

1 **Introduction and Purpose of Testimony**

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

3 A. My name is Samuel C. Hadaway. I am a Principal in FINANCO, Inc., Financial
4 Analysis Consultants, 3520 Executive Center Drive, Austin, Texas 78731.

5 **Q. On whose behalf are you testifying?**

6 A. I am testifying on behalf of Rocky Mountain Power (“RMP” or the “Company”).

7 **Q. Briefly describe your educational and professional background.**

8 A. A summary of my educational background and professional experience is
9 contained in Appendices A and B.

10 **Q. What is the purpose of your testimony?**

11 A. The purpose of my testimony is to estimate RMP's cost of equity capital.

12 **Q. Please define the term "cost of equity capital" (“COE”).**

13 A. COE is the rate of return that equity investors require or expect to receive from
14 their investment in common stocks. Conceptually COE is no different than the
15 interest rate on debt or the cost of preferred stock. Equity investors expect a return
16 on their capital commensurate with the risks they take and consistent with returns
17 that might be available from other similar investments.

18 **Summary of Recommendations**

19 **Q. Have you determined the COE for utilities comparable to the Company?**

20 A. Yes. I have applied the discounted cash flow (“DCF”) model to estimate COE for
21 utilities comparable to RMP. The results of that analysis indicate that the
22 comparable group's COE is in the range of 10.1 percent to 10.5 percent. I also
23 perform an equity risk premium analysis. That analysis indicates a COE in the

1 range of 10.25 percent to 10.45 percent. Based on these quantitative results and
2 my further review of recent interest rate increases and projections for even higher
3 rates during the coming year, the appropriate return on equity (“ROE”) for RMP
4 is 10.5 percent. This is a reasonable ROE for establishing the Company’s rates at
5 this time and should be authorized by the Commission.

6 **Q. Did this Commission as well as the Washington Utilities and Transportation**
7 **Commission recently conclude that lower ROEs were appropriate for RMP?**

8 A. Yes. On February 28, 2011, in Case No. PAC-E-10-07 (the 2010 General Rate
9 Case”), this Commission found the Company's ROE to be 9.9 percent based on
10 the timing of the evidence in that case. On March 25, 2011, in Docket UE-
11 100749, the Washington Commission found an ROE of 9.8 percent, again based
12 on the timing of the evidence in that case.

13 **Q. Have market conditions changed since the records in those cases were**
14 **developed?**

15 A. Yes. The financial data available at the time of rebuttal testimony in the prior
16 cases was from the August to October 2010 time period, which happened to
17 correspond to the lowest level of long-term utility interest rates in over 30 years
18 (see Exhibit No. 14, page 2 and Exhibit No. 17, pages 1 and 2). In those cases, the
19 Commissions, in my opinion, made their decisions based upon evidence that
20 reflected a trough in long-term utility bond interest rates. As shown in Table 1 on
21 page 7 of this testimony, between the availability dates of the data I used in my
22 direct testimony in the 2010 General Rate Case (April 2010) and the data I used to
23 prepare rebuttal testimony (October 2010), single-A utility bond yields fell 71

1 basis points (0.71%). Since October 2010, single-A utility bond yields have
2 increased by 45 basis points (as of April 2011). The record in the Company's prior
3 case, therefore, reflected a sharp drop in interest rates that has now been
4 substantially reversed. Hence, irrespective of our differences about the
5 appropriate ROEs in the prior cases, since those cases were presented, COE has
6 increased and the allowed ROE in the present case should reflect this fact.

7 **Q. How is your analysis structured?**

8 A. In my DCF analysis, I apply a comparable company approach. RMP's cost of
9 equity cannot be estimated directly from its own market data because the
10 Company is a wholly-owned subsidiary of MidAmerican Energy Holdings
11 Company. As such, RMP does not have publicly traded common stock or other
12 independent market data that would be required to estimate its COE directly. I
13 begin my comparable company review with all the electric utilities that are
14 included in the *Value Line Investment Survey* (Value Line). Value Line is a
15 widely-followed, reputable source of financial data that is often used by
16 professional regulatory economists. To improve the group's comparability with
17 RMP, which has a senior secured bond rating of A from Standard & Poor's (S&P)
18 and A2 from Moody's Investors Service (Moody's), I restricted the group to
19 companies with senior secured bond ratings of at least A- by S&P or A3 by
20 Moody's. I also required the comparable companies to derive at least 70 percent
21 of their revenues from regulated utility sales, to have consistent financial records
22 not affected by recent mergers or restructuring, and to have a consistent dividend
23 record with no dividend cuts or resummptions during the past two years. The

1 fundamental characteristics and bond ratings of the 16 companies in my
2 comparable group are presented in Exhibit No. 13, page 1.

