation Costs. Mr. Parcell's dividend yield component is understated by 30 basis points because it does not allow for flotation costs and, as a result, a legitimate expense is left unrecovered.

5. DCF Retention Growth Method. One of Mr. Parcell's growth proxies, the retention growth method, contains a logical inconsistency because one is forced to assume the answer to implement the method.

6. DCF Historical Growth Rates. Historical growth rates are questionable proxies for expected growth in view of the substantial changes that have occurred in the energy utility

industry. Moreover, historical growth rates are somewhat redundant since historical growth patterns are already reflected in analysts' growth forecasts, which he also uses. Besides, the stock price in the DCF analysis is predicated on analysts' growth forecasts and not on historical growth rates.

7. DCF Dividend Growth Rates. Because energy utilities are expected to continue to lower their dividend payout ratio over the next several years in response to heightened business risk, the implementation of the standard DCF model is of questionable relevance. Earnings growth projections are far more relevant at this point.

8. **Investors' Expected Growth Rates.** I believe that investors are expecting higher growth rates than those assumed in Mr. Parcell's DCF analysis.

9. CAPM Market Risk Premium Misspecification. The first of Mr. Parcell's two proxies for the market risk premium (MRP) analysis is mis-specified because it commingles realized *accounting* book returns on stocks with *market* returns on bonds. Moreover, Mr. Parcell has departed significantly from past testimonies in specifying the MRP.

10. CAPM Market Risk Premium. The second of Mr. Parcell's two proxies for the MRP is understated because 1) it improperly relies upon *total* returns on government bonds rather than the income component of returns, thereby understating the market risk premium, and 2) it relies on the geometric average rather than the arithmetic average of historical returns. The net impact on Mr. Parcell's ROE recommendation is a 50 basis points understatement.

11. CAPM and the Empirical CAPM (ECAPM). The plain vanilla version of the CAPM, which Mr. Parcell uses, understates the Company's cost of equity for low-beta securities.

12. Comparable Earnings Test. The ROE results from the Comparable Earnings tests exceed Mr. Parcell's recommended 9.75% ROE.

13. Capital Structure Adjustment. Mr. Parcell did not adjust his recommended ROE for the fact that the capital structure he attributes to CNGC is more highly leveraged than that of the comparable companies he uses. As a result, his ROE recommendation is understated by 40 - 70 basis points.

I also find that Mr. Parcell's criticisms of my testimony are unfounded.

I discuss each of these points in the following sections of my testimony.

1. ALLOWED RETURNS ON EQUITY

Q. IS MR. PARCELL'S ROE RECOMMENDATION COMPATIBLE WITH CURRENTLY ALLOWED RETURNS IN THE GAS UTILITY INDUSTRY?

A. No, it is not. Allowed returns, while certainly not a precise indication of a company's cost of equity capital, are nevertheless important determinants of investors' growth perceptions and investors' expected returns. They also serve to provide some perspective on the validity and reasonableness of Mr. Parcell's recommendation.

The average allowed return in the natural gas utility industry in the years 2003, 2004, 2005, and 2006 is 11.0%, 10.6%, 10,5%, and 10.6%, respectively, as reported by Regulatory Research

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Associates in its most recent periodic survey of regulatory decisions. This exceeds by a substantial margin Mr. Parcell's recommended single-digit ROE of 9.75% for CNGC. I also have examined the range of returns currently allowed on common equity for the three groups of utilities employed in Mr. Parcell's analyses. For the natural gas utilities in Mr. Parcell's first sample group as reported in C.A. Turner Utility Reports survey for August 2006, the currently authorized ROEs, shown in Table 1 below, average 11.0%, and range from 10.0% to 13.4%.

TABLE 1

COMPANY	% ALLOWED ROE
AGL Resources	10.64%
Atmos Energy	11.81%
Cascade Natural Gas	11.75%
Energen	13.40%
Keyspan	10.20%
Laclede Group	
NJ Resources	11.50%
NICOR	10.51%
Northwest Natural Gas	10.20%
Peoples Energy	11.20%
Piedmont Natural Gas	
South Jersey Industries	10.00%
Southwest Gas	10.30%
UGI	
WGL Holdings	10.62%
AVERAGE	**11.01%**
LOW	**10.00 %**
HIGH	**13.40%**

Source: C.A. Turner Utility Reports 08/06

For the electric utilities in Mr. Parcell's second sample group, the currently authorized ROEs, shown in Table 2 below, average 10.8% and range from 9.8% to 12.5%.

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TABLE 2

COMPANY	% ALLOWED ROE
American Electric Power	11.09%
Ameren Corp.	10.92%
CenterPoint Energy	10.22%
CH Energy Group	10.30%
Consolidated Edison	11.08%
Constellation Energy	11.00%
Duquesne Light Holdings	
Energy East Corp.	10.77%
Exelon	11.72%
FirstEnergy Corp.	9.75%
Northeast Utilities	10.03%
NSTAR	12.50%
PEPCO Holdings	10.26%
PPL Corp	10.70%
Public Service Enter. Group	9.88%
SCANA Corp.	10.71%
Sempra Energy	10.70%
TXU Corp.	11.25%
Vectren Corp.	11.03%
Wisconsin Energy	11.20%
AVERAGE	**10.80%**
LOW	**9.75 %**
HIGH	**12.50%**

Source: C.A. Turner Utility Reports 08/06

For the natural gas utilities in Mr. Parcell's third sample group, the currently authorized ROEs, shown in Table 3 below, average 10.7% and range from 10.0% to 11.8%.

