BEFORE THE CORPORATION COMMISSION OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF)
OKLAHOMA GAS AND ELECTRIC COMPANY)
FOR AN ORDER OF THE COMMISSION)
AUTHORIZING APPLICANT TO MODIFY ITS) CAUSE NO. PUD 201700496
RATES, CHARGES, AND TARIFFS FOR RETAIL)
ELECTRIC SERVICE IN OKLAHOMA)

Rebuttal Testimony

of

Roger A. Morin, PhD

on behalf of

Oklahoma Gas and Electric Company

May 29, 2018

1	Q.	**Please state your name, address, and occupation.**
2	A.	My name is Mr. Roger A. Morin. My business address is Georgia State University,
3		Robinson College of Business, University Plaza, Atlanta, Georgia, 30303. I am Emeritus
4		Professor of Finance at the College of Business, Georgia State University and was
5		Professor of Finance for Regulated Industry at the Center for the Study of Regulated
6		Industry at Georgia State University. I am also a principal in Utility Research
7		International, an enterprise engaged in regulatory finance and economics consulting to
8		business and government.
9		
10	Q.	**Did you file direct testimony in this proceeding on behalf of Oklahoma Gas and**
11		**Electric Company, Inc.'s ("OG&E" or the "Company")?**
12	A.	Yes, I did.
13		
14	Q.	**What is the purpose of your rebuttal testimony?**
15	A.	I have been asked to respond to the cost of capital testimonies of 1) Mr. Rush on behalf
16		of the Public Utility Division ("PUD") of the Oklahoma Corporation Commission
17		("OCC"), 2) Mr. Griffing on behalf of the Oklahoma Attorney General ("OAG"), 3) Mr.
18		Walters on behalf of the Federal Executive Agencies ("FEA"), and 4) Mr. Parcell on
19		behalf of the Oklahoma Industrial Energy Consumers and Oklahoma Energy Results
20		("OIEC).
21		
22	Q.	**Please describe how your rebuttal testimony is organized.**
23	A.	My rebuttal testimony is organized in four sections, corresponding to each of the
24		aforementioned witnesses' testimony.

1	Q.	**Please summarize the rate of return recommendations of the four witnesses you are**	
2		**rebutting in this case.**	
3	A.	The ROE recommended by each party I am rebutting in this case is as follows:	

Mr. Rush	8.75%
Mr. Parcell	9.20%
Mr. Walters	9.35%
Mr. Griffing	9.18%

Since Mr. Rush's ROE recommendation is the most draconian of the group, the majority of my remarks are addressed to Mr. Rush's testimony, some of which will apply to the other witnesses.

I. MR. RUSH'S TESTIMONY

Q. **Please summarize Mr. Rush's rate of return recommendation.**

A. Mr. Rush recommends a return on equity (ROE) of only 8.75% for OG&E, which I believe is among the lowest, if not the lowest, authorized return in the entire utility industry. His 8.75% recommendation is the rounded midpoint of a range of 8.24% - 9.24%.

In determining the cost of equity, Mr. Rush applies a Discounted Cash Flow (DCF) analysis to a group of 17 electric utilities. This study, summarized on page 7 and again on page 27 of his testimony, produces a result of 9.84%. Mr. Rush also performs a Capital Asset Pricing Model (CAPM) analysis, summarized on pages 7 and reiterated on page 33 of his testimony, which produces an anemic result of 6.65% on which he appears to place little, if any, weight given his recommended range of 8.24% - 9.24%.

Mr. Rush also performs a Comparable Earnings Model ("CEM") analysis, summarized on page 7 and reiterated on page 35, which produces a result of 9.84%, the same as his DCF result. Finally, Mr. Rush performs a Historical Market Return ("HMR") analysis which produces a ROE of 8.62%.

1   Mr. Rush's ROE results from the four methodologies are recapitulated as follows:

2   DCF   9.84%

3   CAPM 6.65%

4   CEM   9.84%

5   HMR   8.62%

6

7   Based on these results, Mr. Rush somehow concludes that OG&E's cost of equity

8   lies in a range of 8.24% - 9.24% even though two of his four results are 9.84%, and

9   recommends the rounded midpoint of that "range", 8.75%, as OG&E's cost of equity. I

10   note that the CAPM results is obviously an outlier and indicative of a serious and

11   erroneous misapplication of the model. More on this later.

12

13   Q.   **What is your first general reaction to Mr. Rush's cost of common equity**

14   **recommendation?**

15   A.   My first general reaction to his recommendation, before I engage in a more technical

16   critique, is that there are two major flaws in Mr. Rush's testimony. First, Mr. Rush's

17   recommended 8.75% ROE for OG&E is draconian and lies completely outside the zone

18   of reasonableness and outside the zone of currently authorized ROEs for vertically

19   integrated electric utilities in the United States. Mr. Rush's recommended reduction of

20   the Company's ROE down to only 8.75%, if adopted, would result in one of the lowest, if

21   not the lowest, ROE authorized in the entire utility industry in the country. I am not

22   aware of any electric utility having an allowed return anywhere near Mr. Rush's

23   recommended 8.75%. I was astonished by Mr. Rush's statement on page 70 lines 11-12

24   that despite his recommended 8.75% he actually believes that "*OG&E's true required*

25   *return on equity is likely less than 8.0%*".

26   Mr. Rush's extreme recommendation would cause adverse consequences on the

27   Company's creditworthiness, its financial integrity, the Company's capital raising ability,

28   and ultimately its customers. Moreover, Mr. Rush's recommended ROE lies below the

29   zone of his own comparable companies' authorized and expected ROEs. These facts

30   provide clear proof that his ROE recommendation for OG&E is far too low.

31

1	Q.	**What is your second general reaction to Mr. Rush's cost of common equity**
2		**recommendation?**
3	A.	My second general reaction to Mr. Rush's testimony is that his recommendation range of
4		8.24% - 9.24% with a midpoint of 8.75% somehow rises out of thin air. Two of his four
5		results are 9.84% and yet do not appear in his recommended range. Nor do we see the
6		CAPM outlier result in his final range. In short, it is not at all clear how Mr. Rush
7		arrived at his recommended range of 8.24% - 9.24% when two of his four estimates are
8		9.84%. No support or explanation is provided for neither the bottom nor the top of this
9		range. It is puzzling as to why Mr. Rush omits two out of four ROE results of 9.84%
10		from his recommended range, one of which is based on the venerable DCF approach.
11		Coincidentally and interestingly, the two results of 9.84% are virtually identical to both
12		my own ROE recommendation of 9.90% and to the average authorized ROE for
13		vertically integrated electric utility industry.
14		
15	Q.	**Is Mr. Rush's very low recommended ROE appropriate at this time?**
16	A.	No. Mr. Rush's recommended ROE of only 8.75%, which would be among the lowest, if
17		not the lowest, authorized ROE in the country, is untimely and contrary to customers'
18		best interests to receive reliable and reasonably-priced service. As I discussed in my
19		direct testimony, if OG&E's authorized ROE is set too low, it will ultimately increase
20		costs for OG&E customers. The OCC approval of my recommended ROE of 9.9%,
21		along with the adoption of the Company's proposed capital structure and supportive
22		regulation, will buttress these goals and provide measurable benefits to OG&E
23		customers.
24		Maintaining the Company's financial viability and creditworthiness decreases
25		borrowing costs, improves access to capital and the availability of longer-term debt
26		maturities, and enables the Company to absorb any negative volatility in its financial
27		performance. Moreover, maintaining the Company's financial viability will have
28		beneficial long-term cost implications for the Company and its customers as the
29		Company re-finances existing debt, issues new capital and enters into new contractual
30		arrangements. Clearly, OG&E's customers have a vested interest in a strong financial

1		position for the utility. The interests of customers and shareholders are consistent, not
2		mutually exclusive. They both benefit from a financially sound utility.
3		
4	Q.	**What are the basic conclusions of your rebuttal to Mr. Rush's cost of equity**
5		**testimony?**
6	A.	Mr. Rush seriously understates OG&E's cost of common equity. A proper application of
7		cost of capital methodologies would give results substantially higher than those that he
8		obtained, notwithstanding the fact that his recommended range is totally inconsistent with
9		his own results.
10		
11	Q.	**Are there any areas of Mr. Rush's testimony with which you agree?**
12	A.	Yes, there are several areas of Mr. Rush's testimony with which I agree. I agree with Mr.
13		Rush's final DCF result of 9.84%. I agree with his use of the quarterly DCF model and
14		his reliance on analysts' earnings growth forecasts. I agree with his beta estimate in the
15		CAPM analysis. I also agree with his CEM analysis which resulted in a 9.84% ROE.
16		Finally, I agree with his capital structure recommendation. Moreover, his comparable
17		group of 17 electric utilities and my group of 17 electric utilities both possess the same
18		degree of risk as evidenced by their identical average beta risk measure.
19		
20	Q.	**Please summarize your specific criticisms of Mr. Rush's testimony.**
21	A.	I do have a number of specific criticisms of Mr. Rush's testimony, as follows:
22		**1. Return Recommendation Well Outside of the**
23		**Mainstream.** Mr. Rush's recommended ROE is well
24		outside the zone of currently authorized ROEs for utilities
25		in the United States and for his own sample of companies.
26		The average authorized ROE in the vertically integrated
27		electric utility industry in 2017 as reported in the
28		Regulatory Research Associates quarterly review January
29		2018 edition is 9.8%. The currently authorized ROEs for
30		Mr. Rush's peer companies average 10.0% and the average
31		expected ROE for the group is 10.5% according to Value

1		Line. These authorized returns exceed by a significant
2		margin Mr. Rush's recommended of 8.75% return for
3		OG&E.
4	**2.**	**DCF Dividend Yield and Flotation Costs.** Mr. Rush's
5		dividend yield component is understated because it does
6		not allow for flotation costs and, as a result, a legitimate
7		expense is left unrecovered and his DCF results, as well as
8		the results from the other three methodologies, are
9		understated by 20 basis points. From this correction alone,
10		his recommended range of 8.24% - 9.24% becomes 8.44%
11		- 9.44%
12	**3.**	**DCF Growth Rates.** In order to estimate the growth
13		component of the DCF model, Mr. Rush relies on two
14		proxies: historical dividend growth and analyst growth
15		forecasts. I agree with the latter but disagree with the use of
16		the former for two reasons. First, historical growth rates are
17		redundant since historical growth patterns are already
18		reflected in analysts' growth forecasts. Second, the stock
19		price Mr. Rush uses in his DCF analysis is predicated on
20		analysts' growth forecasts and not on historical growth.
21	**4.**	**CAPM Risk-Free Rate.** Mr. Rush's estimate of the
22		CAPM risk-free rate is too low because it is based on
23		current interest rates rather than on projected rates.
24	**5.**	**CAPM Market Risk Premium (ERP).** Mr. Rush's
25		estimate of the ERP is too low because: 1) it is erroneously
26		based in part on geometric mean returns rather than
27		arithmetic mean returns, 2) it is based on total bond returns
28		rather than the income component of bond returns, and 3) is
29		inconsistent with the empirical finance literature on the
30		subject.

1		**6.**	**CAPM and the Empirical CAPM (ECAPM).** The basic
2			version of the CAPM used by Mr. Rush understates the
3			Company's cost of equity for low-beta securities by 50
4			basis points.
5		**7.**	**Utility Stocks Market Returns**. I disagree with Mr.
6			Rush's use of realized market returns from utility stock
7			mutual funds because those historical achieved returns are
8			not indicative of expected returns.
9			I shall now discuss each criticism in turn as well as
10			respond to Mr. Rush's criticism of my testimony.

11

12   **1. ALLOWED RETURNS**

13 Q. **Are allowed ROEs of electric utilities important determinants of investor growth**
14   **perceptions and investor expected returns?**

15 A. Yes, they are. Allowed returns, while certainly not a precise indication of a company's
16   cost of equity capital, are nevertheless important determinants of investor growth
17   perceptions and investor expected returns. They also serve to provide some perspective
18   on the validity and reasonableness of Mr. Rush's recommendation.

19

20 Q. **How does Mr. Rush's recommended ROE compare with currently allowed ROEs in**
21   **the industry?**

22 A. Mr. Rush's recommended ROE of 8.75% for OG&E is well outside the mainstream for
23   electric utilities. The average authorized ROE was 9.8% in 2017 for vertically integrated
24   electric utilities. Moreover, as shown on Table 1 and according to Value Line, the
25   average authorized return on equity for the electric utilities in Mr. Rush's own peer group
26   is 10.0% and (ii) the average long-term expected return on equity for these same electric
27   utilities is 10.5%.

		Table 1. Authorized and Expected % Returns		
			Allowed ROE	Expected ROE
1	American Elec Pwr		10.28	10.50
2	Allete		9.25	8.50
3	Edison International		10.45	12.50
4	El Paso Electric		9.57	9.00
5	Emera, Inc			12.50
6	Fortis		9.31	8.00
7	Hawaiian Electric		10.00	10.00
8	IDACORP, Inc.		10.00	9.00
9	NextEra Energy		10.60	13.00
10	OGE Energy Corp.			
11	Otter Tail Corp			10.00
12	Pinnacle West Capital		10.00	10.50
13	PNM Resources, Inc.		9.58	9.50
14	Portland General Elec		9.50	9.00
15	PPL Corp		9.70	13.00
16	Southern Company		12.50	12.00
17	Westar Energy		10.00	11.50
	AVERAGE		**10.00**	**10.50**

Source: Value Line Reports

These allowed and expected ROEs substantially exceed Mr. Rush's recommended ROE for OG&E of only 8.75%.