3 In my risk premium analysis, I present estimates from both current and
4 projected single-A utility bond yields for all of 2011. These rates are consistent
5 with the Company's single-A bond ratings. As I will discuss later in this
6 testimony, however, my risk premium estimates continue to be depressed by the
7 U.S. government's ongoing monetary policies, and they do not reflect the much
8 higher interest rates that are expected in 2012. For these reasons, my risk
9 premium results are a conservative estimate of the Company's required COE. The
10 data sources and the details of my cost of equity studies are contained in Exhibit
11 Nos. 13 through 17.

12 **Q. How is the remainder of your testimony organized?**

13 A. My testimony is divided into three additional sections. Following this
14 introduction, I review general capital market costs and conditions and discuss
15 recent developments in the electric utility industry that may affect the cost of
16 capital. In the following section, I review various methods for estimating the cost
17 of equity. In this section, I discuss comparable earnings methods, equity risk
18 premium methods, and the discounted cash flow model. In the final section, I
19 apply the DCF and risk premium models to estimate RMP's cost of equity, I
20 discuss the details of my cost of equity studies, and I summarize my ROE
21 recommendations.

1 **Fundamental Factors That Affect the Cost of Equity**

2 **Q. What is the current outlook for the U.S. economy?**

3 A. The U.S. economy is expected to continue its slow rate of recovery. While
4 unemployment remains stubbornly high at 9 percent, manufacturing output has
5 increased and in some areas new hiring has begun. Forecasts for 2012 indicate
6 continuing, but slow recovery with new job creation a fundamental concern. Even
7 with the government's continuing expansionary monetary policy, since the low
8 levels reached in September, both Treasury bond and corporate bond interest rates
9 have increased and are expected to increase further in 2012. Although caution
10 remains, and utility stocks remain relatively depressed, the overall stock market
11 has recovered significantly from its March 2009 low levels. All of these factors
12 point to gradually improving conditions this year and into 2012.

13 **Q. What has been the experience in the U.S. capital markets for the past several**
14 **years?**

15 A. In Exhibit No. 14, page 1, I provide a 10-year review of annual interest rates and
16 rates of inflation in the U.S. economy. During the past 10 years, interest rates and
17 inflation were generally lower than in the previous decade. Inflation, as measured
18 by the Consumer Price Index ("CPI"), fluctuated between zero percent in 2008
19 and 4.1 percent in the energy induced period that occurred in 2007. The decade's
20 average inflation rate (2.4 percent) was approximately 100 basis points lower than
21 the longer-term average rate of the past 60 years (see Exhibit No. 15). Interest
22 rates declined steadily over most of the period, with the 2010 single-A utility rate
23 at its lowest level for more than 30 years (see Exhibit No. 17, pages 1 and 2).

1 **Q. What has been the trend in long-term interest rates during the past three**
2 **years?**

3 A. The month-by-month interest rate data for the past three years are presented in
4 Exhibit No. 14, page 2, and summarized below in Table 1.

Table 1

Long-Term Interest Rate Trends

Month	Single-A Utility Rate	30-Year Treasury Rate	Single-A Utility Spread
Jan-08	6.02	4.33	1.69
Feb-08	6.21	4.52	1.69
Mar-08	6.21	4.39	1.82
Apr-08	6.29	4.44	1.85
May-08	6.28	4.60	1.68
Jun-08	6.38	4.69	1.69
Jul-08	6.40	4.57	1.83
Aug-08	6.37	4.50	1.87
Sep-08	6.49	4.27	2.22
Oct-08	7.56	4.17	3.39
Nov-08	7.60	4.00	3.60
Dec-08	6.52	2.87	3.65
Jan-09	6.39	3.13	3.26
Feb-09	6.30	3.59	2.71
Mar-09	6.42	3.64	2.78
Apr-09	6.48	3.76	2.72
May-09	6.49	4.23	2.26
Jun-09	6.20	4.52	1.68
Jul-09	5.97	4.41	1.56
Aug-09	5.71	4.37	1.34
Sep-09	5.53	4.19	1.34
Oct-09	5.55	4.19	1.36
Nov-09	5.64	4.31	1.33
Dec-09	5.79	4.49	1.30
Jan-10	5.77	4.60	1.17
Feb-10	5.87	4.62	1.25
Mar-10	5.84	4.64	1.20
Apr-10	5.81	4.69	1.12
May-10	5.50	4.29	1.21
Jun-10	5.46	4.13	1.33
Jul-10	5.26	3.99	1.27
Aug-10	5.01	3.80	1.21
Sep-10	5.01	3.77	1.24
Oct-10	5.10	3.87	1.23
Nov-10	5.37	4.19	1.18
Dec-10	5.56	4.42	1.14
Jan-11	5.57	4.52	1.05
Feb-11	5.68	4.65	1.03
Mar-11	5.56	4.51	1.05
Apr-11	5.55	4.50	1.05
3-Mo Avg	5.60	4.55	1.04
12-Mo Avg	5.39	4.22	1.17