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TABLE 3

COMPANY	% ALLOWED ROE
AGL Resources	10.64%
Atmos Energy	11.81%
KeySpan Corp.	10.20%
Laclede Group	
New Jersey Resources	11.50%
Northwest Natural Gas	10.20%
Peoples Energy	11.20%
Piedmont Natural Gas	
South Jersey Industries	10.00%
Southwest Gas	10.30%
UGI Corp.	
WGL Corp.	10.62%
AVERAGE	**10.72%**
LOW	**10.00 %**
HIGH	**11.81%**

Source: C.A. Turner Utility Reports 08/06

In short, Mr. Parcell's recommendation lies outside the range of the currently allowed rates of return for his comparable companies, and lies outside the mainstream of recently authorized returns for natural gas utilities. While the Commission is not bound by decisions of other regulators regarding allowed ROE, one cannot overlook the substantial difference between Mr. Parcell's recommendation and the returns currently allowed for the same firms that Mr. Parcell deems comparable in risk.

2. THE DCF MODEL UNDERSTATES THE COST OF EQUITY

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Q. DO DCF RESULTS UNDERSTATE THE COST OF EQUITY?

A. Yes, they do, and the same is true for my own DCF results. Application of the DCF model produces estimates of common equity cost that are consistent with investors' expected return only when stock price and book value are reasonably similar, that is, when the M/B ratio is close to unity. As shown below, application of the standard DCF model to utility stocks understates investors' expected return when the M/B ratio of a given common stock exceeds unity. This is particularly relevant in the current capital market environment where utility stocks are trading at M/B ratios well above unity and have been for two decades. The converse is also true, that is, the DCF model overstates investors' required return when the stock's M/B ratio is less than unity. The reason for the distortion is that the DCF market return is applied to a book value rate base by the regulator, that is, a utility's earnings are limited to earnings on a book value rate base. Mr. Parcell acknowledges this shortcoming of the DCF model on page 28 lines 13-15.

Q. CAN YOU ILLUSTRATE THE EFFECT OF THE MARKET-TO-BOOK RATIO ON THE DCF MODEL BY MEANS OF A SIMPLE EXAMPLE?

A. Yes. The simple numerical illustration shown in the table below demonstrates the result of applying a market value cost rate to book value rate base under three different M/B scenarios. The three columns correspond to three M/B scenarios: the stock trades below, equal to, and above book value, respectively. The last situation (shaded portion of the table) is noteworthy and representative of the current capital market environment. The DCF cost rate of 10%, made up of a 5% dividend yield and a 5% growth rate, is applied to the book value rate base of $50 to produce $5.00 of earnings. Of the $5.00 of earnings, the full $5.00 is required for dividends to

produce a dividend yield of 5% on a stock price of $100.00, and no dollars are available for growth. The investor's return is therefore only 5% versus his required return of 10%. A DCF cost rate of 10%, which implies $10.00 of earnings, translates to only $5.00 of earnings on book value, or a 5% return.

The situation is reversed in the first column when the stock trades below book value. The $5.00 of earnings are more than enough to satisfy the investor's dividend requirements of $1.25, leaving $3.75 for growth, for a total return of 20%. This is because the DCF cost rate is applied to a book value rate base well above the market price.

Therefore, the DCF cost rate understates the investor's required return when stock prices are well above book value, as is the case presently, and thus Mr. Parcell's DCF results understate CNGC's cost of common equity capital.

EFFECT OF MARKET-TO-BOOK RATIO ON MARKET RETURN

		Situation 1	***Situation 2***	***Situation 3***
1	Purchase price	$25.00	$50.00	$100.00
2	Book value	$50.00	$50.00	$50.00
3	**Market-to-Book Ratio**	**0.50**	**1.00**	**2.00**
4	**DCF Return (10% = 5% + 5%)**	**10.00%**	**10.00%**	**10.00%**
5	DCF Return (in dollars)	$5.00	$5.00	$5.00
6	5% Dividend Yield	$1.25	$2.50	$5.00
7	5% Growth Expectations	$3.75	$2.50	$0.00
8	***Market Return***	**20.00%**	**10.00%**	**5.00%**

Q. DO REGULATORS SHARE YOUR RESERVATIONS ON THE RELIABILITY OF THE DCF MODEL?

A. Yes, I believe they do. For example, my sentiments on the DCF model were echoed in a decision by the Indiana Utility Regulatory Commission (IURC). The IURC recognized its

concerns with the DCF model in that the model understates the cost of equity. In Cause No. 39871 Final Order, the IURC states on page 24:

> *"....the DCF model, heavily relied upon by the Public, understates the cost of common equity. The Commission has recognized this fact before. In Indiana Mich. Power Co. (IURC 8/24/90), Cause No. 38728, 116 PUR4th 1, 17-18, we found:*
>
> > *The unadjusted DCF result is almost always well below what any informed financial analyst would regard as defensible, and therefore requires an upward adjustment based largely on the expert witness's judgment."*

Q. IS THE INDIANA COMMISSION UNIQUE IN THAT REGARD?

A. No, it is not. A vast majority of regulatory commissions do not rely ***solely*** on the DCF in setting the allowed rate of return on common equity. Instead, they utilize a variety of methods, as evidenced by the results posted in a survey conducted by the National Association of Regulatory Utility Commissioners (NARUC).