In short, Mr. Rush's recommendation is well outside the mainstream of the allowed rates of return that were current during the period in which Mr. Rush performed his analysis and lies outside the zone of recently authorized returns for electric utilities and for Mr. Rush's own sample of companies.

Unreasonable rate treatment for a utility, if implemented, may have serious public policy implications and repercussions that are not mentioned in Mr. Rush's testimony. For example, the quality of regulation and the reasonableness of authorized ROEs clearly have implications for regulatory climate, economic development and job creation in a given territory. The consistency of regulation in a given jurisdiction has similar implications. I believe that Mr. Rush's recommended return has negative implications on

1		these grounds and is not consistent with the economic well-being of the State of
2		Oklahoma. It certainly provides a disincentive to investment in Oklahoma.
3		
4		**2. DCF DIVIDEND YIELD AND FLOTATION COSTS**
5	Q.	**In your direct testimony, you stated that the return on equity should be adjusted to**
6		**include an allowance for flotation costs. Please comment on flotation costs.**
7	A.	Flotation costs are very similar to the closing costs on a home mortgage. In the case of
8		issues of new equity, flotation costs represent the discounts that must be provided to
9		place the new securities. Flotation costs have a direct and an indirect component. The
10		direct component represents monetary compensation to the security underwriter for
11		marketing/consulting services, for the risks involved in distributing the issue, and for any
12		operating expenses associated with the issue (printing, legal, prospectus, etc.). The
13		indirect component represents the downward pressure on the stock price as a result of the
14		increased supply of stock from the new issue. The latter component is frequently referred
15		to as "market pressure."
16		Flotation costs for common stock are analogous to the flotation costs associated
17		with past bond issues which, as a matter of routine regulatory policy, continue to be
18		amortized over the life of the bond, even though no new bond issues are contemplated.
19		In the case of common stock, which has no finite life, flotation costs are not amortized.
20		Therefore, the recovery of flotation cost requires an upward adjustment to the allowed
21		return on equity.
22		As demonstrated in my direct testimony, the expected dividend yield component
23		of the DCF model must be adjusted for flotation cost by dividing it by (1 - f), where f is
24		the flotation cost factor.
25		
26	Q.	**What flotation cost treatment did Mr. Rush recommend in this case?**
27	A.	Mr. Rush's common equity return recommendation does not include any allowance for
28		issuance expense (Page 69 line 9). His DCF estimates of equity costs are therefore
29		understated by 20 basis points, as shown in Appendix A of my direct testimony.

1		I am surprised by Mr. Rush's reluctance to accept flotation costs. Obviously,
2		common equity capital is not free. The flotation cost allowance to the cost of common
3		equity capital is routinely discussed and applied in most corporate finance textbooks.
4		Mr. Rush's disregard of flotation costs is also inconsistent with Value Line data
5		on historical and projected common stock issues. Electric utilities have, and will
6		continue to be issuing new common stock in the future. Later in my rebuttal, I provide
7		additional reasons why Mr. Rush's arguments against a flotation cost allowance are
8		unfounded.

9

3. DCF GROWTH RATES

11 Q. **What growth rate proxies did Mr. Rush employ in his DCF analysis?**

12 A. Mr. Rush calculates two proxies for growth: historical dividend growth and analyst
13 projected earnings growth.

14

15 Q. **Do you have any concerns with Mr. Rush's DCF growth rates?**

16 A. Yes. While I agree with Mr. Rush's reliance on projected earnings growth rates I
17 disagree with the use of historical dividend growth rates.

18

Historical Growth Rates

20 Q. **Why do you disagree with the use of historical dividend growth rates in applying the**
21 **DCF model to utilities?**

22 A. I disagree with the use of historical dividend growth rates for two reasons. First, under
23 circumstances of stability, it is reasonable to assume that historical growth rates in
24 dividends/earnings influence investors' assessment of the long-run growth rate of future
25 dividends/earnings. However, because of substantial changes in the utility industry and
26 the economy generally, historical growth rates have questionable relevance as proxies for
27 future long-term growth.   Second, historical growth rates are largely redundant because
28 such historical growth patterns are already incorporated in analysts' growth forecasts that
29 should be used in the DCF model.

1	Q.	**Dr. Morin, did you detect any arithmetic errors in Mr. Rush's DCF calculations?**
2	A.	Yes, I did. In Mr. Rush's DCF calculations shown on the "DCF Results" tab of his
3		workpapers, Column 4 shows an average DCF result of 6.34% from the annual DCF
4		model. This is clearly an error. Mr. Rush erroneously used the quarterly dividend
5		shown on Column 1. What he should have done is multiply the quarterly dividend by
6		four in order to annualize the dividend used in the "annual" DCF model. With this
7		correction, the annual DCF result of 6.34% becomes 9.4%.
8		
9	Q.	**Did you notice any inconsistency in Mr. Rush's DCF results?**
10	A.	Yes, I did. On the "Growth Rates" tab of his workpapers, Mr. Rush shows on Column 3
11		an average growth rate of 5.9% for the group. Yet, when he performs his DCF
12		calculation on the "DCF Results" tab of his workpapers, he uses an average growth rate
13		of 5.3% on Column 3 instead of 5.9%. That results in a potential understatement of at
14		least 60 basis points (0.60%) in his DCF result. Mr. Rush does not explain this anomaly.
15		
16		**4. CAPM RISK-FREE RATE**
17	Q.	**Does Mr. Rush perform a CAPM analysis?**
18	A.	Yes, he does. To implement the CAPM, three quantities are required: the risk-free rate
19		(R_F), beta (β), and the equity risk premium (ERP). As shown on the "CAPM Results" tab
20		of his workpapers, Mr. Rush uses a risk-free rate of 3.05%, a beta of 0.71, and an ERP of
21		only 5.04%.
22		
23	Q.	**Dr. Morin, do you agree with Mr. Rush's beta estimates in the CAPM analysis?**
24	A.	Yes, I do.
25		
26	Q.	**Do you agree with Mr. Rush's risk-free rate estimate?**
27	A.	No, I do not. Mr. Rush's risk-free rate estimate of 3.05% is far too low for purposes of
28		applying the CAPM. This estimate is based on current bond yields on long-term U.S.
29		treasury bonds. What Mr. Rush should have done is rely on forecast yields instead of
30		current yields because investors price securities on the basis on long-term expectations,
31		including interest rates. Mr. Rush has correctly relied on growth forecasts in his DCF

1   analysis. It is not clear why he did not follow suit in the case of interest rate forecasts.

2   All financial models, including the CAPM, are prospective (i.e., forward-looking)

3   models.

4   All the economic forecasts that I am aware of, as shown on Table 2 below,

5   anticipate a substantial and steady increase in interest rates from 2018 onward. In

6   summary, the average projected long-term interest rate on 30-year Treasury bonds is

7   4.3%.

8   Based on this consistent evidence from various sources, a minimum long-term

9   bond yield forecast of 4.32% should have been used for purposes of a forward-looking

10   CAPM analysis in the current economic environment. As a result, Mr. Rush's CAPM

11   estimates are understated by 130 basis points (4.3% − 3.0% = 1.30%) from this omission

12   alone.

Table 2 Forecast Yields on
30-year U.S. Treasury Bonds

Value Line Economic Forecast	4.00
U.S. Energy Information Administration	4.57
Bureau of Labor Statistics	4.80
Congressional Budget Office	4.20
Economic Report of the President	4.20
White House Budget 2018	4.10
IHS (Global Insight)	4.40
AVERAGE	**4.32**

13   **5. CAPM MARKET RISK PREMIUM**

14 Q.   **How does Mr. Rush estimate the ERP component of the CAPM?**

15 A.   This section of his testimony is most confusing and contradictory. On page 30 of his

16   testimony, Mr. Rush states:

17   *"There are three ways to estimate the ERP: (1) calculating a historical*

18   *average; (2) taking a survey of experts; and (3) calculating the implied*

1		*equity risk premium. The CAPM analysis incorporated each of these*
2		*methods in determining the ERP".*
3		
4		Nowhere does Mr. Rush discuss the third method or show its results, or rely on
5		this method.
6		
7		Then, he states on page 33:
8		
9		*"In determining the final ERP to use for the CAPM model, PUD used a*
10		*weighted average of the expert survey and the implied equity risk*
11		*premium. While it would not be unreasonable to use any of these methods*
12		*by themselves to estimate the ERP, it is more prudent to consider both*
13		*methods, as the methods are not equal in value. PUD used a final ERP of*
14		*5.04% in the CAPM calculation".*
15		
16		But that is not what he did. First, he derives an ERP of 5.2% based on the
17		historical ERP method. Second, he cites an ERP of 5.01% based on survey methods.
18		Somehow from these two estimates, he relies on a final ERP of 5.04% in the CAPM
19		analysis. Nowhere is the third method described or relied upon.
20		
21		**Empirical Literature on the ERP**
22	Q.	**Dr. Morin, is Mr. Rush's ERP estimate of 5.04% consistent with the empirical**
23		**finance literature?**
24	A.	No, it is not. Mr. Rush's historical estimate of 5.04% is at odds with the empirical
25		finance literature on the subject.

1	Q.	**What is the prevalent academic consensus on the magnitude of the ERP?**
2	A.	In their widely-used authoritative textbook, following a comprehensive review of the
3		ERP literature, Brealey & Myers & Allen state:[1]

> 4   *Brealey, Myers, and Allen have no official position on the issue, but we*
>
> 5   *believe that a range of 5 to 8 percent is reasonable for the risk premium in*
>
> 6   *the United States.*

7   My own survey of the ERP literature is also quite consistent with this range.[2]

8

9   **Historical ERP Estimate**

10	Q.	**Dr. Morin, do you agree with Mr. Rush's historical ERP estimate in the CAPM**
11		**analysis?**
12	A.	No, for two reasons. First, Mr. Rush erroneously subtracted bond returns from stock
13		returns rather than subtracting the income component of bond returns from stock returns.
14		Second, Mr. Rush relies in part on geometric average returns rather than arithmetic
15		average returns.

16

17   **Income Component of Bond Returns**

18	Q.	**Did Mr. Rush rely on the income component of bond returns in deriving his ERP**
19		**estimate?**
20	A.	No, he did not. Mr. Rush erroneously subtracted bond returns from stock returns rather
21		than subtracting the income component of bond returns from stock returns.
22		As I discussed in my direct testimony, the income component (i.e., the coupon rate)
23		is a far better estimate of expected return than the total return (i.e., the coupon rate plus
24		capital gains), because realized capital gains/losses are largely unanticipated by investors.
25		In other words, bond investors focus on income rather than realized capital gains/losses.
26		This correction increases Mr. Rush's ERP estimate by 100 basis points, which is the
27		historical difference in the ERP based on total bond returns and the ERP based on bond

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[1] Richard A. Brealey, Stewart C. Myers, and Paul Allen, <u>PrincOG&Ees of Corporate Finance</u>, 8th Edition, Irwin McGraw-Hill, 2006.

[2] *See* Roger A. Morin, *The New Regulatory Finance*, at chapter 5 (2006).

1		income returns. The impact on Mr. Rush's CAPM estimate is an understatement of 71
2		basis points (.71%), using Mr. Rush's average group beta of 0.71 for OG&E:
3		$\beta_{OG\&E}$ x (100 basis points understatement) = 0.71 x (100) = 0.71%
4		
5		**Arithmetic vs. Geometric Averages**
6	Q.	**Is it appropriate to use geometric averages in measuring historical ERPs?**
7	A.	No, it is not. Mr. Rush flagrantly contradicts himself on the appropriate use of the
8		geometric/arithmetic mean debate. On page 31 he states:
9		
10		*"Although the geometric average is considered more appropriate when*
11		*looking at the historical ERP, the higher arithmetic average was*
12		*considered in the historical ERP calculation."*
13		
14		But that is not what he does, for in the next breath he contradicts this stance by relying on
15		both the geometric and arithmetic mean:
16		
17		*"……the historical ERP using the geometric average is 4.4%, while the*
18		*historical ERP using the arithmetic average is 6.0%. The average of these*
19		*two numbers is 5.2%, which is the figure used in the historical ERP*
20		*estimate."*
21		
22		It is not clear as to what Mr. Rush actually believes. In short, he has erroneously
23		relied on both the geometric and arithmetic mean. As I discussed in my direct
24		testimony[3], whenever relying on historical risk premiums, only arithmetic average returns
25		over long periods are appropriate for forecasting and estimating the cost of capital, and

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[3] Please see Morin, R. A., *The New Regulatory Finance*, Chapter 4 (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.

1   geometric average returns are not.[4]   Indeed, the "Ibbotson approach" (Duff & Phelps,

2   formerly Morningstar, formerly Ibbotson Associates) on which Mr. Rush himself (page

3   31 line 18) relies to develop his ERP estimate contains a detailed and rigorous discussion

4   of the impropriety of using geometric averages in estimating the cost of capital.

5   There is no theoretical or empirical justification for the use of geometric mean

6   rates of return. Briefly, the disparity between the arithmetic average return and the

7   geometric average return raises the question as to what purposes should these different

8   return measures be used. The answer is that the geometric average return should be used

9   for measuring historical returns that are compounded over multiple time periods. The

10   arithmetic average return should be used for future-oriented analysis, where the use of

11   expected values is appropriate. It is inappropriate to average the arithmetic and geometric

12   average return; they measure different quantities in different ways.

13

14   Q.   **What is the effect of Mr. Rush's reference to the geometric mean instead of the**

15   **arithmetic mean ERP?**

16   A.   Mr. Rush should have ignored the ERP estimate of 4.4% based on geometric means, and

17   should have relied solely on the arithmetic mean of 6.0%. As discussed earlier, the latter

18   estimate of 6.0% erroneously relied on total bond returns rather than the income

19   component of bond returns, and becomes 7.0% when adjusted for this misstep.