Sources: Mergent Bond Record (Utility Rates); www.federalreserve.gov (Treasury rates). Three month average is for February 2011-April 2011. Twelve month average is for May 2010-April 2011.

1 The data in Table 1 vividly illustrate the uptrend in interest rates that has occurred
2 since late summer 2010 and the market turmoil that has occurred over the past
3 three years. Since their lowest levels reached in August and September 2010, both
4 utility interest rates and yields on long-term Treasury bonds have increased by
5 about 50 basis points. Over the past three years, interest rates have shown the
6 widest fluctuations in recent history. The Federal Reserve's continuing efforts to
7 hold down borrowing costs for banks (the Fed Funds rate) and lower rates on U.S.
8 Treasury bonds have now extended to high quality corporate borrowers as well.
9 While the effects of market turbulence may not be easily captured in financial
10 models for estimating the rate of return, equity market turbulence and the
11 resulting elevated level of risk aversion should be considered explicitly in
12 estimates of the cost of equity capital.

13 **Q. Do the smaller spreads between yields on single-A utility bonds and U.S.**
14 **Treasury bonds mean that the markets have fully recovered from the**
15 **economic turmoil that resulted from the financial crisis?**

16 A. No. While markets have stabilized considerably from the conditions that existed
17 in late 2008, investors remain concerned about high unemployment, large federal
18 deficits, the Mideast turmoil and skyrocketing commodity (oil, gold, and silver)
19 and gasoline prices, and the potential for further fallout from foreclosures and
20 other effects of the financial crisis. These factors combined with sluggish growth
21 in gross domestic product ("GDP") during the first quarter of 2011 continue to
22 cause a high level of market volatility and contribute to heightened investor risk
23 aversion.

1 **Q. What do forecasts for the economy and interest rates show for the coming**
2 **year?**

3 A. Interest rates are expected to rise substantially. In Exhibit No. 14), page 3, I
4 provide Standard and Poor's (S&P) most recent interest rate forecast from its
5 *Trends & Projections* publication for April 2011. Table 2 below summarizes the
6 interest rate forecasts:

7 **Table 2**

8 **Standard & Poor's Interest Rate Forecast**

	Apr. 2011 Average	Average 2011 Est.	Average 2012 Est.
Treasury Bills	0.1%	0.3%	2.1%
10-Yr. T-Bonds	3.5%	3.9%	5.5%
30-Yr. T-Bonds	4.5%	4.9%	6.3%
<u>Aaa Corporate Bonds</u>	<u>5.2%</u>	<u>5.5%</u>	<u>7.2%</u>