Q. ARE THERE ANY ADDITIONAL CONCERNS WITH THE DCF MODEL?

A. Yes, there are. A major concern with the DCF approach relates to the constant growth rate assumption and the difficulty of finding an adequate proxy for that growth rate. The standard DCF model assumes that a single growth rate of dividends is applicable in perpetuity. It is difficult to imagine that today's energy utility industry can be described as stable. Not only is the constant growth rate assumption somewhat unrealistic, but it is difficult to proxy. Analysts' growth forecasts are usually made for not more than 2 to 5 years or, if they are made for more than a few years, they are dominated by the near-term earnings and dividends picture. In short, the perpetual growth term of the DCF model does not square well with the shorter-term focus of institutional investors.

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In summary, caution and judgment are required in interpreting the results of the DCF model. There is a clear need to go beyond the DCF model and to examine the results produced by alternate methodologies.

Q. IS THERE ANY EVIDENCE THAT MR. PARCELL'S DCF RESULTS ARE UNRELIABLE?

A. Yes, there is. The table below reproduces Mr. Parcell's DCF estimates (dividend yield + growth) for his first sample of gas utilities under each of the 5 growth proxies used by Mr. Parcell:

Mr. Parcell's Group of Gas Utilities: DCF Results

Company	Using Historic Retention (1)	Using Projected Retention (2)	Using Historic Per Share (3)	Using Projected Per Share (4)	Using Analysts Forecast (5)
AGL Resources	10.1%	9.5%	12.2%	9.7%	8.5%
Atmos Energy	7.0%	8.3%	10.5%	9.5%	10.8%
CNGC	6.5%	7.0%	3.6%	11.3%	8.8%
Energen	12.8%	21.1%	13.5%	10.0%	9.3%
Keyspan	7.4%	6.7%	14.5%	7.4%	8.7%
Laclede Group	6.5%	9.2%	6.9%	8.9%	8.9%
New Jersey Resources	10.7%	11.0%	9.5%	8.3%	9.3%
NICOR	8.8%	7.9%	5.2%	7.5%	7.7%
Northwest Nat Gas	6.9%	7.7%	7.2%	8.8%	10.0%
Peoples Energy	8.5%	6.8%	6.8%	7.0%	10.9%
Piedmont Nat Gas	7.0%	7.7%	9.5%	9.3%	8.2%
South Jersey Ind	8.6%	10.0%	12.5%	9.8%	9.5%
Southwest Gas	5.3%	8.4%	3.7%	7.4%	5.9%
UGI	11.9%	10.9%	19.2%	10.0%	11.2%
WGL Holdings	8.5%	8.1%	8.3%	7.5%	8.3%

Source: Exhibit No. ___ (DCP-3), Schedule 7, page 4.

As seen from the table, the DCF results are widely scattered, ranging from a low of 3.6% for CNGC to a high of 21.1% for Energen. Some estimates are below or barely above the cost of debt. The significant variability in the results demonstrates the lack of reliability of the DCF approach. The same pattern emerges from Mr. Parcell's second and third comparable groups.

3. UNDERSTATED DIVIDEND YIELD

Q. DR. MORIN, DO YOU HAVE ANY COMMENT ON THE FUNCTIONAL FORM OF THE DCF MODEL USED BY MR. PARCELL?

A. Yes, I do. I disagree with Mr. Parcell's dividend yield calculation in his DCF analysis because he multiplied the spot dividend yield by one plus one half the expected growth rate (1 + 0.5g) rather than by one plus the expected growth rate (1 + g). This procedure understates the return expected by the investor.

The fundamental assumption of the standard annual DCF model is that dividends are received annually at the end of each year and that the first dividend is to be received one year from now. Instead, Mr. Parcell calculates the expected dividend yield by multiplying the spot dividend yield by only one plus one-half the growth rate (1 + ½g) instead of multiplying by one plus the growth rate (1 + g). Since the appropriate dividend to use in the standard DCF model is the prospective dividend one year from now rather than the dividend one-half of the year from now, Mr. Parcell's approach understates the proper dividend yield. This creates a downward bias in his dividend yield component, and underestimates the cost of equity by approximately 20 basis points. For example, for a spot dividend yield of 5% and a growth rate of 5%, the correct expected dividend yield is 5% times (1 + 0.05), which equals 5.3%, and not 5% times (1 + ½ x

0.05) which equals 5.1%. The correct dividend yield to employ is 5.3%, which would yield a cost of equity of 10.3% instead of 10.1%.

The standard annual DCF model ignores the time value of quarterly dividend payments and assumes dividends are paid once a year at the end of the year. Multiplying the spot dividend yield by (1 + g) is a conservative attempt to capture the reality of quarterly dividend payments, and this approach still understates the expected return on equity. Mr. Parcell's use of the (1 + ½g) adjustment is even further removed from reality and understates investors' expected return by an even greater amount.

Since investors are aware of the quarterly timing of dividend payments, this knowledge is reflected in stock prices. As I show on pages 183-186 of my book, *Regulatory Finance*, and Chapter 11 of my new book, *The New Regulatory Finance*, the annual version of the DCF model understates the cost of equity.

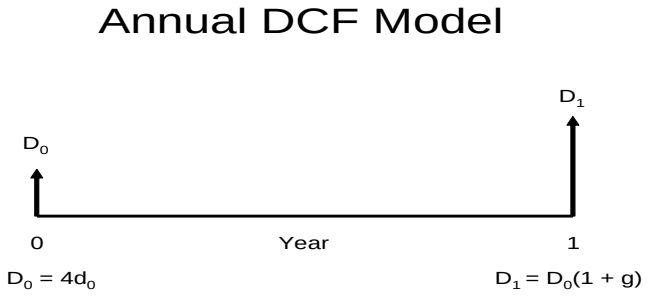
By analogy, a bank rate on deposits which does not take into consideration the timing of the interest payments understates the true yield if the interest payments are received more than once a year. The actual yield will exceed the stated nominal rate. To illustrate, if an investor has a choice between investing $1,000 in a bank account which promises a return of 10% compounded annually and another bank account which promises a return of 10% but compounded quarterly, he will clearly select the latter. Due to the quarterly compounding of interest, the investor earns an effective return of 10.38% on the latter bank account versus 10% on the former. The same is true for the return on common stocks.