20   The bottom line is that Mr. Rush should have use a historical ERP of 7% instead

21   of 5.04%, thus significantly understating the ERP by nearly 200 basis points (2.0%). The

22   impact on his CAPM estimate is an understatement of 142 basis points (1.42%), using

23   Mr. Rush's beta of 0.71 for OG&E:

24                        $\beta_{OG\&E}$ x (Arithmetic Mean − Geometric Mean)

25   0.71 x (7.0% − 5.0%) = 0.71 x (2.0%) = 1.42%

26   Geometric means are properly used in evaluating historic performance of stocks

27   or portfolios of stocks, whereas determining investor expectations, which define the cost

_____

[4] 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., PrincOG&Ees of Corporate Finance (8th ed. 2006).

1		of equity capital, requires use of arithmetic means. Chapter 6 of my book <u>The New</u>
2		<u>Regulatory Finance,</u> as well as Mr. Rush's own data source (Ibbtoson, now Duff &
3		Phelps study) explain this issue in detail, provide illustrative mathematical examples, and
4		cite authoritative financial texts, all of which confirm the need to use arithmetic means,
5		and not geometric means, to properly estimate a utility's cost of equity.
6		
7		**Regulatory Decisions and the ERP**
8	Q.	**Is Mr. Rush's ERP estimate of 5.04% consistent with regulatory decisions?**
9	A.	No it is not. It is useful to examine the ERP estimates implicit in regulatory ROE
10		decisions. The CAPM framework can be used to quantify the ERP implicit in the
11		allowed risk premiums for regulated utilities. According to the CAPM, the risk premium
12		is equal to beta times the ERP:

$$\text{Risk Premium} \quad = \quad \beta\,(R_M - R_F)$$

$$\text{Risk Premium} \quad = \quad \beta\ \text{x ERP}$$

Solving for ERP, we obtain:

$$\text{ERP} \quad = \quad \text{Risk Premium} / \ \beta$$

19		I examined the ERPs implied in several hundred regulatory decisions for electric
20		utilities in the United States over the period 1986-2017. Using the allowed average risk
21		premium of 5.51% in these decisions[5] over that period and a beta of 0.71 for electric
22		utilities, the implied ERP is 7.7%, that is, 5.51%/0.71 = 7.8%, exceeding Mr. Rush's
23		5.04% estimate.
24		
25	Q.	**What do you conclude from Mr. Rush's ERP estimate of 5.04%?**
26	A.	This estimate is vastly understated, erroneously relies in part on geometric average
27		returns and on the total return component of bond returns rather than the income
28		component, and is inconsistent with regulatory decisions and the vast literature on the
29		subject.

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[5] See Morin Exhibit RAM-8 Column 3.

6. EMPIRICAL CAPM

Q. **Do you agree with Mr. Rush's use of the raw form of the CAPM to estimate the cost of capital?**

A. No, I do not. I believe that the plain vanilla version of the CAPM should be supplemented by the more refined version of the CAPM. There have been countless empirical tests of the CAPM to determine to what extent security returns and betas are related in the manner predicted by the CAPM. The results of the tests support the idea that beta is related to security returns, that the risk-return tradeoff is positive, and that the relationship is linear. The contradictory finding is that the risk-return tradeoff is not as steeply sloped as predicted by the CAPM. That is, low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn less than predicted. In other words, a CAPM-based estimate of the cost of capital underestimates the return required from low-beta securities and overstates the return from high-beta securities, based on the empirical evidence. This relationship is well documented in the finance literature and should have been acknowledged by Mr. Rush in his CAPM analysis.

The empirical form of the CAPM that I used in my direct testimony refines the standard form of the CAPM to account for this phenomenon.

As discussed in Appendix A of my direct testimony the downward-bias inherent in the CAPM is particularly significant for low-beta securities, such as the electric utilities used by Mr. Rush. Mr. Rush's CAPM estimates of equity costs are understated by about 50 basis points from this bias alone.

Q. **Dr. Morin, please provide a summary of the recommended changes to Mr. Rush's CAPM estimates.**

A. Table 3 summarizes the principal reasons why Mr. Rush's CAPM results understate an appropriate ROE for OG&E:

	Table 3. Adjustment to Mr. Rush's CAPM Results	
	<u>Source</u>	<u>Basis Points</u>
	Risk-Free Rate	130
	Appropriate ERP	142
	CAPM understatement	50
	Flotation Cost	20

	Total Adjustment	342

Correction of these understatements would increase Mr. Rush's CAPM results by 342 basis points (3.42%), that is, from his CAPM estimate of 6.65% to 10.10% rounded.

7. UTILITY MARKET RETURNS

Q. **Do you agree with Mr. Rush's use of utility stock returns in estimating OG&E's cost of equity?**

A. No, I do not. As described on page 39, in order to estimate OG&E's cost of equity Mr. Rush examines the stock market performance over the past three, five, and ten-years of fourteen utility mutual funds and the stock market performance of the seventeen utility companies that make up his peer group of companies. He arbitrarily chooses to rely only on the 10-year results of 6.49% for the 14 utility funds and 8.62% for the utility peer group. It is not at all clear how those results factor into his final range of 8.24% - 9.24%, if at all.

I must admit that in my 35 years of experience as an expert witness in over 200 rate cases, I have never encountered this technique from any witness, nor have I ever seen it discussed in any university-level textbook.

This technique should be rejected and has no place in regulatory proceedings for the simple reason that the use of achieved (realized) historical stock market returns is not necessarily a reflection of expected returns. Mr. Rush's stock market analysis assumes that the average realized return is an appropriate surrogate for expected return, or, in other words, that investor expectations are realized. However, realized returns can be substantially different from prospective returns anticipated by investors, especially when

1		measured over short time periods. Only over very long time periods will investor return
2		expectations and realizations converge.
3		

8. RESPONSE TO MR. RUSH'S CRITICISM

Flotation Cost Adjustment

6	Q.	**In your direct testimony, you stated that the return on equity should be adjusted to**
7		**include an allowance for flotation costs. Please comment on flotation costs.**
8	A.	Flotation costs are very similar to the closing costs on a home mortgage. In the case of
9		issues of new equity, flotation costs represent the discounts that must be provided to
10		place the new securities.
11		Flotation costs for common stock are analogous to the flotation costs associated
12		with past bond issues which, as a matter of routine regulatory policy, continue to be
13		amortized over the life of the bond, even though no new bond issues are contemplated. In
14		the case of common stock, which has no finite life, flotation costs are not amortized.
15		Therefore, the recovery of flotation cost requires an upward adjustment to the allowed
16		return on equity. Flotation costs are not out-of-pocket expenses as Mr. Rush argues.
17		As demonstrated in my direct testimony, the expected dividend yield component
18		of the DCF model must be adjusted for flotation cost by dividing it by $(1 - f)$, where f is
19		the flotation cost factor.
20		
21	Q.	**What flotation cost treatment did Mr. Rush recommend in this case?**
22	A.	Mr. Rush's common equity return recommendation does not include any allowance for
23		issuance expense (Page 69 line 9). Because Mr. Rush fails to include any allowance for
24		flotation costs, his DCF estimates of equity costs are understated by 20 basis points, as
25		shown in Appendix A of my direct testimony.
26		I am surprised by Mr. Rush's reluctance to accept flotation costs. Obviously,
27		common equity capital is not free. The flotation cost allowance to the cost of common
28		equity capital is routinely discussed and applied in most corporate finance textbooks.
29		Mr. Rush's disregard of flotation costs is inconsistent with Value Line data on
30		historical and projected common stock issues. Electric utilities or their parent companies
31		have, and will continue to be issuing new common stock in the future.

1	Q.	**How does Mr. Rush justify his dismissal of flotation cost?**
2	A.	On page 69 of his testimony, Mr. Rush argues that flotation costs are not out-of-pocket
3		expenses and, therefore, should not be taken into account. As I explained in my direct
4		testimony and in Appendix B of my testimony, flotation costs, while they are not out-of-
5		pocket expenses, are reduction in net stock prices to the issuing company in order to
6		compensate underwriters for their services and why they should be included as an ROE
7		adjustment.

8   A simple example will illustrate the concept. A stock is sold for $100, and

9   investors require a 10% return, that is, $10 of earnings. But if flotation costs are 5%, the

10   Company nets $95 from the issue, and its common equity account is credited by $95. In

11   order to generate the same $10 of earnings to the shareholders, from a reduced equity

12   base, it is clear that a return in excess of 10% must be allowed on this reduced equity

13   base, here 10.53%.

14   Mr. Rush also argues that flotation costs are already accounted for in current stock

15   prices suggesting that adding such an adjustment would constitute double counting. I

16   disagree with this argument. Whatever the stock price is does not change the fact that a

17   portion of the capital contributed by equity investors is not available to earn a return

18   because it is paid out as flotation costs. The simple fact of the matter is that in issuing

19   common stock, the company's common equity account is credited by an amount less than

20   the market value of the issue, so that the company must earn slightly more on its reduced

21   equity base in order to produce a return equal to that required by shareholders. The costs

22   are there irrespective of the stock price.

23   Mr. Rush's third argument is that my recommended ROE is already overstated

24   and flotation cost adjustments are therefore unwarranted. That specious logic escapes

25   me completely. Mr. Rush could justify any exclusion of any legitimate expense with that

26   kind of spurious argument. Besides, as my rebuttal clearly demonstrates, it is Mr. Rush's

27   recommended ROE that is grossly understated.

1 Q.   **What do you conclude from Mr. Rush's Testimony?**

2 A.   I conclude the following:

3   1. Mr. Rush's recommended reduction of the Company's ROE down to
4   only 8.75%, if adopted, would result in one of the lowest, if not the lowest,
5   ROE authorized in the entire utility industry in the country, and would
6   cause adverse consequences on the Company's creditworthiness, its
7   financial integrity, the Company's capital raising ability, and ultimately its
8   customers. Allowed and expected ROEs for Mr. Rush's peer group of
9   companies substantially exceed his recommended ROE for OG&E.

10

11   2. It is not at all clear how Mr. Rush arrived at his recommended range of
12   8.24% - 9.24% when two of his four estimates are 9.84%, and yet do not
13   appear in his recommended range.

14

15   3. Mr. Rush's dividend yield component is understated because it does not
16   allow for flotation costs and, as a result, a legitimate expense is left
17   unrecovered and his DCF results, as well as the results from the other
18   three methodologies, are understated by 20 basis points.

19

20   4. Because the stock price Mr. Rush uses in his DCF analysis is
21   predicated on analysts' growth forecasts and not on historical growth, and
22   because historical growth rates are redundant since historical growth
23   patterns are already reflected in analysts' growth forecasts, Mr. Rush
24   should have relied exclusively on analysts' growth forecasts in his DCF
25   analysis.

26

27   5. Mr. Rush's estimate of the CAPM risk-free rate is too low because it is
28   based on current interest rates rather than on projected rates. As a result,
29   his CAPM estimates are understated by 1.30% from this omission alone.

30

1   6. Mr. Rush's estimate of the CAPM market risk premium (ERP) is too low because: 1) it is erroneously based in part on geometric mean returns rather than arithmetic mean returns, 2) it is based on total bond returns rather than the income component of bond returns, and 3) is inconsistent with the empirical finance literature on the subject. Using the proper ERP would raise his CAPM estimates by 1.42% from this omission alone.

7. The basic version of the CAPM used by Mr. Rush understates the Company's cost of equity for low-beta securities by 50 basis points.

        Correction of Mr. Rush's various understatements in his CAPM analysis would increase his CAPM results by 3.42%, that is, from his CAPM estimate of 6.65% to 10.07% rounded.

8. Mr. Rush's analysis of realized market returns from utility stock mutual funds should be disregarded because those historical achieved returns are not indicative of expected returns.

9. There are arithmetic errors and inconsistencies in Mr. Rush's DCF analyses, casting a shadow on the veracity of his DCF results.

10. There are several areas of Mr. Rush's testimony with which I agree. I agree with Mr. Rush's final DCF result of 9.84%. I agree with his use of the quarterly DCF model and his reliance on analysts' earnings growth forecasts. I agree with his beta estimate in the CAPM analysis. I also agree with his CEM analysis which resulted in a 9.84% ROE. Finally, I agree with his capital structure recommendation.

Q. **What are the basic conclusions of your rebuttal to Mr. Rush's cost of equity testimony?**

A. Mr. Rush seriously understates OG&E's cost of common equity. A proper application of cost of capital methodologies would give results substantially higher than those that he

1   obtained, notwithstanding the fact that his recommended range is inconsistent with his

2   own results

3

4   **II.   REBUTTAL TO MR. PARCELL'S TESTIMONY**

5   Q.   **Please summarize Mr. Parcell's ROE recommendation.**

6   A.   Mr. Parcell recommends an ROE in a range of 8.85% - 9.50% (9.2% midpoint) for

7   OG&E. In determining OG&E's cost of equity, Mr. Parcell applies a DCF analysis to

8   two groups of utilities. For the growth component of his DCF analysis, Mr. Parcell uses

9   a blend of analysts' growth forecasts, historical growth rates, and the earnings retention

10   method. From his DCF estimates, Mr. Parcell concludes that the DCF estimate of

11   OG&E's cost of equity lies in a range of 8.85% - 9.50% (9.2% midpoint).

12   Mr. Parcell also applies a CAPM analysis to the same two groups of companies, using

13   long-term Treasury bond yields as proxies for the risk-free rate and Value Line beta

14   estimates. Mr. Parcell seems to place little, if any, weight on the CAPM results of 6.5% -

15   7.0% (6.75% midpoint).