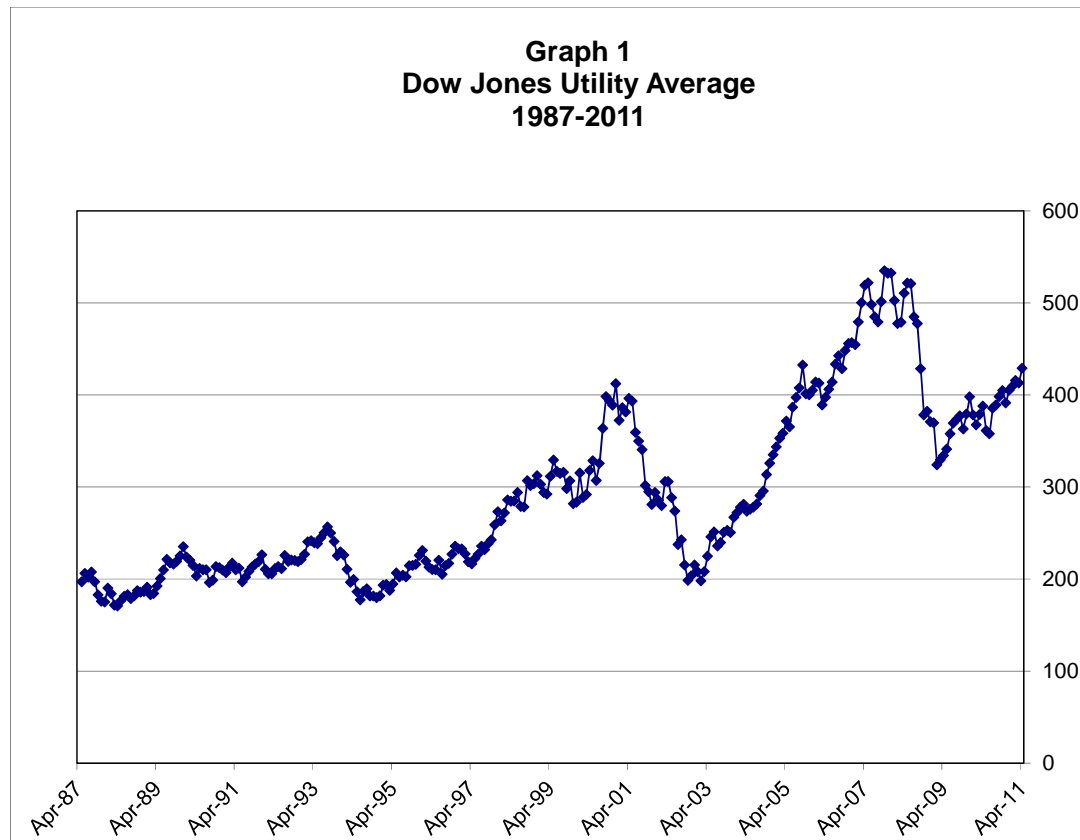
15 Sources: www.federalreserve.gov, (Current Rates). Standard &
16 Poor's *Trends & Projections*, April 2011, page 8 (Projected Rates).

17 These data show that, during 2011, average long-term Treasury interest rates are
18 expected to increase by 40 basis points relative to their April 2011 levels and that
19 rates will rise substantially more during 2012. Yields on all the other bonds shown
20 in the table are expected to increase by similar or larger amounts. The interest rate
21 increases reported by S&P are consistent with the Federal Reserve ending its so-
22 called Quantitative Easing 2 program (i.e., lower demand for Treasuries, all else
23 equal, will lead to lower prices and higher yields)¹ and a sluggishly improving
24 U.S. economy. Such expectations for large increases in fixed income yields
25 indicate that the expected rates of return for utilities, which must compete with
26 such investments for required capital, are increasing as well.

¹ See *The Wall Street Journal*, "Fed Takes Foot Off the Gas," April 28, 2011, page A1.

1 **Q. How have utility stocks performed during the past several years?**

2 A. Utility stock prices have fluctuated widely. The wider fluctuations in more recent
3 years are vividly illustrated in the following Graph 1, which depicts Dow Jones
4 Utility Average (DJUA) prices over the past 25 years.