Q. DOES THE DCF MODEL VARIATION USED BY MR. PARCELL REFLECT THE QUARTERLY COMPOUNDING OF DIVIDENDS?

A. No, it does not. On page 26, lines 1-2, Mr. Parcell states that multiplying the spot dividend yield by (1 + ½g) instead of multiplying by (1 + g) is a "quarterly compounding variant" of the DCF model. This is simply incorrect. Multiplying the spot dividend yield by (1 + ½g) does not account for the quarterly nature of dividend payments.

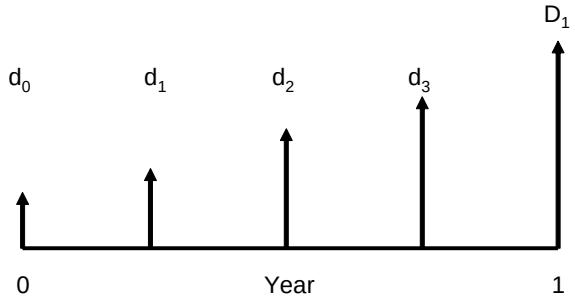
Q. DR. MORIN, WHAT IS THE CORRECT FORM OF THE QUARTERLY DCF MODEL?

A. The annual DCF model assumes that dividends grow at a constant annual rate of g% per year, as depicted in the figure below.



In the quarterly version of the DCF model, quarterly dividends are assumed to differ from the preceding quarterly dividend by the factor $(1 + g)^{0.25}$, where g is a percentage figure and 0.25 indicates that the growth has occurred for one quarter of the year, as shown in the figure below.

Quarterly DCF Constant Growth



$d_1 = d_0(1 + g)^{0.25}$

$d_2 = d_0(1 + g)^{0.50}$

$d_3 = d_0(1 + g)^{0.75}$

$d_4 = d_0(1 + g)$

Using this assumption, we obtain the following DCF formula for estimating the cost of equity under the assumption that dividends are paid quarterly:

Quarterly DCF Model
Constant Growth

$$K = \left[\frac{d_0(1+g)^{1/4}}{P_0} + (1+g)^{1/4} \right]^4 - 1$$

In short, multiplying the spot dividend yield by (1 + ½g) does not account for the quarterly nature of dividend payments. The correct DCF expression that allows for the constant growth of quarterly dividends is the equation above. Comparing the annual with the quarterly versions of the DCF model, the former understates the latter by approximately 20 basis points.

4. DCF DIVIDEND YIELD AND FLOTATION COSTS

Q. PLEASE DISCUSS MR. PARCELL'S TESTIMONY WITH REGARD TO FLOTATION COSTS.

A. Mr. Parcell does not include any allowance for flotation costs, and his DCF methodology therefore understates the expected return on equity by approximately 30 basis points. As a result, the Company is denied the opportunity to recover a reasonable and legitimate expense. Since Mr. Parcell does not discuss this issue, it is not clear the basis upon which he would deny recovery of these costs. I presume that Mr. Parcell supports the notion that flotation costs should be recognized as long as they are demonstrated. Casual inspection of any prospectus in a past public

issue of common stock by CNGC (or any other publicly-traded utility company) will show the direct component of flotation costs right on the front cover, and these costs are usually in the range of 3% to 4%. There are costs associated with issuing common equity capital, just as there are costs associated with issuing debt capital. I refer the Commission to Appendix B of my direct testimony for a full discussion of flotation costs.

5. DCF RETENTION GROWTH METHOD

Q. PLEASE DESCRIBE MR. PARCELL'S METHODOLOGY FOR SPECIFYING THE GROWTH COMPONENT OF THE DCF MODEL.

A. As a proxy for expected growth, Mr. Parcell employs five indicators of growth: 1) historical earnings retention ratio, 2) projected earnings retention ratio, 3) five-year historical growth rates in dividends, earnings, and book value, 4) projected growth rates in dividends, earnings, and book value, and 5) analysts' growth forecasts.

Q. DR. MORIN, DO YOU HAVE SOME RESERVATIONS WITH THE RETENTION RATIO METHOD OF SPECIFYING THE DCF GROWTH RATE?

A. Yes, I do. The retention growth methodology contains a logical contradiction because the method requires an explicit assumption on the ROE expected from the retained earnings that drive future growth. In short, the retention growth method is logically circular because it requires an assumed ROE which is the very quantity we are trying to estimate. Moreover, the empirical finance literature demonstrates that the sustainable growth rate technique is a very poor explanatory variable of market value and is not as significantly correlated to measures of value, such as stock price and price/earnings ratios.

6. DCF HISTORICAL GROWTH RATES

Q. ARE THE HISTORICAL GROWTH RATES OF GAS AND ELECTRIC UTILITIES RELIABLE?

A. No, they are not. Mr. Parcell uses historical growth rates in dividends, earnings, and book value as proxies for expected growth, as shown on his Exhibit No. ___ (DCP-3), Schedule 7, Page 3. If historical growth rates are to be representative of long-term future growth rates, they must not be biased by non-recurring events. This bias is clearly present in the case of electric and gas utilities, where growing competition, diversification programs, acquisitions, restructurings and write-off activities exerted a dilutive effect on historical earnings and dividends. In such cases, it is obvious that analysts' growth forecasts provide a more realistic and representative growth proxy for what is likely to happen in the future than historical growth. In any event, historical growth rates are somewhat redundant given that analysts formulate their growth expectations based in part on historical patterns.