16   Finally, Mr. Parcell performs a Comparable Earnings analysis on a sample of utilities and

17   a sample of unregulated industrial companies.

18   From these various analyses, Mr. Parcell concludes that ROE for OG&E lies in the range

19   of 8.9% - 9.5%. Mr. Parcell proposes a ROE at the midpoint of this proposed range,

20   9.2%.

21

22   Q.   **Please summarize your specific concerns with Mr. Parcell's testimony.**

23   A.   Although I agree with several of Mr. Parcell's methodologies, I have the following

24   comments:

25   1.   **Mr. Parcell understates the DCF dividend yield by using a spot**
26   **dividend yield inflated by one-half of the expected dividend**
27   **growth.** Mr. Parcell's dividend yield component is understated
28   because it is not consistent with the annual form of the DCF model. It
29   is inappropriate to increase the dividend yield by adding one-half of
30   the future growth rate $(1 + \frac{1}{2} g)$ to the spot dividend yield. The
31   appropriate manner of computing the expected dividend yield when
32   using the basic annual DCF model is to add the full growth rate rather
33   than one-half of the growth rate. This adjustment also allows for the
34   failure of the annual DCF model to allow for the quarterly timing of

1		dividend payments. This error understates the DCF results by
2		approximately 12 basis points.

3   2. **Mr. Parcell's dividend yield component is understated because it**
4   **does not allow for flotation costs**. As a result, a legitimate expense
5   is left unrecovered and his DCF results are understated by 20 basis
6   points. From this correction alone, his recommended ROE becomes
7   9.4%. Coupled with the previous 12 basis points understatement, his
8   recommended ROE becomes 9.52%

9   3. **Mr. Parcell uses the retention growth method, a method that**
10   **should be given little, if any, weight.** The retention growth method
11   for estimating the growth component of the DCF calculation is suspect
12   because one is forced to assume the answer to implement the method.
13   From the Value Line data on which Mr. Parcell bases this analysis,
14   investors expect substantially higher returns for utilities than what he
15   recommends.

16   4. **Mr. Parcell's historical growth rates should be given little, if any**
17   **weight.** Investors are expecting substantially higher growth rates than
18   Mr. Parcell's growth rates for the sample companies. Using analysts'
19   consensus growth forecasts increases the DCF estimate of the cost of
20   **common equity by 70 basis points (0.70%).**

21   5. **Mr. Parcell's risk-free rate proxy in his CAPM analysis is**
22   **inappropriate. Mr. Parcell should have relied on projected**
23   **interest rates rather than on** historical spot rates. Yields on long-
24   term Treasury securities are expected to increase. Using the
25   appropriate risk-free rate, Mr. Parcell's CAPM estimates must be
26   raised by 134 basis points for this correction alone.

27   6. **Mr. Parcell's market risk premium (MRP) of 5.8% understates**
28   **the market risk premium by 90 basis points.** There are conceptual
29   blemishes in Mr. Parcell's two market risk premium proxies.

30   7. **Mr. Parcell's criticisms of my testimony are largely unfounded.**

31

32   **1. UNDERSTATED DIVIDEND YIELD**

33   Q.   **Do you have any comment on Mr. Parcell's dividend yield calculation in the DCF**

34   **analysis?**

35   A.   Yes. I disagree with Mr. Parcell's dividend yield calculation on page 36 of his testimony.

36   Mr. Parcell multiplies the spot dividend yield by one plus one half the expected growth

1   rate $(1 + 0.5g)$ rather than the standard one plus the expected growth rate $(1 + g)$. Mr.

2   Parcell's deviation from the standard methodology understates the return expected by the

3   investor.

4   The fundamental assumption of the annual DCF model used by Mr. Parcell is that

5   dividends are received annually at the end of each year and that the first dividend is to be

6   received one year from now. Thus, the appropriate dividend to use in a DCF model is the

7   full prospective dividend to be received at the end of the year. Instead, Mr. Parcell

8   calculates the first dividend by multiplying the current dividend by one plus one-half the

9   growth rate $(1 + 0.5g)$ instead of multiplying by one plus the growth rate $(1 + g)$. Since

10   the appropriate dividend to use in a DCF model is the prospective dividend one year from

11   now rather than the dividend one-half year from now, Mr. Parcell's approach understates

12   the proper dividend yield.

13   Mr. Parcell's use of this variation of the annual DCF methodology creates a slight

14   downward bias in its dividend yield component, and causing it to underestimate the cost

15   of equity by approximately 12 basis points. For example, for a spot dividend yield of 4%

16   and a growth rate of 6%, Mr. Parcell's estimated dividend yield is $4\%(1 + .06/2) =$

17   4.12%. The correct dividend yield to employ is $4\%(1 + .06) = 4.24\%$, which is 12 basis

18   points higher. Thus, failure by Mr. Parcell in its formula to recognize the quarterly nature

19   of dividend payments understates the cost of equity capital by 12 basis points.

20   Moreover, the basic annual DCF model ignores the time value of quarterly

21   dividend payments and assumes dividends are paid once a year at the end of the year.

22   Multiplying the spot dividend yield by $(1 + g)$ is actually a conservative attempt to

23   capture the reality of quarterly dividend payments and understates the expected return on

24   equity. Use of this method is conservative because the annual DCF model ignores the

25   more frequent compounding of quarterly dividends.

26

27   **2. DCF DIVIDEND YIELD AND FLOTATION COSTS**

28   Q.   **Do you have any comment concerning Mr. Parcell's dividend yield component?**

29   A.   Yes. The expected dividend yield component of the DCF model should be adjusted for

30   flotation cost by dividing it by $(1 − f)$, where f is the flotation allowance factor. Mr.

31   Parcell's dividend yield component is understated by approximately 20 basis points

1		because it does not allow for flotation costs, and, as a result, a legitimate stockholder
2		expense is left unrecovered. I discussed this issue earlier in my rebuttal of Mr. Rush.
3		

3. EARNINGS RETENTION GROWTH

4

5 Q. **Please describe Mr. Parcell's methodology for specifying the growth component of**

6   **the DCF model.**

7 A. Mr. Parcell employs five proxies as a proxy for the expected growth component of the

8   DCF model as reported on Schedule 10 Page 4 of Exhibit DCP-1:

9   (1) historical earnings retention ratio,

10   (2) projected earnings retention ratio,

11   (3) historical growth rates in dividends, earnings, and book value,

12   (4) projected growth rates in dividends, earnings, and book value, and

13   (5) analysts' forecasts of EPS growth as reported in First Call.

14

15 Q. **Do you agree with Mr. Parcell's growth proxies?**

16 A. I agree with two of Mr. Parcell's forecasts: Value Line Earnings Growth forecasts, and

17   consensus analysts' forecasts from First Call. I disagree with the other three: Value

18   Line's historical growth estimates and the use of the Earnings Retention Growth

19   methodology.

20

21 Q. **Can you comment on Mr. Parcell's Earnings Retention growth estimate in the DCF**

22   **model?**

23 A. In order to estimate the growth component of the DCF model, Mr. Parcell relies on the

24   Earnings Retention growth method for two of his five proxies. According to this method,

25   also known as the Sustainable Growth method, the growth rate is based on the equation g

26   = b(ROE); b is the percentage of earnings retained and ROE is the expected rate of return

27   on book equity (ROE). Value Line publishes growth estimates based on this method,

28   labeled as "*Retained on Common Equity*" on the Value Line reports for each company.

29   These growth rates are used by Mr. Parcell and reported on his Schedule 10 Page 4 of

30   Exhibit DCP-1.

1		In fairness to Mr. Parcell, I am not sure how much weight, if any, Mr. Parcell
2		relies on this method, for he ends up rejecting the low DCF results produced by the low
3		Earnings Retention growth rates.
4		To the extent that he does rely on this method, it should be rejected for several
5		reasons the most important of which is its inherent circularity.
6		
7	Q.	**Is the Retention Growth methodology logically consistent?**
8	A.	No, it is not. The retention growth methodology contains a logical contradiction. The
9		contradiction arises because the method requires an explicit assumption on the ROE as
10		one can plainly see in its formula $g = b(ROE)$. The latter is actually the formula used by
11		Value Line in deriving its '*Retained on Common Equity*" estimates. The problem is that
12		the purpose of this proceeding is to establish a fair and reasonable ROE on a prospective
13		basis. It is inappropriate to develop a ROE recommendation based on assumed ROEs.
14		Clearly, the method is logically circular in a regulatory proceeding. Perhaps, again in
15		fairness to Mr. Parcell, he does not factor the results of this faulty methodology, due to
16		this inherent difficulty.
17		

4. HISTORICAL GROWTH RATES

19	Q.	**Are the historical growth rates of electric utilities reliable proxies for expected**
20		**future growth?**
21	A.	No. Historical growth rates of electric utilities are not reliable proxies for expected future
22		growth. Mr. Parcell uses historical growth rates in dividends, earnings, and book value as
23		proxies for expected growth, as shown in Columns E to I of Schedule 10 page 4 of
24		Exhibit No. DCP-1.
25		If historical growth rates are to be representative of long-term future growth rates,
26		they must not be biased by non-recurring events. This is certainly the case for utilities,
27		where growing competition, declining customer usage, increased reliance on renewables,
28		acquisitions, restructurings and write-off activities have exerted a dilutive effect on
29		historical earnings and dividends. In such cases, it is obvious that analysts' growth
30		forecasts provide a more realistic and representative growth proxy for what is likely to

1   happen in the future than historical growth.

2   In any event, as I discussed earlier in my rebuttal, historical growth rates are

3   somewhat redundant given that analysts formulate their growth expectations based in part

4   on historical patterns.

5   In conclusion, Mr. Parcell's historical growth rates should be given considerably

6   less weight, if any.

7

8 Q. **What does the published academic literature say on the subject of growth rates in**

9   **the DCF model?**

10 A. As discussed in my direct testimony and earlier in my rebuttal, published studies in the

11   academic literature demonstrate that (i) analysts' growth rate forecasts are reasonable

12   indicators of investor expectations and (ii) investors rely on such forecasts.

13

14 Q. **Are investors expecting growth rates equal to Mr. Parcell's range?**

15 A. No. The best evidence shows that investors are expecting growth rates higher than Mr.

16   Parcell has found. For his first group of utilities, Mr. Parcell has found mean growth

17   rates ranging from 3.6% to 5.7%, with a mean of only 4.6% as shown on Schedule 10 of

18   Exhibit No. DCP-1 at page 4. For his second group of utilities, Mr. Parcell has found

19   mean growth rates ranging from 4.2% to 5.2%, with a mean of only 4.7%.

20   As indicated earlier, the retention growth estimate should be discarded from the

21   analysis and historical growth rates should be given considerably less weight, which

22   leaves us with the Value Line earnings growth forecast of 4.9% from page 3 of Schedule

23   10 Exhibit DCP-1 and the consensus analyst forecast of 5.7%, that is a range of 4.9% -

24   5.7% for the first group with a midpoint of 5.3%. The latter is 70 basis points (.70%)

25   above Mr. Parcell's mean estimate of 4.6%. This understatement alone causes Mr.

26   Parcell's DCF cost of equity estimates for this first group of companies to be downward-

27   biased by 70 points, even without factoring in the flotation cost understatement (20 basis

28   points) and the appropriate expected dividend yield component which is understated by a

29   further 10 basis points. The same is true for Mr. Parcell's DCF estimates for the second

30   group of companies, which are also downward-biased by similar amounts.

31

1	Q.	**Please comment on Mr. Parcell's criticism of your DCF analysis.**
2	A.	On page 50, Mr. Parcell takes issue with the fact that I have used only one indicator of
3		growth in the DCF analysis—analyst growth projections—and that I have ignored
4		historical and projected growth rates in dividends and book value.

5   Because earnings growth drives dividend growth and because of the scarcity of

6   dividend forecasts, I have ignored dividend growth and focused on earnings instead.

7   After all, it is earnings that are the driving force behind dividends.

8   In my direct testimony, I discussed the merits of using consensus analysts'

9   earnings growth forecasts in the DCF model and the supportive empirical literature.

10   Briefly, historical growth patterns are already embedded in analyst growth forecasts, and

11   the finance literature strongly supports the use of such forecasts.

12

13   5. CAPM RISK-FREE RATE

14	Q.	**Do you agree with Mr. Parcell's CAPM estimates?**
15	A.	No, I do not. To the extent that Mr. Parcell has accorded any weight to his CAPM results
16		(and I do not believe that he did), he should have derived a much higher estimate. If the
17		Commission were to accord any weight to Mr. Parcell's CAPM results, the following
18		comments on Mr. Parcell's CAPM analysis are germane.