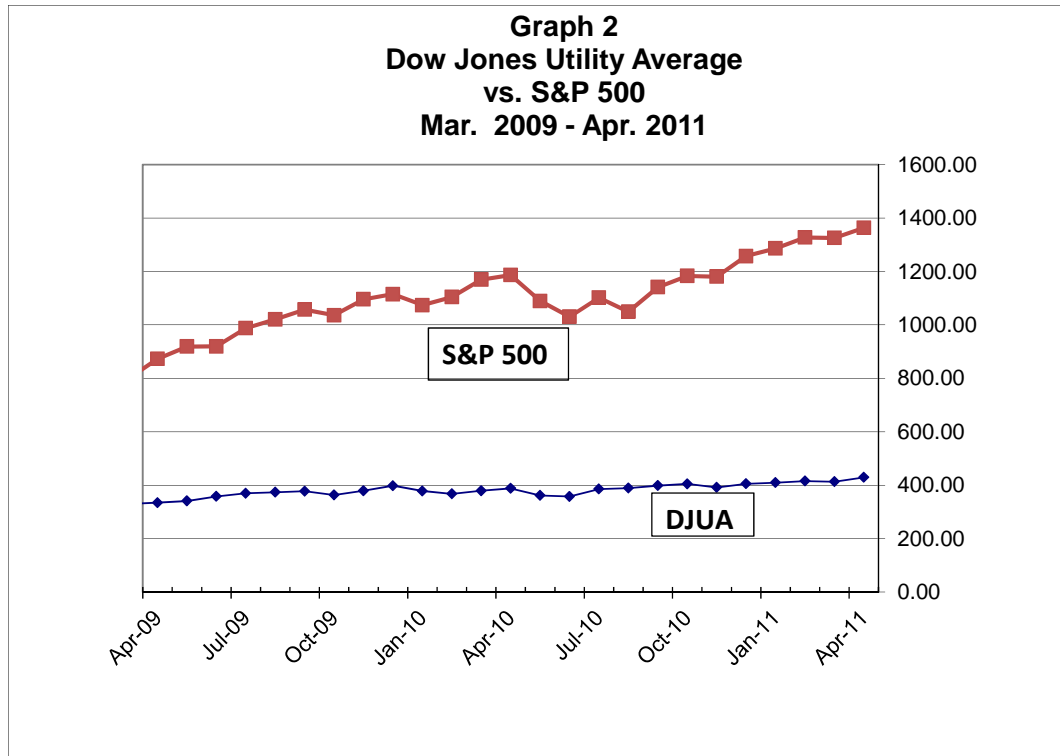


5 In this environment, investors' return expectations and requirements for providing
6 capital to the utility industry remain high relative to the longer-term, traditional
7 view of the utility industry. Increased market volatility for utility shares causes
8 investors to require a higher rate of return.

9 **Q. How have utility stocks performed relative to the overall market recovery**
10 **since March 2009?**

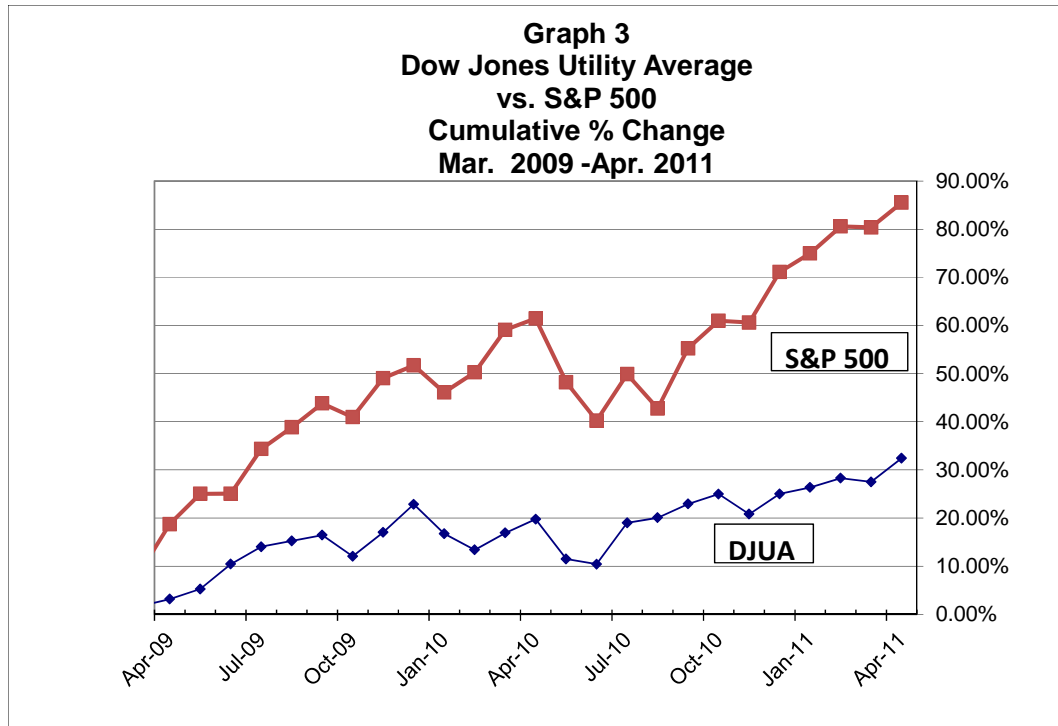
11 A. Utility stock prices have lagged far behind the overall market. Graph 2 shows the

1 monthly levels for the DJUA versus the broader market S&P 500 Index since the
2 market lows that occurred in February and March of 2009.