Mr. Parcell's historical growth rates thus should be given considerably less, if any, weight than the analysts' growth forecasts.

7. DCF DIVIDEND GROWTH RATES

Q. SHOULD DIVIDEND GROWTH RATES BE CONSIDERED IN APPLYING THE DCF MODEL TO GAS AND ELECTRIC UTILITIES?

A. No, not at this time. In arriving at his proxies for the DCF growth component, Mr. Parcell considers historical and projected dividend growth rates reported by Value Line and shown in the above table and on his Exhibit No. ___ (DCP-3), Schedule 7, Page 3.

I have already discussed the dangers of relying on *historical* growth rates at this time in the gas and electric utility industry. In addition, there are two serious problems with the use of Value Line's dividend growth *forecasts*. First, heavy reliance on Value Line's in-house growth forecasts runs the risk that such forecasts are not representative of investors' consensus forecasts. One would expect that averages of analysts' growth forecasts, such as those contained in First Call or Zacks, rather than one particular firm's forecast, are more reliable estimates of the investors' consensus expectations likely to be reflected in stock prices. As discussed in my direct testimony, the empirical finance literature has shown that such consensus analysts' growth forecasts are reflected in stock prices, possess a high explanatory power of equity values, and are used by investors. Besides, as a practical matter, it is necessary to use earnings forecasts rather than dividend forecasts due to the extreme scarcity of dividend forecasts compared to the availability of earnings forecasts. Given the paucity and variability of dividend forecasts, using dividend forecasts produces unreliable DCF results.

Second, and more importantly, it is inappropriate to use the projected dividend growth of energy utilities at this time in the DCF model. The problem with the use of Value Line's dividend growth forecasts, besides the fact that these forecasts are only one individual firm's forecasts, is that they are largely dominated by the anticipated dividend performance over the next few years, which is a period of transition to competition and higher business risk and, in turn, lower dividend payout ratios. I believe it is improper to rely on "near-term" dividend growth because it is widely expected that 1) energy utilities will continue to lower their dividend payout ratio over the next several years in response to increased business risk, and 2) earnings

and dividends will not grow at the same rate in the future. This is evident in Mr. Parcell's own table on Exhibit No. ___ (DCP-3), Schedule 7, page 3 where the projected dividend growth rates are considerably less than the earnings growth rate. Whenever the dividend payout ratio is expected to change, the intermediate growth rate in dividends cannot equal the long-term growth rate, because dividend/earnings growth must adjust to the changing payout ratio.

Q. WHAT DOES THE PUBLISHED ACADEMIC LITERATURE SAY ON THE SUBJECT OF GROWTH RATES IN THE DCF MODEL?

A. The best proxy for the growth component of the DCF model is analysts' long-term earnings growth forecasts. These forecasts are made by large reputable organizations, and the data are readily available to investors and are representative of the consensus view of investors. Published studies in the academic literature demonstrate that growth forecasts made by security analysts are reasonable indicators of investor expectations, and that investors rely on analysts' forecasts. Cragg and Malkiel ["Expectations and the Structure of Share Prices," Chicago: University of Chicago Press, 1982] present detailed empirical evidence that the average analysts' expectation is more similar to expectations being reflected in the marketplace than are historical growth rates, and represents the best possible source of DCF growth rates. Cragg and Malkiel show that historical growth rates do not contain any information that is not already impounded in analysts' growth forecasts. A study by Professors Vander Weide and Carleton ["Investor Growth Expectations: Analysts vs. History," *The Journal of Portfolio Management*, Spring 1988] also confirms the superiority of analysts' forecasts over historical growth extrapolations. Another study by Timme & Eiseman ["On the Use of Consensus Forecasts of Growth in the Constant

Growth Model: The Case of Electric Utilities," *Financial Management,* Winter 1989] produces similar results.

8. INVESTOR EXPECTED GROWTH RATES

Q. ARE INVESTORS EXPECTING GROWTH RATES EQUAL TO MR. PARCELL'S RANGE?

A. No. The best evidence shows that investors are expecting growth rates higher than Mr. Parcell has found. In his second comparable group of utilities, Mr. Parcell has found (see his Exhibit No. ___ (DCP-3), Schedule 7, Page 4) growth rates ranging from minus 13.5% to plus 31.0%, with a mean of 5.1%, from all the proxies he used. As indicated earlier, 1) retention growth rates are circular, 2) historical growth rates and dividend growth rates should be given considerably less weight, and 3) Value Line forecasts are somewhat unrepresentative. This leaves us with the consensus analyst forecast of 6.1%, which is 1.0% above Mr. Parcell's mean estimate of 5.1%. His DCF cost of equity estimate is downward-biased by 100 basis points from this understatement alone.

In his third comparable group of utilities, Mr. Parcell has found (see his Exhibit No. ___ (DCP-3), Schedule 7, Page 4) growth rates ranging from 0.8% to 16.0%, with a mean of 4.8%, from all the proxies he used. This compares to the 5.0% obtained from the consensus analyst forecast. This is 0.2% above the mean estimate, and therefore this particular DCF cost of equity estimate is downward-biased by about 20 basis points due to this factor alone. In his first comparable group, the mean growth rate from all the proxies is coincidentally the same as the analyst growth forecast.