19

20	Q.	**Do you agree with Mr. Parcell's risk-free rate proxy in his CAPM analysis?**
21	A.	No. As a proxy for the risk-free rate, Mr. Parcell uses 2.91%, which is the average yield
22		on 20-year Treasury bonds for the 3-month period January 2018 to March 2018. As
23		discussed earlier in my rebuttal of Mr. Rush, Mr. Parcell should have used the consensus
24		interest rate forecast of 4.32%. This correction alone would raise his CAPM estimates by
25		1.41% (4.32% - 2.91%)

26

| 27 | Q. | **Do you agree with Mr. Parcell's beta estimate in his CAPM analysis?** |
| 28 | A. | Yes. I agree with Mr. Parcell's beta estimates shown on Schedule 12 of Exhibit DCP-1. |

		6. CAPM MARKET RISK PREMIUM (MRP)
1		**6. CAPM MARKET RISK PREMIUM (MRP)**
2	Q.	**How does Mr. Parcell estimate the MRP component of his CAPM analysis?**
3	A.	In order to determine the MRP component of his CAPM analysis, Mr. Parcell relies on
4		three estimates. First, he examines the difference between the accounting returns on
5		book equity for the S&P 500 Index companies group over the 1978-2016 period and the
6		contemporaneous level of 20-year Treasury bond yields. The average spread (MRP) is
7		7.00%, coincidentally the same estimate I used in my CAPM analysis. Second, he relies
8		on the long-term 6.0% historical MRP tabulated by Duff & Phelps for the 1926-2016
9		period based on arithmetic averages. Third, he relies on the long-term 4.5% historical
10		market risk premium reported in the same publication for the same period but this time
11		based on geometric averages. From these three estimates, Mr. Parcell concludes that the
12		market risk premium is 5.8%, that is, the average of the three MRP estimates. I disagree
13		with these estimates for several reasons.
14		
15	Q.	**Do you agree with Mr. Parcell's first estimate of 7.0% for the MRP?**
16	A.	Yes, I do.
17		
18	Q.	**Do you agree with Mr. Parcell's second MRP estimate of 6.0%?**
19	A.	No, I do not. For his second MRP, Mr. Parcell used a historical MRP of 6.0% drawn
20		from the Duff & Phelps compilation of historical returns. As I discussed in my direct
21		testimony and earlier in my rebuttal of Mr. Rush, the more accurate way to estimate the
22		MRP from historical data is to use the *income* return, not *total* returns, on government
23		bonds. The long-term MRP based on income returns, as required, is 1.0% higher than the
24		estimate based on total bond returns, that is, 7.0%, rather than 6.0%, the same as his first
25		estimate.
26		
27	Q.	**Do you agree with Mr. Parcell's third MRP estimate of 4.5%?**
28	A.	No. I strongly disagree with Mr. Parcell's third MRP estimate of 4.5%. For his third
29		MRP, Mr. Parcell uses a historical risk premium of 4.5% based on the aforementioned
30		Duff & Phelps historical MRP, only this time relying on the geometric average of
31		historical returns instead of the arithmetic average of historical returns.

1	Q.	**Is it appropriate to use geometric averages in measuring expected return?**
2	A.	No, it is not. As discussed extensively in my direct testimony and earlier in my rebuttal
3		of Mr. Rush, arithmetic means are appropriate for forecasting and estimating the cost of
4		capital, while geometric means are not. Please see Roger A. Morin, *The New Regulatory*
5		*Finance*, chapter 11 (2006) for a discussion regarding the theoretical underpinnings,
6		empirical validation, and the consensus of academics on why geometric means are
7		inappropriate for forecasting and estimating the cost of capital. The Duff & Phelps
8		valuation yearbook on which Mr. Parcell bases this estimate also contains a lengthy
9		discussion and demonstration of the impropriety of using the geometric mean when
10		estimating the cost of equity capital.
11		
12	Q.	**What MRP should Mr. Parcell have used in his CAPM analysis?**
13	A.	Averaging the first estimate of 7.0% with the amended second estimate of also 7.0%, and
14		ignoring the estimate based on geometric returns, a MRP of 7.0% is produced. Mr.
15		Parcell should have used 7.0% instead of 5.8%.
16		
17	Q.	**What is the effect of using the correct MRP of 7.0% instead of Mr. Parcell's 5.8%**
18		**estimate on his CAPM results?**
19	A.	Mr. Parcell's use of 5.8% MRP instead of the correct MRP of 7.0% understates his
20		CAPM estimates by 90 basis points from this correction alone. Using Mr. Parcell's
21		average beta of 0.76 for his first group of peer companies, the understatement is
22		calculated as follows:
23		$\beta_{OG\&E}$ x (Arithmetic Mean – Geometric Mean)
24		0.76 x (7.0% – 5.8%) = 0.76 x (1.2%) = 0.90%
25		**Comparable Earnings Analysis**
26	Q.	**Do you agree with Mr. Parcell's Comparable Earnings Analysis?**
27	A.	Although I myself do not rely on this accounting-based method, I agree with Mr.
28		Parcell's Comparable Earnings results.
29		

		7. **RESPONSES TO MR. PARCELL'S CRITICISMS**
1		
2	Q.	**Is Mr. Parcell correct that the Empirical CAPM inflates the returns for the selected**
3		**company or industry?**
4	A.	The empirical CAPM does not inflate the CAPM result for the selected company or
5		industry. For companies with betas less than one, the CAPM understates the return; for
6		companies with betas greater than one, the CAPM overstates the return. Please see
7		Appendix A of my direct testimony and Chapter 6 of my *The New Regulatory Finance*
8		textbook for a discussion of the conceptual and empirical foundations of the empirical
9		CAPM. As discussed earlier in my rebuttal, the plain vanilla CAPM used my Mr.
10		Parcell understates the cost of equity by 50 basis points.
11		

Historical Risk Premium

13	Q.	**Mr. Parcell disagrees with the risk premium methodology because economic**
14		**conditions today are different and risk premiums are unstable from year to year.**
15		**How do you respond?**
16	A.	Mr. Parcell critiques the risk premium method on two grounds: (i) the method assumes
17		that past is prologue, and (ii) the method assumes that the risk premium is constant over
18		time whereas in fact the risk premium results are dominated by the influence of capital
19		gains in many years.
20		The first criticism is unwarranted. I employed returns realized over long time
21		periods rather than returns realized over more recent time periods. Realized returns can
22		be substantially different from prospective returns anticipated by investors, especially
23		when measured over short time periods. A risk premium study should consider the
24		longest possible period for which data are available. Short-run periods during which
25		investors earned a lower risk premium than they expected are offset by short-run periods
26		during which investors earned a higher risk premium than they expected. Only over long
27		time periods will investor return expectations and realizations converge, or else, investors
28		would never commit any funds.
29		I have ignored realized risk premiums measured over short time periods because
30		they are heavily dependent on short-term market movements. Instead, I have relied on
31		results over periods of enough length to smooth out short-term aberrations, and to

1   encompass several business and interest rate cycles. By using the entire study period to

2   estimate the appropriate market risk premium, subjective judgment is minimized and

3   many diverse regimes of inflation, interest rate cycles, and economic cycles spanned.

4   Mr. Parcell's second concern is unwarranted as well. The influence of

5   unexpected capital losses offsets the influence of unexpected capital gains. To the extent

6   that the estimated historical equity risk premium follows what is known in statistics as a

7   random walk, one should expect the equity risk premium to remain at its historical mean.

8   Thus, the best estimate of the future risk premium is the historical mean. As I explained

9   in my direct testimony, since there is no evidence that the MRP in common stocks has

10   changed over time (i.e., no significant serial correlation in the Duff & Phelps historical

11   return data), it is reasonable to assume that these quantities will remain stable in the

12   future.

13

14   Q.   **What do you conclude from Mr. Parcell's ROE recommendation?**

15   A.   Mr. Parcell's recommended ROE is understated. Focusing on the DCF results,

16   recognition of the proper functional form would add 12 basis points to the result, the use

17   of analysts' growth forecasts would add 70 basis points, and the flotation cost adjustment

18   would add 20 basis points, for a total of 100 basis points. Thus, Mr. Parcell's original

19   8.9% DCF result is understated by 100 basis points and becomes 9.9%, coincidentally the

20   same as my recommended ROE for OG&E.

21   Focusing on the CAPM results, the use of a forecast instead of a current risk-free

22   rate in the CAPM analysis would add 141 basis points to the result, the use of an

23   appropriate MRP would add 90 basis points, and the flotation cost adjustment would add

24   20 basis points, for a total of 251 basis points. Thus, Mr. Parcell's original 7.15% CAPM

25   result is understated by 251 basis points, and becomes 9.7%. The use of the Empirical

26   version of the CAPM would increase this result by a further 50 basis points to 10.2%.

1   I have replicated below the final results of Mr. Parcell's three ROE analyses

2   shown on Page 48 of Exhibit DCP-1 along with the amended results:

3   Mr. Parcell's Original & Amended Results

	Original	Amended
DCF	8.90%	9.90%
CAPM	7.15%	10.20%
CE	9.50%	9.50%

9   The amended results produce a range of 9.50% - 10.20% with a midpoint of 9.9%,

10   which is identical to my recommendation of 9.9%.

11

12   **III.   COMMENTS ON MR. WALTERS' TESTIMONY**

13   Q.   **Please summarize Mr. Walters' rate of return on equity recommendation.**

14   A.   Mr. Walters recommends that a return on equity of 9.35% be authorized for OG&E. In

15   determining the cost of equity, Mr. Walters' applies three DCF analyses to a group of 16

16   electric utilities: a classic constant growth DCF analysis, a constant sustainable growth

17   analysis, and a multi-stage growth DCF analysis. The results of the three DCF analyses

18   for the proxy companies are summarized on Table 8 page 47 of his testimony. Mr.

19   Walters concludes that his DCF results support an ROE of 9.1% primarily based on his

20   classic constant growth DCF result.   The other two DCF analyses are given very little, if

21   any, weight.

22   Mr. Walters also applies a risk premium analysis based on the difference between

23   the ROEs authorized by regulators for electric utilities and the contemporaneous level of

24   interest rates.   Mr. Walters concludes that a return in the range of 9.2% to 9.9% with a

25   midpoint of 9.6% is indicated by his risk premium results.

26   Finally, Mr. Walters applies a CAPM analysis to the same group of companies

27   used in his DCF analyses and as shown on page 49 obtains a ROE in the range of 8.2% to

28   9.4%, but places his primary reliance on his high-end CAPM return of 9.4%.

29   From all these results summarized on Table 9 page 58, Mr. Walters estimates an

30   ROE for OG&E of 9.35% which is the midpoint of his estimated range of 9.1% to 9.6%.

1	Q.	**What are the basic conclusions of your rebuttal testimony to Mr. Walters' cost of**
2		**equity testimony?**
3	A.	While I agree with several of Mr. Walters' procedures and methodologies, as I will
4		demonstrate below, Mr. Walters' understates the appropriate ROE for OG&E. If Mr.
5		Walters' various results are amended to reflect proper data inputs to the financial models,
6		Mr. Walters' revised ROE recommendation would be identical to the Company's
7		requested 9.9%. I also agree with Mr. Walters' capital structure recommendation
8		consisting of 53% common equity capital.
9		
10	Q.	**Please summarize your comments on Mr. Walters' testimony.**
11	A.	I stress from the start that I agree with several of Mr. Walters' views and procedures in
12		estimating OG&E's cost of equity. Mr. Walters' procedures and methodologies are
13		generally sound and in keeping with the practices of finance professionals. For example,
14		I agree with: (i) his use of analysts' growth forecasts as proxies for expected growth in
15		the classic constant growth DCF model and first stage of the multi-stage DCF model; (ii)
16		the beta estimates in the CAPM analysis, and (iii) the broad outline of his risk premium
17		analysis. My disagreements center more on some of the appropriate data inputs to the
18		various models.
19		Specifically, I disagree with Mr. Walters' on the following grounds: (1) the
20		absence of a flotation cost adjustment; (2) the use of the sustainable growth version of the
21		DCF model, (3) the risk-free rate proxy in the CAPM and Risk Premium analyses, (4) the
22		failure to employ the empirical version of the CAPM in keeping with the vast literature
23		on the subject; and (5) the failure to account for the inverse behavior between the allowed
24		risk premium and the level of interest rates. I also conclude that his criticisms of my
25		testimony are unfounded. I shall now address each of those issues in turn.
26		
27		**1. DCF DIVIDEND YIELD AND FLOTATION COSTS**
28	Q.	**Do you have any comment concerning Mr. Walters' dividend yield component?**
29	A.	Yes. As discussed earlier in my rebuttal of Mr. Rush and Mr. Parcell, the expected
30		dividend yield component of the DCF model should be adjusted for flotation cost by
31		dividing it by $(1 - f)$, where f is the flotation allowance factor. Mr. Walters' dividend

1   yield component is understated by approximately 20 basis points because it does not

2   allow for flotation costs, and, as a result, a legitimate stockholder expense is left

3   unrecovered. I refer to my earlier discussion of this issue in my rebuttal of Mr. Rush's

4   testimony.

5

6   Q.   **Please comment on Mr. Walters' criticism of your flotation cost adjustment.**

7   A.   Mr. Walters' only argument against my flotation cost adjustment is that it is not based on

8   OG&E-specific costs.   That argument is specious.   OG&E's external common equity

9   capital is raised by its parent OG&E Energy. The parent-subsidiary relationship does not

10   eliminate the costs of common stock issues, but merely transfers them to the parent. It

11   would be unfair and discriminatory to subject parent shareholders to dilution while

12   subsidiary shareholders are absolved from such dilution. Fair treatment must consider that if

13   the utility subsidiary had gone to the capital marketplace directly, flotation costs would have

14   been incurred.

15   Moreover, to base a flotation cost allowance on a one-company sample, although

16   company specific, would not provide a sufficiently reliable statistical and economic basis to

17   infer a utility's appropriate flotation cost allowance. While it is conceptually correct to rely

18   on the particular company circumstances in quantifying the flotation cost allowance, it is not

19   a practical alternative. A practical and correct alternative is to rely on the results of several

20   academic empirical studies of utility stock offerings, which is what I have done.   See

21   Appendix A of my direct testimony for further details on this issue.

22

23   **2.   SUSTAINABLE GROWTH**

24   Q.   **Please comment on Mr. Walters' sustainable growth estimate in the DCF model.**

25   A.   In order to estimate the growth component of the DCF model, Mr. Walters' also relies on

26   the sustainable (a.k.a. retention) growth approach, where the growth rate is based on the

27   equation $g = b(ROE)$; b is the percentage of earnings retained and ROE is the expected

28   rate of return on book equity (ROE).