3 While the S&P 500 has increased significantly since March 2009, utility prices
4 have remained relatively flat. This result is a further indication that the cost of
5 equity for utility companies has not declined to the same extent as interest rates
6 have fallen or to the same extent that the cost of equity may have come down for
7 the broader equity market. The relatively lower prices for utility shares indicate
8 that the cost of capital for utilities is higher.

9 Graph 3 further illustrates this result by showing the cumulative
10 percentage change in the two equity indexes since the March 2009 lows.



1 The general market, as represented by the S&P 500, has recovered over 85
 2 percent (85.50%) from its March 2009 lows. During the same period, utility
 3 stocks, as measured by the DJUA, have increased by only about 32 percent
 4 (32.44%). While utility stock prices are normally less volatile than the general
 5 market, their roughly one-third recovery relative to the general market since
 6 March 2009 again points out the market difficulties that utilities face and the
 7 continuing relatively higher cost of equity for utility companies.

8 **Q. What is the industry’s current fundamental position?**

9 A. The industry has seen significant volatility both in terms of fundamental operating
 10 characteristics and the effects of the economy. While many companies have
 11 refocused their businesses on more traditional utility service, the effects of
 12 deregulation of the wholesale power markets and continuing fuel price
 13 uncertainties remain prominent. The economic crisis has also reduced sales

1 volumes and increased the difficulty of planning for future load requirements.

2 Value Line reflects its views in its recent review of electric utility prospects:

3 **Value Line Investor Survey**

4 Some utilities will probably report lower earnings in 2011 or 2012.
5 Favorable weather patterns in 2010 will make for tough
6 comparisons in 2011. This year and next, unfavorable market
7 conditions will affect many nonregulated subsidiaries of utility
8 holding companies.

9 Electric utility stocks, as a group, are up just slightly in 2011, as
10 are the broader market averages. Despite the lackluster
11 performance, many of these equities are trading within their 2014-
12 2016 Target Price Range. (Value Line Investor Survey, March 25,
13 2011, p. 901).

14 Standard & Poor's also provides perspective on the relatively poor stock
15 price performance for electric utilities.

16 **S&P Industry Survey**

17 **Electric Utility Shares Underperform in 2010**

18 The S&P Electric Utilities subindex was down 0.5% in 2010,
19 compared with a 12.8% increase for the benchmark S&P 500
20 Composite stock index and a 14.2% increase for the broader S&P
21 1500 SuperComposite stock index. This followed a similar 0.5%
22 decrease in 2009 for the S&P Electric Utilities subindex, versus
23 gains of 23.5% and 24.3% for the S&P 500 and the S&P 1500,
24 respectively. In addition to the ongoing weakness in both the
25 housing and power markets, we believe the underperformance of
26 electric utility stocks in both 2010 and in 2009 also reflected the
27 belief that other sectors would provide better investor returns once
28 the economy started to recover. (Standard & Poor's Electric Utility
29 Industry Survey, February 24, 2011, p. 6).

30 Credit market gyrations and the volatility of utility shares demonstrate the
31 increased uncertainties that utility investors face. These uncertainties translate into
32 a higher cost of capital.

1 **Q. Do utilities continue to face the operating and financial risks that existed**
2 **prior to the financial crisis?**

3 A. Yes. Prior to the recent financial crisis, the greatest consideration for utility
4 investors was the industry's continuing transition to more open market conditions
5 and competition. With the passage of the Energy Policy Act (EPACT) in 1992
6 and the Federal Energy Regulatory Commission's (FERC) Order 888 in 1996, the
7 stage was set for vastly increased competition in the electric utility industry.
8 EPACT's mandate for open access to the transmission grid and FERC's
9 implementation through Order 888 effectively opened the market for wholesale
10 electricity to competition. Previously protected utility service territory and lack of
11 transmission access in some parts of the country had limited the availability of
12 competitive bulk power prices. EPACT and Order 888 have essentially eliminated
13 such constraints for incremental power needs.

14 As expected, the opening of previously protected utility markets to
15 competition, the uncertainty created by the removal of regulatory protection,
16 continuing fuel price volatility and concerns about the impact of climate change
17 legislation have raised the level of uncertainty about investment returns across the
18 entire industry.