The net impact on Mr. Parcell's DCF estimate is an understatement of approximately 50 basis points, assuming equal weight is accorded to each of the three groups.

Q. PLEASE COMMENT ON MR. PARCELL'S CRITICISM OF YOUR DCF ANALYSIS.

A. On page 45, lines 4-6 of his testimony, Mr. Parcell deplores the fact that I have used only one indicator of growth in the DCF analysis (namely, analyst growth projections) and that I have ignored other proxies such as historical and projected growth rates in dividends and book value. I have previously discussed the impropriety of relying on "near-term" dividend growth because it is widely expected that energy utilities will continue to lower their dividend payout ratio over the next several years in response to increased business risk, and that earnings and dividends are not expected to grow at the same rate in the future. Moreover, what is driving dividend growth is clearly earnings growth. There can be no dividends without earnings. I have already discussed the merits of using consensus analysts' earnings growth forecasts in the DCF model and the supportive empirical literature.

9. CAPM MARKET RISK PREMIUM MIS-SPECIFICATION

Q. BEFORE DISCUSSING PROBLEMS WITH MR. PARCELL'S CAPM ANALYSIS, ARE THERE AREAS IN WHICH YOU AGREE WITH MR. PARCELL'S CAPM ANALYSIS?

A. Yes, I agree with the magnitude of the risk-free rate chosen by Mr. Parcell. I also agree with Mr. Parcell's Beat estimates in his CAPM analysis.

Q. DO YOU AGREE WITH MR. PARCELL'S FIRST ESTIMATE OF THE MARKET

RISK PREMIUM COMPONENT OF THE CAPM?

A. No, I do not. For his first estimate of the market risk premium (MRP) component of the CAPM, Mr. Parcell examines the average historical accounting returns realized on the S&P 500 companies over the 1978-2004 period (14.02%) and subtracts the average historical yield on U.S. Treasury bonds over the same period (8.02%) to arrive at an MRP of 6.0%, that is, 14.02% - 8.02% = 6.00%. I have three concerns with this procedure. First, Mr. Parcell has commingled *accounting* returns on stocks with the *market* returns on bonds. This is a clear mismatch. Mr. Parcell should have matched market returns on stocks with market returns on bonds instead of matching accounting book returns (ROE) on stocks with market returns on bonds.

Q. WHAT IS YOUR SECOND CONCERN WITH MR. PARCELL'S MRP ESTIMATE?

A. Second, Mr. Parcell uses two different risk-free rates in the same CAPM. The CAPM expression states that the return required by investors is made up of a risk-free component, R_F, plus a risk premium given by $\beta(R_M - R_F)$ and has the following form:

$$K_e = R_F + \beta(R_M - R_F)$$

In the above equation, the risk-free rate R_F clearly has to be the same risk-free rate in both the first and second terms of the right-hand side of the equation. Mr. Parcell uses one proxy for the R_F in the first term of that equation (the current yield on long-term Treasury bonds) and a different proxy for the same R_F in the second term (the average bond yield on long-term Treasury bonds over the 1978-2004 period). This is inconsistent and illogical. Mr. Parcell should have used the same risk-free rate throughout the CAPM equation.

Q. WHAT IS YOUR THIRD CONCERN WITH MR. PARCELL'S MRP ESTIMATE?

A. My third concern is that Mr. Parcell has departed significantly from his past practices in deriving the MRP. In numerous past testimonies, Mr. Parcell has relied on the realized market return on stocks, as he did in this testimony. But rather than subtracting the current risk-free rate as he usually does, in this proceeding he subtracted the historical average risk-free rate.

Q. WHAT MRP ESTIMATE DID MR. PARCELL RECOMMEND IN A RECENT PROCEEDING REGARDING DELMARVA POWER & LIGHT BEFORE THE DELAWARE PUBLIC SERVICE COMMISSION?

A. In a recent proceeding regarding Delmarva Power & Light before the Delaware Public Service Commission (Docket No. 05-304), Mr. Parcell recommended a MRP of 9.0% obtained by subtracting the current level of the risk-free rate of 5.0% from the realized return on stocks of 14.0%.

Q. DOES MR. PARCELL OFFER ANY EXPLANATION FOR DEVIATING FROM HIS GENERAL PRACTICE OF RELYING ON THE AVERAGE REALIZED STOCK RETURN LESS THE CURRENT RISK-FREE RATE IN ORDER TO DERIVE HIS MRP?

A. No, he does not.

Q. WHAT WOULD MR. PARCELL'S CAPM ESTIMATES BE HAD HE FOLLOWED HIS PAST PRACTICE AND RELIED UPON THE SAME PROCEDURE AS IN THE PAST?

A. Had Mr. Parcell adhered to his usual procedure, using the current risk-free rate of 5.29% throughout, his CAPM estimates for each of the three comparable groups of companies would

have been 12.8%, 13.1%, and 12.5%, respectively, instead of 10.3%, 10.5%, and 10.1%. For example, for the first group of gas utilities, the proper CAPM estimate is:

$$K_e = R_F + \beta(R_M - R_F) = 5.29\% + 0.86\,(13.02\% - 5.29\%) = 12.8\%$$

10. CAPM MARKET RISK PREMIUM

Q. DO YOU AGREE WITH MR. PARCELL'S SECOND ESTIMATE OF THE MARKET RISK PREMIUM COMPONENT OF THE CAPM?

A. No, I do not. For his second estimate of the MRP component of the CAPM, Mr. Parcell relies on the following historical estimates of the market risk premium over the 1926-2005 period, as reported in the Ibbotson Associates Valuation 2006 Yearbook:

	Arithmetic Average	**Geometric Average**
Treasury Bonds	6.5%	4.9%

I disagree with this estimate for two reasons. First, only the income component of bond returns is relevant in calculating an MRP, and not the total return component. Second, arithmetic means are appropriate for forecasting and estimating the cost of capital, and geometric means are not, as I explain below.