29   As I discussed earlier in my rebuttal of Mr. Parcell, the method is logically

30   circular, for it requires Mr. Walters to assume the ROE answer to begin with, and is

31   inconsistent with the academic empirical evidence. I refer to my rebuttal of Mr. Parcell

1	on the flaws inherent in this methodology. I therefore recommend that the Commission
2	place little, if any, reliance on this methodology. As a matter of fact, Mr. Walters himself
3	places no weight on these results as can be seen from his summary of DCF results on
4	Table 8 page 57, and his comment on that table whereby he places primary reliance on
5	his constant growth DCF model.
6	
7	**3. CAPM RISK-FREE RATE**
8	Q. **Does Mr. Walters perform a CAPM analysis?**
9	A. Yes, he does.
10	
11	Q. **What inputs does Mr. Walters use in his CAPM analysis?**
12	A. Three inputs are required to implement the CAPM: the risk-free rate, the beta risk
13	measure, and the market risk premium (MRP). As stated on page 58 lines 6-8, Mr.
14	Walters' uses 3.80% for the risk-free rate, 0.73 for the beta estimate, and a MRP range of
15	6.1% - 7.7% whose midpoint is 6.9%.
16	
17	Q. **Do you agree with Mr. Walters' beta estimate?**
18	A. Yes. I do.
19	
20	Q. **Do you agree with Mr. Walters' MRP estimate?**
21	A. Nearly so. Mr. Walters' ERP midpoint estimate of 6.9% is nearly identical to my own
22	estimate of 7.0%. In the interest of time and space, I will not rebut Mr. Walters' MRP
23	estimate.
24	
25	Q. **What risk-free rate does Mr. Walters' adopt in his CAPM and Risk Premium**
26	**analyses?**
27	A. Mr. Walters' uses *Blue Chip Financial Forecasts*' projected 30-year Treasury bond yield
28	of 3.80% as his risk-free input in the CAPM and Risk Premium analyses.

1	Q.	**Do you agree with this risk-free estimate?**
2	A.	No, I do not, for it is too low. Mr. Walters should have used 4.32% based on several
3		projections which I described earlier on Table 2. I was surprised by Mr. Walters' sole
4		reliance on the Blue Chip forecasts. When it came to GDP forecasts to implement the
5		multi-stage DCF model, Mr. Walters' relied on a wide variety of forecasts as seen on his
6		Table 7 page 45 of his testimony. Strangely, he did not rely on the same sources for his
7		forecasts of the risk-free rate.
8		All the economic forecasts that I am aware of, as shown on Table 2 earlier, many
9		of which are from the same sources cited on Table 7 page 45 of Mr. Walters' testimony,
10		anticipate a substantial and steady increase in interest rates from 2018 onward. In
11		summary, the average long-term interest rate on 30-year Treasury bonds is 4.3%. As a
12		result, Mr. Walters' CAPM and Risk Premium estimates are understated by 50 basis
13		points (4.3% - 3.8% = 0.50%). That in itself would raise his recommended ROE by
14		0.50%, from his CAPM estimate of 9.40% to 9.9%, which is identical to my
15		recommendation of 9.9%.
16		

4. CAPM UNDERSTATEMENT

18	Q.	**Does Mr. Walters' version of the CAPM underestimate the appropriate cost of**
19		**capital?**
20	A.	Yes, it does. As was discussed earlier in my rebuttal of Mr. Rush's CAPM analysis, a
21		CAPM-based estimate of the cost of capital underestimates the return required from low-
22		beta securities and overstates the return from high-beta securities, based on the empirical
23		evidence. Mr. Walters' version of the CAPM underestimates equity costs by about 50
24		basis points from this bias.
25		

5. RISK PREMIUM ANALYSIS

27	Q.	**Do you agree with Mr. Walters' historical risk premium analysis?**
28	A.	No, I do not.

1	Q.	**How does Mr. Walters' estimate the historical risk premium estimates?**
2	A.	Mr. Walters' estimates the difference between the required return on utility common
3		equity investments and both U.S. Treasury bond yields and yields on A-rated utilities
4		over the 1986- 2018 period bonds to arrive at two risk premia.
5		Based on this analysis, as shown at the bottom of Column 3 in Exhibits CCW-14
6		and CCW-15, the average indicated equity risk premium is 5.5% over U.S. Treasury
7		bond yields and 4.1% over Moody's utility bond yield.
8		
9	Q.	**What is wrong with Mr. Walters' historical risk premium estimates?**
10	A.	Two things. First, it is based on the wrong risk-free rate forecast. Had he relied on the
11		long-term interest rate forecast of 4.32% instead of 3.8%, his risk premium results would
12		have been 0.50% higher, as was the case earlier with his CAPM estimates. Second, Mr.
13		Walters' analysis does not recognize the inverse relationship between the risk premium
14		and interest rates, as I did in my direct testimony.
15		
16	Q.	**Does Mr. Walters recognize the inverse relationship between risk premia and the**
17		**level of interest rates?**
18	A.	No, he does not. In his risk premium analysis, Mr. Walters' examines the historical risk
19		premia implied in the ROEs authorized by regulators over the period 1986-2018 relative
20		to the contemporaneous level of long-term Treasury bond and "A" rated utility bond
21		yields. Although the average ROE spread over long-term Treasury yields is currently
22		5.5% as reported at the bottom of the last column on Exhibit CCW-14, I disagree with
23		this estimate because of the rising trend of the risk premium in response to lower interest
24		rates, ignored by Mr. Walters. That is evident from Mr. Walters' own data. On Mr.
25		Walters' Schedule CCW-14, the risk premium reported for 2018 is 6.56%, which is 116
26		basis points (1.16%) in excess of Mr. Walters' average risk premium of 5.50% for the
27		whole period.
28		The reason why I disagree with Mr. Walters' risk premium range is because the
29		rising trend of the risk premium in response to lower interest rates is ignored by Mr.
30		Walters. As was the case in my own very similar risk premium analysis, a careful
31		review of ROE decisions relative to interest rates reported in Mr. Walters' Exhibit CCW-

1		14 reveals a narrowing of the risk premium in times of rising interest rates, and a
2		widening of the premium as interest rates fall. In my direct testimony, I estimated the
3		following statistical relationship between the risk premium (RP) and Treasury bond
4		yields (YIELD) over the 1986-2016 period:

5          $$RP \ = \ 8.1900 \ - \ 0.4705 \ YIELD \qquad\qquad R^2 = 0.83$$

6   The relationship is statistically significant as indicated by the high R^2 of 0.83.

7   Inserting the current long-term Treasury bond yield of 3.8% used by Mr. Walters' in the

8   above equation suggests a risk premium estimate of 6.4%. This in turn implies an

9   allowed ROE of 10.2% in sharp contrast to Mr. Walters' risk premium estimate of 9.6%.

10

11   **III.   RESPONSE TO MR. WALTERS' COMMENTS**

12   **Flotation Cost Allowance**

13   Q.   **Please respond to Mr. Walters' criticism of your flotation cost allowance.**

14   A.   Mr. Walters argues that the flotation cost allowance should be rejected because: 1) it is

15   not based on actual company-specific common stock issues and associated fees and

16   expenses, and 2) it should not be applied to the retained earnings component of common

17   equity capital. I disagree on both counts.

18   As discussed earlier, while it would preferable to use actual expenses and fees

19   from recent issuances of common stock by the company, finding a representative average

20   flotation cost percentage from a myriad empirical studies of utility stock offerings is a

21   fallback position and is statistically far more accurate when company-specific

22   information is unavailable.   This is exactly what I have done as fully described in

23   Appendix A of my direct testimony.

24   With regards to Mr. Walters' second point of contention as to whether or not the

25   retained earnings component of equity requires a flotation cost adjustment, the conventional

26   flotation cost adjustment formula deals with the fact that flotation costs are incurred only

27   when new stock is sold, and not when earnings are retained. This is done by applying the

28   flotation adjustment only to the dividend yield of the DCF formula and not to the growth

29   component. The larger the fraction of earnings retained, the higher the growth rate, the

30   lower the dividend yield component, and the smaller the flotation costs adjustment. In other

1		words, larger retained earnings result in lower flotation cost adjustments as the costs are
2		postponed into the future. In short, Mr. Walters' criticism is quite unfounded.
3		

DCF Results and Peer Group Companies

5	Q.	**How do you respond to Mr. Walters' criticism of your DCF results on the grounds**
6		**that two Canadian utility companies, Fortis and Emera, should be excluded from**
7		**the analysis.**
8	A.	I disagree. First, both Fortis and Emera own U.S. electric utilities and are both covered in
9		the Value Line data base. Second, investors are certainly not precluded from investing in
10		cross-border utility stocks such as Fortis and Emera, especially given their strong
11		presence and exposure in the U.S. electric utility industry.
12		

CAPM Risk-Free Rate

14	Q.	**Please comment on Mr. Walters' criticism of your CAPM analysis.**
15	A.	On pages 68 of his testimony, Mr. Walters argues that my CAPM estimate is too high
16		because my 4.4% risk-free rate exceeds both the current level of Treasury bond yields of
17		3.05% and the Blue Chip Economic forecast of 3.80%. I have two responses. First, The
18		Blue Chip Financial Forecasts is not necessarily the consensus and is but one forecast and
19		is certainly not representative of the consensus as shown earlier on Table 2 which
20		displays the interest rate forecast from several well-known authoritative sources. The
21		average forecast of these authoritative resources is 4.32%, and there is little variability
22		among the forecasts. Clearly, The Blue Chip Financial Forecasts forecast of 3.8% appears
23		as an outlier.
24		Second, I believe that the Blue Chip Financial Forecasts are for only the next five-
25		and ten-year periods, whereas the interest rate forecasts shown earlier on Table 2 are
26		based on much longer time periods, which is quite consistent with the DCF model's long-
27		term horizon requirements and with what investors can reasonably expect to occur over
28		the very long-run horizon of the DCF model.
29		

1		**Empirical CAPM**
2	Q.	**Please comment on Mr. Walters' assessment of the Empirical CAPM used in your**
3		**testimony.**
4	A.	Mr. Walters' argues, on pages 69-73 of his testimony, that my ECAPM analysis is
5		erroneous because the reason for using the ECAPM is to allow for the tendency of betas
6		to regress toward the mean value of 1.00 over time, and, since I have already used Value
7		Line betas which are adjusted for such trend, my ECAPM analysis somehow results in
8		double-counting. I do not share the view that the ECAPM is equivalent to a beta
9		adjustment. As I discussed earlier in my rebuttal of Mr. Rush, the ECAPM is consistent
10		with both theory and with a huge body of empirical evidence, and has the added
11		advantage of computational simplicity. In short, Mr. Walters' errs in his view that the
12		use of the ECAPM results in double-counting risk.
13		
14	Q.	**Do you have any comments regarding Mr. Walters' concerns with your empirical**
15		**CAPM analysis?**
16	A.	Yes. Mr. Walters' purported concerns with my empirical CAPM analysis arise from his
17		confusing the adjustment of beta with the empirical CAPM. As previously discussed in
18		my direct testimony and in Appendix B, there is considerable academic and regulatory
19		support for the use of the empirical CAPM. As explained in my direct testimony and
20		supporting Appendix B, it is essential to take into account the reality that the empirical
21		Security Market Line described by the traditional CAPM is not as steeply sloped as the
22		predicted Security Market Line. The empirical CAPM is thus a return adjustment which
23		accounts for this reality and is not, as Mr. Walters claims, an adjustment to beta which is
24		an x-axis adjustment accounting for regression bias. Hence, the use of adjusted betas is
25		not equivalent to the empirical CAPM. Mr. Walters' criticisms are unfounded.
26		Mr. Walters also erroneously argues on page 72 that there is no evidence
27		supporting the empirical CAPM that rely on Value Line adjusted betas. I provided a
28		substantial bibliography of evidence supporting the empirical CAPM in Appendix B of
29		my direct testimony, including my own.

1

2　Q.　**Please comment on Mr. Walters' first criticism of your historical risk premium**

3　　　**analysis.**

4　A.　On page 74 of his testimony, Mr. Walters takes issue with my historical risk premium

5　　　analysis because it is based on an overstated risk-free rate of 4.4% rather than his Blue

6　　　Chip forecast of 3.8%. I have already discussed the lack of representativity of Mr.

7　　　Walters' 3.8% risk-free rate.

8　　　　Mr. Walter's second concern is unwarranted as well. Over very long time periods

9　　　such as used in my historical risk premium studies, the influence of unexpected capital

10　　　losses offsets the influence of unexpected capital gains on both bond and stock returns.

11

12　**Inverse Relationship Between Interest Rates and Risk Premium**

13　Q.　**Is Mr. Walters' correct that the inverse relationship between equity risk premiums**

14　　　**and interest rates is not supported by academic research?**

15　A.　No. On page 79, lines 18-20, Mr. Walters erroneously argues that the inverse relationship

16　　　between equity risk premiums and interest rates is not supported by academic research.

17　　　My first reaction was to simply point to the graph on page 44 of my direct testimony,

18　　　which shows a very clear significant negative relationship.