19 **Q. Is RMP affected by these same uncertainties and increasing utility capital**
20 **costs?**

21 A. Yes. To some extent all electric utilities are being affected by the industry's
22 transition to competition. Although retail deregulation has not occurred in the
23 state of Idaho, Rocky Mountain Power's power costs and other operating

1 activities have been significantly affected by transition and restructuring events
2 around the country. In fact, the uncertainty associated with the changes that are
3 transforming the utility industry as a whole, as viewed from the perspective of the
4 investor, remain a factor in assessing any utility's cost of common equity and
5 required ROE, including the ROE from Rocky Mountain Power's operations in
6 Idaho.

7 **Q. Are there other factors that add to the Company's risk profile?**

8 A. Yes, there are two significant factors. First, when regulators authorize ROEs that
9 are less than 10 percent, the financial markets perceive the regulatory
10 environment as being less credit supportive. Even in the lower interest rate
11 environment that existed in 2010, the average allowed rate of return for other
12 utilities around the country was well above 10 percent. The distinction of being
13 subject to regulation in two jurisdictions that have authorized among the lowest
14 allowed rates of return in the country is clearly a factor that increases the
15 Company's perceived regulatory risk.

16 Second, the Company is unique in the amount of capital that it is
17 expending to provide generation and transmission service to its customers in
18 relation to its depreciation expense. This requires that it annually subject its
19 operations and rates to review in multiple proceedings in six jurisdictions. As a
20 consequence, the financial markets focus additional attention on the Company's
21 regulatory risk profile. Until recent rate and ECAM orders, the Company has been
22 able to assure the financial markets that it was operating in credit supportive
23 regulatory environments and being permitted to recover its prudent costs on a

1 timely basis. Providing this assurance in the face of recent orders will be more
2 difficult as the regulatory risk may be perceived as higher.

3 **Q. How do capital market concerns and financial risk perceptions affect the cost**
4 **of equity capital?**

5 A. As I discussed previously, equity investors respond to changing assessments of
6 risk and financial prospects by changing the price they are willing to pay for a
7 given security. When the risk perceptions increase or financial prospects decline,
8 investors refuse to pay the previously existing market price for a company's
9 securities and market supply and demand forces then establish a new lower price.

10 The lower market price typically translates into a higher cost of capital through a
11 higher dividend yield requirement as well as the potential for increased capital
12 gains if prospects improve. In addition to market losses for prior shareholders, the
13 higher cost of capital is transmitted directly to the company by the need to earn a
14 higher cost of capital on existing and new investments just to maintain the stock's
15 new lower price level and the reality that the firm must issue more shares to raise
16 any given amount of capital for future investment. The additional shares also
17 impose additional future dividend requirements and may reduce future earnings
18 per share growth prospects if the proceeds of the share issuance are unable to earn
19 their expected rate of return.

20 **Q. How have regulatory commissions responded to these changing market and**
21 **industry conditions?**

22 A. Over the past five years, quarterly allowed ROEs have averaged about 10.4
23 percent. For 2010, the average rate for integrated electric utilities was 10.38

1 percent and for the 1st Quarter of 2011 it was 10.18 percent.² Table 3 below
2 summarizes the ROE data, including delivery, fully integrated, and special-
3 purpose companies:

4 **Table 3**
5 **Authorized Electric Utility Equity Returns**

	2007	2008	2009	2010	2011
7 1 st Quarter	10.27%	10.45%	10.29%	10.66%	10.35%
8 2 nd Quarter	10.27%	10.57%	10.55%	10.08%	
9 3 rd Quarter	10.02%	10.47%	10.46%	10.27%	
10 4 th Quarter	10.56%	10.33%	10.54%	10.30%	
11 Full Year Average	10.36%	10.46%	10.48%	10.34%	10.35%
12 Average Utility					
13 Debt Cost	6.11%	6.65%	6.28%	5.55%	5.66%
14 Indicated Average					
15 Risk Premium	4.25%	3.81%	4.20%	4.79%	4.69%

16
17 Source: Regulatory Focus, Regulatory Research Associates, Inc., Major Rate
18 Case Decisions, April 5, 2011. Utility debt costs are the "average" public utility
19 bond yields as reported by Moody's.

20 Based on these data, over the past five years, the allowed equity risk premium for
21 electric utilities has ranged between 3.81 percent and 4.79 percent. These data
22 show clearly that the recently allowed ROEs below 10 percent set for RMP were
23 well below the average rates of return deemed appropriate by other state
24 regulators.