Q. SHOULD THE HISTORICAL MARKET RISK PREMIUM BE ESTIMATED USING THE INCOME COMPONENT OF BOND RETURNS OR THE TOTAL RETURN COMPONENT?

A. In response to Mr. Parcell's criticism on page 41 that I have improperly used income returns rather than total returns on bonds, the historical MRP should be computed using the income

component of bond returns because the intent, even using historical data, is to identify an expected MRP. Ibbotson Associates recommend the use of the latter as a more reliable estimate of the historical MRP because the income component of total bond return (*i.e.*, the coupon rate) is a far better estimate of expected return than the total return (*i.e.*, the coupon rate plus capital gains) because realized capital gains/losses are largely unanticipated by investors. This particular CAPM estimate of the cost of common equity is therefore downward-biased by close to 50 basis points as a result of this omission alone (the difference between 7.1% and 6.5% times Mr. Parcell's beta estimate of 0.86 for gas companies).

Q. IS IT APPROPRIATE TO USE GEOMETRIC AVERAGES IN MEASURING EXPECTED RETURN?

A. No, it is not. As I stated above, arithmetic means rather than geometric means are appropriate for forecasting and estimating the cost of capital.[1] Indeed, the Ibbotson Associates publication from which Mr. Parcell's MRP estimate is derived contains a detailed and rigorous discussion of the impropriety of using geometric averages in estimating the cost of capital. There is no theoretical or empirical justification for the use of geometric mean rates of returns. Please see pages 133-143 of my book, *New Regulatory Finance* (2006), for a discussion regarding the theoretical underpinnings, empirical validation, and the consensus of academics on why geometric means are inappropriate for forecasting and estimating the cost of capital.

Q. WHAT IS THE EFFECT OF MR. PARCELL'S USE OF THE GEOMETRIC MEAN

[1] *See* Roger A. Morin, *Regulatory Finance: Utilities' Cost of Capital*, chapter 11 (1994); Roger A. Morin, *The New Regulatory Finance: Utilities' Cost of Capital*, chapter 4 (2006); Richard A Brealey, *et al.*, *Principles of Corporate Finance* (8th ed. 2005).

MARKET RISK PREMIUM?

A. Mr. Parcell's use of the geometric mean market risk premium of 4.9% rather than the arithmetic mean of 6.5% significantly understates the market risk premium, which suggests an understatement of CNGC's cost of equity by approximately 130 basis points (assuming for purposes of argument Mr. Parcell's proposed beta for CNGC of 0.86):

$$\beta_{CNGC} \text{ x (Arithmetic Mean – Geometric Mean)}$$

$$0.86 \text{ x } (6.5\% - 4.9\%)$$

$$0.86 \text{ x } (1.6\%)$$

$$1.38\%$$

Using Mr. Parcell's long-term Treasury yield of 5.29%, the beta of 0.86 and the arithmetic MRP of 6.5%, the CAPM estimate is 10.9% without flotation cost and 11.2% with flotation cost. With the arithmetic MRP estimate of 7.1% based on the income component of bond return, the CAPM estimate is 11.4% without flotation cost and 11.7% with flotation cost.

11. CAPM AND THE EMPIRICAL CAPM

Q. MR. PARCELL (PAGE 42) CLAIMS THAT THE EMPIRICAL CAPM INFLATES THE CAPM RESULT FOR THE SELECTED COMPANY OR INDUSTRY. IS HE CORRECT?

A. No, I do not believe so. For companies with betas less than one, the CAPM understates the return while for companies with betas greater than one, the CAPM overstates the return. I discussed the conceptual and empirical foundations earlier in Appendix A of my direct

testimony. I should also point out that in the case of utility stocks, the CAPM understates the rate of return on equity by approximately 50 basis points.

There have been countless empirical tests of the CAPM in the finance literature to determine the extent to which security returns and betas are related in the manner predicted by the CAPM as I discuss in my direct testimony.

In short, I do not share Mr. Parcell's view that the Empirical CAPM is inappropriate for utilities.

Q. MR. PARCELL DISAGREES WITH THE RISK PREMIUM METHODOLOGY BECAUSE HE CLAIMS THAT ECONOMIC CONDITIONS TODAY ARE DIFFERENT AND THAT RISK PREMIUMS ARE UNSTABLE FROM YEAR TO YEAR. HOW DO YOU RESPOND?

A. On page 38 of his testimony, Mr. Parcell criticizes the risk premium method on two grounds: 1) the method assumes that past is prologue, and 2) the method assumes that the risk premium is constant over time while in fact the risk premium results are volatile and dominated by the influence of capital gains in many years.

The first criticism is unwarranted. I employed returns realized over long time periods rather than returns realized over more recent time periods. Realized returns can be substantially different from prospective returns anticipated by investors, especially when measured over short time periods. A risk premium study should consider the longest possible period for which data are available. Short-run periods during which investors earned a lower risk premium than they expected are offset by short-run periods during which investors earned a higher risk premium

than they expected. Only over long time periods will investor return expectations and realizations converge, or else, investors would never commit any funds.