19　　　　Contrary to Mr. Walters' contention that the finance literature does not fully endorse

20　　　the notion that the risk premium shrinks as interest rates decline, there is an abundance of

21　　　studies that support the notion. Published studies demonstrate that, beginning in 1980, risk

22　　　premiums varied inversely with the level of interest rates, rising when rates fell and

23　　　declining when interest rates rose.[6]

24　　　　Regulators have recognized this tendency as well. The California Public Utility

25　　　Commission recognizes that the cost of equity does not move in tandem with interest

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[6]　*See, e.g.,* Willard T. Carleton, *et al.,* "Inflation Risk and Regulatory Lag," 38 *The Journal of Finance* 419–43 (1983); Eugene F. Brigham, *et al.,* "The Risk Premium Approach to Measuring a Utility's Cost of Equity," 14 *Financial Management* 33-45 (1985); Robert S. Harris, "Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return," 15 *Financial Management* 58–67 (1986); Robert S. Harris & Felicia C. Marston, "Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts," 21 *Financial Management* 63-70 (1992); and Farris M. Maddox, *et al.,* "An Empirical Study of Ex Ante Risk Premiums for the Electric Utility Industry," 24 *Financial Management* 89-95 (1995).

1   rates, and its long-standing practice has been to adjust the cost of equity by one-half to

2   two-thirds of the change in bond yields.

3   The reason for this relationship is that when interest rates rise, bondholders, whose

4   interest rates are fixed, often suffered a decrease in the market value of their bonds,

5   experiencing a capital loss. This is referred to as interest rate risk. Stockholders, on the other

6   hand, are more concerned with the firm's earning power.

7   In order to avoid interest rate risk in an environment of rising interest rates, investors

8   tend to become more willing to undertake equity investments which, although subject to

9   some fear of loss of earning power, are less sensitive to the fear of interest rate risk. The

10   resulting increase in the supply of funds available for such equity investments causes

11   downward pressure on the market price for equity.

12   So, generally it is observed that if bondholders' fear of interest rate risk exceeds

13   shareholders' fear of loss of earning power, the risk differential will narrow and hence the

14   risk premium will shrink. This is particularly true in high inflation environments. Interest

15   rates rise as a result of accelerating inflation, and the interest rate risk of bonds intensifies

16   more than the earnings risk of common stocks, which are partially hedged from the ravages

17   of inflation. This phenomenon has been termed as a "lock-in" premium. Conversely in low

18   interest rate environments, as is the case currently, when bondholders' interest rate fears

19   subside and shareholders' loss of earning power dominate, the risk differential will widen

20   and hence the risk premium will increase.

21   These empirical studies show that equity risk premiums have consistently

22   increased as interest rates have declined. This result is a simple reflection of the fact that

23   required rates of return in the stock market are not entirely dependent on changes in

24   interest rates. Because utilities have to compete with other companies and with other

25   types of equity investments for money, the return on equity for utilities does not change

26   by as much as the observed changes in interest rates. The use of an unadjusted simple

27   average of long-term equity risk premiums with current interest rates would be simply

28   wrong. Such an approach would consistently understate the required return on equity.

29   In short, the empirical evidence from the published academic literature

30   demonstrates that the risk premium varies inversely with the level of interest rates,

1		contrary to Mr. Walters' view. The relationship remains true today, as evidenced by the
2		graph provided on page 44 of my direct testimony.
3		

Accuracy of Forecasts

5	Q.	**Dr. Morin, do you agree with Mr. Walters that the accuracy of interest rate**
6		**forecasts is problematic?**
7	A.	No, I do not. On pages 78-79 Mr. Walters suggests that little weight should be accorded
8		to interest rate forecasts because they are often wrong, implying that they should not be
9		used as proxies for the risk-free rate in implementing financial models. Mr. Walters does
10		not offer any published academic supportive evidence for that statement. One wonders
11		if Mr. Walters feels the same way about analyst growth forecasts on which he relies upon
12		in his DCF analysis which often turn out to be wrong.
13		I disagree with Mr. Walters' point of view on economic forecasts. Investors'
14		required returns can and do shift over time with changes in capital market conditions,
15		hence the importance of considering interest rate forecasts. The fact that organizations
16		such as Value Line, IHS (Global Insight), EIA, and Blue Chip among many others devote
17		considerable expertise and resources to developing an informed view of the future, and
18		the fact that investors are willing to purchase such expensive services confirms the
19		importance of economic/financial forecasts in the minds of investors. Moreover, the
20		empirical evidence demonstrates that stock prices do indeed reflect prospective financial
21		input data.
22		Moreover, given that this proceeding is to provide ROE estimates for future
23		proceedings, forecast interest rates are far more relevant. I note that Mr. Walters and
24		other witnesses in this case generously uses projections of other financial variables in
25		DCF analyses. In particular, all witnesses in this case rely extensively on growth
26		projections in their DCF analyses. So, it would make little sense to use projections for
27		most of the financial variables required by financial models, but not for interest rates.
28		Indeed, investors so price securities on the basis of long-term expectations, including
29		interest rates. Cost of capital models, including CAPM estimates, are prospective (*i.e.*
30		forward-looking) in nature and must take into account current market expectations for the

1		future because investors price securities on the basis of long-term expectations, including
2		interest rates.
3		
4		**Multi-Stage DCF Analysis and Gross Domestic Product Growth**
5	Q.	**Please comment on Mr. Walters' implementation of his multi-stage DCF analysis.**
6	A.	On pages 39 to 47, Mr. Walters' testimony contains a long protracted analysis of
7		OG&E's cost of equity using the multi-stage DCF model. In the interest of time and
8		space, I will only make brief comments on this analysis, since Mr. Walters himself does
9		not seem to have much faith in the results from this method. As shown on Table 7 page
10		45 of his testimony, Mr. Walters' final DCF estimate is 9.1%, and the multi-stage DCF
11		results are ignored.
12		The central assumption of this approach, and its Achilles' heel in my view, is that
13		utility growth rates match that of the macroeconomy. I am not an enthusiastic proponent
14		of this approach because I am not aware of any financial literature supporting the notion
15		that that utility earnings per share would grow at the average growth of the economy, or
16		GDP growth. To the best of my knowledge, there is no empirical support for the notion
17		that the earnings and dividends of utility companies, in general, or electric utilities, in
18		particular, or indeed any specific company or industry, track GDP growth. Nor am I
19		aware of any evidence that the investment community looks to GDP growth over the next
20		several decades when evaluating utility investments.
21		However, based upon the wealth of empirical and academic literature which
22		supports the superiority of analyst's forecasts as measures of investor expectations for the
23		use of such forecasts in the DCF model, current earnings growth forecasts are the
24		appropriate growth rates to use in a DCF analysis. As discussed earlier in my rebuttal
25		and in my direct testimony, there is considerable empirical evidence in the academic
26		literature that support the superiority of analysts' forecasts of earnings per share as
27		measures of investor expectations. Besides, to the extent that economic trends influence
28		growth, they are already captured in analysts' growth estimates for electric utilities.
29		In any event, Mr. Walters himself does not appear to place much faith on his
30		multi-stage DCF model which is predicated on the idea that utilities grow at the same rate

1		as the general macro-economy, for he places no weight at all on the results of his multi-
2		stage DCF model.
3		
4		**Witnesses' Capital Structure Recommendations**
5	Q.	**Do you agree with Mr. Rush's capital structure recommendation?**
6	A.	Yes, I do, for it is the same as mine, namely, a capital structure consisting of 53%
7		common equity capital.
8		
9	Q.	**Do you agree with Mr. Walters' capital structure recommendation?**
10	A.	Yes, I do. Despite his criticisms of my capital structure discussion, we both agree with
11		the Company's proposed capital structure consisting of 53% common equity as is evident
12		from his final cost of capital calculation on Exhibit CCW-1.
13		
14	Q.	**Do you agree with Mr. Griffing's capital structure recommendation?**
15	A.	No, I do not. Mr. Griffing's advocates a fictitious hypothetical capital structure
16		consisting of 50% equity and 50% debt.
17		
18	Q.	**Do you agree with Mr. Parcell's capital structure recommendation?**
19	A.	No, I do not. As was the case with Mr. Griffing, Mr. Parcell also advocates a fictitious
20		hypothetical capital structure consisting of 50% equity and 50% debt.
21		
22	Q.	**Why do you disagree with the fictitious capital structure recommended by Mr.**
23		**Griffing and Mr. Parcell?**
24	A.	In my direct testimony, I showed that the average common equity ratio for the operating
25		electric utilities in my peer group of companies in 2017 was 53%, the same as the
26		Company's requested common equity ratio. I also showed that for a single A bond
27		rating, which is OG&E's bond rating, and which I consider optimal and cost efficient for
28		ratepayers, Moody's benchmark for such a rating is debt ratio range of 35%-45%,
29		implying a common equity ratio range of 55% - 65%. Even for a Baa bond rating, the
30		corresponding debt ratio range is 45% - 55%, implying a common equity range of 45% -
31		55%, consistent with OG&E's 53% ratio. It is quite clear from these multiple

1   perspectives that OG&E's 53% common equity ratio is appropriate and that a 50/50

2   hypothetical capital structure is inconsistent with the capital structure ratios required for

3   an optimal cost efficient bond rating and at odds with the common equity ratios of

4   comparable risk electric utilities.

5

6   **CONCLUSIONS**

7   Q.   **What do you conclude from Mr. Walters' cost of equity analyses?**

8   A.   I agree with several of Mr. Walters' views and procedures: (i) his sample of utility

9   companies in his DCF and CAPM analyses; (ii) his use of analysts' growth forecasts as

10   proxies for expected growth in the classic DCF model; (iii) his beta estimates in the

11   CAPM analysis, (iv) his market risk premium component of the CAPM analysis; and (iv)

12   the broad outline of his risk premium analysis, although not the input data.

13   I disagree with Mr. Walters' on the following grounds: (i) the absence of a

14   flotation cost adjustment; (ii) an understatement of the risk-free rate in the CAPM and

15   Risk Premium analyses; (iii) the failure to employ the empirical version of the CAPM in

16   keeping with the vast literature on the subject; and (iv) the failure to account for the

17   inverse behavior between the allowed risk premium and the level of interest rates. I also

18   conclude that his criticisms of my testimony are unfounded.   My specific conclusions are

19   as follows:

20   1.   **DCF Dividend Yield and Flotation Costs.** Mr. Walters' return estimates

21   are understated by 20 basis points because he does not allow for flotation

22   costs, and, as a result, a legitimate stockholder expense is left unrecovered.

23   2.   **CAPM and Risk Premium; Risk-Free Rate.** Mr. Walters' risk-free rate

24   is understated by 0.70%.   Using the appropriate risk-free rate, Mr.

25   Walters' CAPM and Risk Premium estimates are to be raised by 70 basis

26   points from this correction alone.

27   3.   **CAPM Version.** The raw form of the CAPM used by Mr. Walters'

28   understates the cost of equity for low-beta securities by approximately 50

29   basis points.

30   4.   **Allowed Risk Premium Analysis.** Mr. Walters' allowed risk premium

31   analysis does not account for the inverse relationship between allowed

1   returns and the level of interest rates, understating returns by 120 basis

2   points.

3   **5.**   The table below recapitulates my findings with respect to Mr. Walters'

4   testimony. Column 1 shows the three methodologies employed. Column

5   2 shows Mr. Walters' original findings. Column 3 shows the 20 basis

6   points understatement due to the flotation cost adjustment. Column 4

7   shows the 50 basis points correction for the understated risk-free rate in

8   the CAPM and Risk Premium analyses. Column 5 shows the 50 basis

9   points understatement of the CAPM. Column 6 shows the 60 basis points

10   understatement of the Risk Premium results due to the unaccounted

11   inverse relationship between risk premiums and interest rates. The last

12   column sums the various understatements. The amended results range

13   from 9.1% to 10.6% with a midpoint of 9.9%, which is identical to the

14   Company's requested 9.9%.

15

Summary of Mr. Walters' Understatements

Financial Model	Walters' Original	Flotation Cost	Risk-free Rate	ECAPM Bias	Inverse Relation	Final Estimates
(1)	(2)	(3)	(4)	(5)	(6)	(7)
DCF	9.10	0.20	0.00	0.00	0.00	9.30%
CAPM	9.40	0.20	0.50	0.50	0.00	10.60%
Risk Premium	9.60	0.20	0.00	0.00	0.60	10.40%

16

17   **Midpoint 9.90%**

18 Q.   **Has Mr. Walters presented any arguments in his testimony that would cause you to**

19   **alter any of your recommendations and methodologies?**

20 A.   No, he has not.

21

1		**IV. REBUTTAL TO MR. GRIFFING'S TESTIMONY**
2	Q.	**Please summarize Mr. Griffing's rate of return recommendation.**
3	A.	Mr. Griffing recommends a ROE of only 9.18% for OG&E, which I believe would be
4		among the lowest authorized return in the entire electric utility industry. In determining
5		the cost of equity, Mr. Griffing applies a DCF analysis to a group of 17 electric utilities.
6		This study, summarized on page 35 of his testimony, produces a result of 9.18%. Mr.
7		Griffing also applied a two-stage DCF analysis on which he places no weight. Mr.
8		Griffing performs two CAPM analyses, although he does not rely on the results of these
9		analyses, and only uses their results as checks on the sole DCF estimate. The CAPM
10		analysis, summarized on page 39 of his testimony, produces a result of 9.01%. The
11		Empirical CAPM analysis, summarized on page 41 of his testimony, produces a result of
12		9.72%. Finally, on page 43 he examines recently authorized ROEs for electric utilities
13		which are in a 9.25% - 10.10% range in the period 2016-2018.
14		
15	Q.	**What is your first general reaction to Mr. Griffing's cost of common equity**
16		**recommendation?**
17	A.	His recommendation is quite confusing and contradictory, and does not follow from his
18		results. On page 43, he summarizes his ROE results as follows:
19		*"My recommended range is 9.01percent to 9.35 percent. The bottom of the*
20		*range is my CAPM result of 9.01 percent. I added the difference between*
21		*the CAPM and the DCF results to the DCF value of 9.18% to create the*
22		*top of my range. This symmetrical range is within the range of RRA ROEs*
23		*authorized over the last two years."*
24		In the next breath, Mr. Griffing states:
25		*"Of the models, the constant-growth DCF model relies the least on*
26		*analyst judgment, which makes it my preferred method. I recommend that*
27		*the Company be authorized an ROE of 9.18 percent."*
28		
29		I was totally confused by these statements, for they are quite contradictory and
30		inconsistent with Mr. Griffing's own results. First, Mr. Griffing ignores his ECAPM
31		result of 9.72% in defining the top end of his range. Second, he also ignores his range of

1   authorized ROEs of 9.25% - 10.10%.   Third, the 9.35% top of the range is a strange

2   mélange of the difference between the DCF and CAPM results. Clearly, that is not a

3   valid method to derive the top of a range which is in turn derived from the bottom of the

4   range.   That is circular logic. The top end of his results is actually 9.72% from the

5   ECAPM test, not 9.35%. If we include his study of authorized ROEs in the range of

6   9.25% - 10.10%, the top of his range is actually 10.10%.