I have ignored realized risk premiums measured over short time periods, since they are heavily dependent on short-term market movements. Instead, I have relied on results over periods of enough length to smooth out short-term aberrations, and to encompass several business and interest rate cycles. The use of the entire study period in estimating the appropriate market risk premium minimizes subjective judgment and encompasses many diverse regimes of inflation, interest rate cycles, and economic cycles.

Mr. Parcell's second concern is unwarranted as well. The influence of unexpected capital gains is offset by the influence of unexpected capital losses. To the extent that the historical equity risk premium estimate follows what is known in statistics as a random walk, one should expect the equity risk premium to remain at its historical mean. The best estimate of the future risk premium is the historical mean. As I explained in my direct testimony, since I found no evidence that the market price of risk or the amount of risk in common stocks has changed over time (that is, no significant serial correlation in the successive market risk premiums from year to year), it is reasonable to assume that these quantities will remain stable in the future.

12. COMPARABLE EARNINGS TEST.

Q. PLEASE DISCUSS MR. PARCELL'S COMPARABLE EARNINGS ANALYSIS.

A. In his implementation of the comparable earnings test, Mr. Parcell examines the realized returns on book equity achieved by his group of comparable utilities and by a broad group of industrials (namely the S&P 500) as a proper guide for setting CNGC's cost of common equity.

His results are summarized in table form on page 35 of his testimony. I agree with Mr. Parcell that these results indicate that returns of 11.5% - 12.6% have been adequate to provide market-to-book ratios above 100% and that projected ROEs in the range of 11.2% - 14.0% do so as well. I note, however, that most of the ROEs indicated by the Comparable Earnings results are well in excess of Mr. Parcell's recommended ROE of 9.75% and that he should have recommended a range consistent with those results.

13. CAPITAL STRUCTURE ADJUSTMENT

Q. DID MR. PARCELL ADJUST HIS RECOMMENDED ROE FOR THE FACT THAT CNGC IS MORE LEVERAGED THAN ITS PEERS?

A. No, he did not. Mr. Parcell should have adjusted his recommended ROE of 9.75% upward to reflect the higher relative risk associated with CNGC's capital structure.

Q. WHAT IS THE MAGNITUDE OF THE REQUIRED ADJUSTMENT TO ACCOUNT FOR CNGC'S MORE LEVERAGED CAPITAL STRUCTURE?

A. On his Exhibit No. ___ (DCP-3), Schedule 6, page 1, Mr. Parcell reports the following actual and projected common equity ratios (excluding short-term debt) for Cascade and his comparable group in 2005:

	Actual 2005	Projected 2009-2011
Cascade	40.6%	48.0%
Gas Group Avg.	50.9%	53.6%
Difference	10.3%	5.6%

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On page 2, he reports the following common equity ratios including short-term debt:

	Actual 2005
Cascade	39.0%
Gas Group Avg.	44.0%
Difference	5.0%

It is clear from this data that CNGC has more financial risk, that is, a weaker capital structure, relative to its peers. The smallest difference in common equity ratios between CNGC and its peers reported in the above two tables is 5.0%.

Q. WHAT IS THE MAGNITUDE OF THE REQUIRED ADJUSTMENT TO ACCOUNT FOR CNGC'S MORE LEVERAGED CAPITAL STRUCTURE?

A. Several researchers have studied the empirical relationship between the cost of capital, capital-structure changes, and the value of the firm's securities.[2] The results of these studies suggest that when the debt ratio increases from 40% to 50%, required equity returns increase between 34 to 237 basis points. The empirical studies suggest an average increase of 76 basis points, or 7.6 basis points per one percentage point increase in the debt ratio. The theoretical studies also suggest an average increase of 138 basis points, or 13.8 basis points per one percentage point increase in the debt ratio. In other words, equity return requirements increase between 7.6 and 13.8 basis points for each increase in the debt ratio by one percentage point. More recent studies indicate that the upper end of that range is more indicative of the repercussions on required equity returns.

The smallest reported difference in common equity ratio between CNGCC and Mr. Parcell's comparable gas group is 5%. The above-described research suggests that Mr. Parcell should adjust his recommended ROE upward by at least 40 basis points (7.6 x 5) to 70 basis points (13.8 x 5) to reflect Cascade's more leveraged capital structure. Therefore, at a minimum, Mr. Parcell should have adjusted his recommended ROE upward by approximately 40-70 basis points to reflect CNGC's more leveraged capital structure. If Mr. Parcell adjusted his recommended ROE by the midpoint of this range (55 basis points), the ROE for CNGC would be 9.75% + 0.55% = 10.30%.

Q. WHAT DO YOU CONCLUDE FROM MR. PARCELL'S RATE OF RETURN RECOMMENDATION?

A. I believe that Mr. Parcell's recommended ROE is understated by at least 125 basis points. Recognition of flotation cost (30 basis points), the proper functional form of the DCF model (20 basis points), a greater emphasis on analysts' growth forecasts in the DCF analysis (50 basis points), the appropriate historical market risk premium in the CAPM analysis, and consistency with his Comparable Earnings results would suggest returns very close to 11.0% for CNGC. I consider my critique conservative, for it does not reflect the consistent tendency of the DCF to understate the cost of equity, nor does it reflect the understatement of the cost of equity which results from the plain vanilla form of CAPM analysis used by Mr. Parcell.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

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[2] *See* Roger A. Morin, *Regulatory Finance: Utilities' Cost of Capital*, 409-33 (1994) for a summary of the comprehensive and rigorous empirical studies of the relationship between cost of capital and leverage for public utilities.

A. Yes, it does.

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