7   Somehow, from all these results, Mr. Griffing concludes that OG&E's cost of

8   equity is 9.18%.   Mr. Griffing's conclusion is most confusing for it does not follow the

9   results from the various models and checks, and should be ignored by the Commission or

10   at least accorded it the weight it deserves.

11

12   Q.   **What is your second general reaction to Mr. Griffing's cost of common equity**

13   **recommendation?**

14   A.   My second general reaction to his recommendation, before I engage in a more technical

15   critique, is that Mr. Griffing's recommended 9.18% ROE lies outside the zone of

16   reasonableness and outside the zone of currently authorized ROEs for electric utilities in

17   the United States. Mr. Griffing's recommended reduction of the Company's ROE would

18   result in one of the lowest, ROE authorized in the entire utility industry in the country. As

19   I pointed out earlier in my rebuttal, the average authorized ROE for vertically integrated

20   electric utilities in 2017 was 9.80% which is far removed from Mr. Griffing's

21   recommended 9.18%.

22

23   Q.   **What is your third general reaction to Mr. Griffing's cost of common equity**

24   **recommendation?**

25   A.   My third general reaction is that his recommendation rests exclusively on the results of a

26   DCF analysis.   Mr. Griffing has put all of his eggs in the DCF basket which causes him

27   to recommend returns that are below investors' required returns. This narrow approach

28   stands in sharp contrast with the cost of capital estimation practices of investment

29   analysts, finance experts, and finance professionals who rely on a variety of

30   methodologies.   His CAPM check on the DCF result, on which he no weight is also

31   flawed, as I discuss later.

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1   Q.   **What are the basic conclusions of your rebuttal testimony to Mr. Griffing's cost of**

2   **equity testimony?**

3   A.   Mr. Griffing understates the appropriate ROE for OG&E.

4

5   Q.   **Please summarize your specific criticisms of Mr. Griffing's testimony.**

6   A.   I have a number of specific criticisms of Mr. Griffing's testimony:

7   **1. Return Recommendation Outside the Mainstream.** As succinctly

8   stated above, Mr. Griffing's recommended ROE is outside the zone of

9   currently authorized ROEs for utilities in the United States. The average

10   authorized ROE in the vertically integrated electric utility industry in 2017

11   is 9.8%**.**

12   **2. Questionable Peer Group of Companies.** Several of the companies in

13   Mr. Griffing's peer group include companies with natural gas operations.

14   This proceeding is an electric utility operations case, and not a gas case.

15   Also, the exclusion of certain companies from his screening process is

16   arbitrary.

17   **3. Risk-Free Rate**. Mr. Griffing has relied on an inappropriate risk-free

18   rate proxy in implementing the CAPM, understating those results by 132

19   basis points (1.32%).

20   **4. Market Risk Premium**. Mr. Griffing market risk premium (MPR)

21   estimate of 8.77% in the CAPM analysis is overstated. A more realistic

22   estimate is 7.0%

23   **5**. **Capital Structure Recommendation**. His recommended capital

24   structure of 50/50 is essentially pulled out of thin air and at odds with the

25   actual capital structures of operating electric utility companies.

26   I shall now discuss each criticism in turn as well as respond to Mr. Griffing's

27   criticisms of my testimony which are largely unfounded.

1. ALLOWED RETURNS

Q.   **How does Mr. Griffing's recommended ROE compare with currently allowed ROEs in the industry?**

A.   It is out of line. The average authorized ROE in the vertically integrated electric utility industry is 9.8%, at odds with Mr. Griffing's recommended 9.18%.

2. PEER GROUP

Q.   **Do you agree with Mr. Griffing's group of companies?**

A.   No, I do not.   Eight of the seventeen companies in Mr. Griffing's group possess significant natural gas operations.   This proceeding relates to electric operations of OG&E, and not to natural gas operations.   Mr. Griffing should have excluded these eight companies from his group: Alliant, Ameren, CMS Energy, Duke Energy, Eversource, Northwestern, Xcel, and Southern Company.   Moreover, Consolidated Edison is primarily a distribution utility and has no significant power generation operations, and purchases the vast majority of its power, and therefore should have been excluded. He is left with only eight companies which is a very small sample of companies likely to produce unreliable results.   Finally he excludes Black Hills and Entergy on the vague grounds that their earnings are erratic.   This last filter is unsubstantiated and arbitrary, and I suspect that this alleged erraticism would apply to several utility companies in Mr. Griffing's final sample.   In short, little weight should be given to his peer company group.

3. CAPM RISK-FREE RATE

Q.   **What input data does a CAPM analysis require?**

A.   To implement the CAPM, three quantities are required: the risk-free rate (R_F), beta (β), and the MRP (MRP). As shown on Exhibit MFG-13 Schedule 5, Mr. Griffing uses a risk-free rate of 3.06%, a beta of 0.68, and a MRP of 8.77%.

Q.   **Dr. Morin, do you agree with Mr. Griffing's beta estimate in the CAPM analysis?**

A.   Yes, I do. However, I point out that if the utility companies with natural gas operations are excluded from Mr. Griffing's peer group as discussed earlier, the average beta of the

1		electric group is 0.71, coincidentally the same estimate as the beta of my own comparable
2		group.
3		
4	Q.	**Dr. Morin, do you agree with Mr. Griffing's MRP estimated in the CAPM**
5		**analysis?**
6	A.	No, I believe it is too high. As discussed earlier in my rebuttal of the other witnesses, a
7		MRP of 7.0% is a more reasonable estimate.
8		
9	Q.	**Do you agree with Mr. Griffing's proxy for the risk-free rate in the CAPM analysis?**
10	A.	No I do not. Mr. Griffing uses current interest rates in his CAPM analysis instead of
11		forecast interest rates. As I have already discussed earlier in my rebuttal, given that this
12		proceeding is to provide ROE estimates for future proceedings, forecast interest rates are
13		far more relevant. I note that Mr. Griffing generously uses projections of other financial
14		variables in all his analyses. In particular, he relies extensively on earnings and growth
15		projections in his DCF analyses and uses Value Line projections in deriving the MRP in
16		his CAPM analysis. So, it is a mystery as to why he uses projections for most of his
17		financial variables, but not for interest rates.
18		In the same way that Mr. Griffing relies on forecast growth rates in his DCF
19		analyses, he should have relied on interest rate forecasts are proxies for the risk-free rate
20		in the CAPM analysis.
21		
22	Q.	**Is Mr. Griffing correct that little weight should be placed on interest rate forecasts**
23		**in projecting the risk-free rate for CAPM analyses because they are often wrong?**
24	A.	No, he is not. On page 53 Mr. Griffing suggests that investors and regulatory bodies
25		should place little weight on interest rate forecasts because they are often wrong, and
26		therefore should not be used as proxies for the risk-free rate in implementing the CAPM.
27		Mr. Griffing does not offer any published academic supportive evidence for that
28		statement. One wonders if Mr. Griffing feels the same way about analyst growth
29		forecasts on which he relies upon in his DCF analysis which often turn out to be wrong.
30		Investors' required returns can and do shift over time with changes in capital market
31		conditions, hence the importance of considering interest rate forecasts. Moreover, the

1		empirical evidence demonstrates that stock prices do indeed reflect prospective financial
2		input data.
3		Mr. Griffing also make the point that current interest rates already reflect
4		expectations. This point ignores the fact this proceeding is to provide ROE estimates for
5		future test years. Hence, forecast interest rates are far more relevant since rates are being
6		set for the future.
7		In response to Mr. Griffing's point that I have not relied on Blue Chip forecasts, I
8		have already rebutted in that issue in my rebuttal of Mr. Walters. The Blue Chip
9		Financial Forecasts is not necessarily the consensus and is but one forecast and is
10		certainly not representative of the consensus shown earlier on Table 2.
11		
12	Q.	**Dr. Morin, please provide a corrected rendition of Mr. Griffing's CAPM estimates.**
13	A.	Mr. Griffing should have used a risk-free rate of 4.32%, a beta of 0.71, and a MRP of
14		7.0%. Using the proper input data, the CAPM result is 9.3% which becomes 9.5% with a
15		flotation costs adjustment of 20 basis points[7], in contrast to his estimate of 9.0%. Using
16		the Empirical CAPM also used by Mr. Griffing, the amended result becomes 9.8% which
17		becomes 10.0% with the required flotation cost adjustment of 20 basis points[8], in contrast
18		to his estimate of 9.7%.
19		
20	Q.	**Do you agree with Mr. Griffing's assessment of the CAPM generic methodology?**
21	A.	No, I do not. On page 36 of his testimony lines 16-19, Mr. Griffing questions the value of
22		the CAPM to measure equity return "*because of the CAPM's extensive requirement for*
23		*judgment in selecting each of the inputs,*" and that "*the DCF is a more reliable method*".
24		My immediate reaction is that the same comments apply at least as forcefully to
25		the DCF model. I certainly agree with Mr. Griffing that judgment must be employed in
26		defining the inputs to the CAPM, but the same is true about the DCF model. In my
27		view, an inordinate amount of judgment is required to estimate the inputs to the DCF
28		model, particularly the elusive growth component. There are additional judgmental

---

[7] ROE = 4.32% + 0.71 x 7.00% = 9.3%
[8] ROE = 4.32% + 0.25 x 7.00% + 0.75 x 0.71 x 7.00% = 9.8%

1		elements, for example, the appropriate stock price, proxies for expected growth, sample
2		size, risk comparability of the sample, and so on. All financial models require the use of
3		judgment in defining the inputs data to these models, and the CAPM is no exception.
4		

5		**4. MARKET RISK PREMIUM**
6	Q.	**Do you agree with Mr. Griffing's MRP estimate in the CAPM analyses?**
7	A.	No, I do not. Mr. Griffing relies on a MRP of 8.77%. This is far too high. As previously
8		discussed, a MRP of 7.0% is a more reasonable estimate.
9		

10		**5. CAPITAL STRUCTURE**
11	Q.	**What capital structure does Mr. Griffing recommend?**
12	A.	As stated on pages 45-46, Mr. Griffing proposes a fictitious hypothetical capital structure
13		consisting of 50% equity and 50% debt. He offers no analyses, no exhibits, no references,
14		no calculations for this recommendation other than his casual examination of the ratios of
15		comparable companies. As I showed in my direct testimony, the average common equity
16		ratio of operating electric utilities is 53%, the same as the Company's requested capital
17		structure.
18		

19		**CONCLUSIONS**
20	Q.	**What do you conclude from Mr. Griffing's testimony?**
21	A.	I agree with several of Mr. Griffing's views and procedures: (i) his use of analysts'
22		growth forecasts as proxies for expected growth in the classic DCF model; (ii) his beta
23		estimates in the CAPM analysis, (iii) his flotation cost adjustment, (iv) his reliance on the
24		empirical version of the CAPM, and (v) his rejection of the results produced by the multi-
25		stage DCF model.
26		However, his ROE recommendation, which would represent among the lowest
27		allowed ROE in the country, should be rejected by the Commission.
28		Mr. Griffing has misstated his range of results. He claims that his recommended
29		range is 9.01% - 9.35% and recommends the midpoint 9.18% as OG&E's cost of equity.
30		In fact the top end of his results is 9.72% from the ECAPM test, not 9.35%. If we
31		include his study of authorized ROEs in the range of 9.25% - 10.10%, the top of his range

1		is actually 10.10%. The latter estimate is also the corrected ECAPM estimate.
2		Therefore, his actual range is 9.01% - 10.1%, with a midpoint of 9.6%. Even this
3		amended range is unreliable because it is based on a faulty peer group of companies, and
4		should be treated with extreme caution.
5		Mr. Griffing has also understated his CAPM results. Correcting these
6		understatements increases his CAPM and ECAPM results from 9.0% and 9.7% to 9.5%
7		and 10.0%, respectively.
8		
9	Q.	**Should the Commission rely exclusively on the DCF as Mr. Griffing does?**
10	A.	No, it should not. The Commission should consider all the relevant evidence presented.
11		
12	Q.	**Has Mr. Griffing presented any arguments in his testimony that would cause you to**
13		**alter any of your recommendations and methodologies?**
14	A.	No, he has not.
15		
16	Q.	**Does this complete your rebuttal testimony?**
17	A.	Yes, it does.