25 **Estimating the Cost of Equity Capital**

26 **Q. What is the purpose of this section of your testimony?**

27 A. The purpose of this section is to compare the strengths and weaknesses of several
28 of the most widely used methods for estimating the cost of equity. Estimating the
29 cost of equity is fundamentally a matter of informed judgment. The various

² See Exhibit No. 13, page 2.

1 models provide a concrete link to actual capital market data and assist with
2 defining the various relationships that underlie the ROE estimation process.
3 (Please see Appendix C for further technical discussion of the DCF and risk
4 premium models.)

5 **Q. How is the fair rate of return in the regulatory process related to the**
6 **estimated cost of equity capital?**

7 A. The regulatory process is guided by fair rate of return principles established in the
8 U.S. Supreme Court cases, *Bluefield Water Works* and *Hope Natural Gas*:

9 A public utility is entitled to such rates as will permit it to earn a
10 return on the value of the property which it employs for the
11 convenience of the public equal to that generally being made at the
12 same time and in the same general part of the country on
13 investments in other business undertakings which are attended by
14 corresponding risks and uncertainties; but it has no constitutional
15 right to profits such as are realized or anticipated in highly
16 profitable enterprises or speculative ventures. *Bluefield Water*
17 *Works & Improvement Company v. Public Service Commission of*
18 *West Virginia*, 262 U.S. 679, 692-693 (1923).

19 From the investor or company point of view, it is important that
20 there be enough revenue not only for operating expenses, but also
21 for the capital costs of the business. These include service on the
22 debt and dividends on the stock. By that standard the return to the
23 equity owner should be commensurate with returns on investments
24 in other enterprises having corresponding risks. That return,
25 moreover, should be sufficient to assure confidence in the financial
26 integrity of the enterprise, so as to maintain its credit and to attract
27 capital. *Federal Power Commission v. Hope Natural Gas Co.*, 320
28 U.S. 591, 603 (1944).

29 Based on these principles, the fair rate of return should closely parallel investor
30 opportunity costs as discussed above. If a utility earns its market cost of equity,
31 neither its stockholders nor its customers should be disadvantaged.

1 **Q. Please provide an overview of the cost of equity capital estimation process.**

2 A. The cost of equity is the rate of return that common stockholders expect, just as
3 interest on bonds and dividends on preferred stock are the returns that investors in
4 those securities expect. Unlike returns from debt and preferred stocks, however,
5 the equity return is not directly observable in advance and, therefore, it must be
6 estimated or inferred from capital market data and trading activity.

7 An example helps to illustrate the cost of equity concept. Assume that an
8 investor buys a share of common stock for \$20 per share. If the stock's expected
9 dividend is \$1.00, the expected dividend yield is 5.0 percent ($\$1.00 / \$20 = 5.0$
10 percent). If the stock price is also expected to increase to \$21.20 after one year,
11 this one dollar and 20 cent expected gain adds an additional 6.0 percent to the
12 expected total rate of return ($\$1.20 / \$20 = 6.0$ percent). Therefore, buying the
13 stock at \$20 per share, the investor expects a total return of 11.0 percent: 5.0
14 percent dividend yield, plus 6.0 percent price appreciation. In this example, the
15 total expected rate of return of 11.0 percent is the appropriate measure of the cost
16 of equity capital, because it is this rate of return that caused the investor to
17 commit the \$20 of equity capital in the first place. If the stock were riskier, or if
18 expected returns from other investments were higher, investors would have
19 required a higher rate of return from the stock, which would have resulted in a
20 lower initial purchase price in market trading.

21 Each day market rates of return and prices change to reflect new investor
22 expectations and requirements. For example, when interest rates on bonds and
23 savings accounts rise, utility stock prices usually fall. This is true, at least in part,

1 because higher interest rates on these alternative investments make utility stocks
2 relatively less attractive, which causes utility stock prices to decline in market
3 trading. This competitive market adjustment process is quick and continuous, so
4 that market prices generally reflect investor expectations and the relative
5 attractiveness of one investment versus another. The data presented previously in
6 Tables 1 and 2 and the relative market performance of utility stocks versus the
7 general market shown in Graphs 2 and 3 illustrate this fundamental financial
8 principle. Therefore, to estimate the cost of equity one must apply informed
9 judgment about the relative risk of the company in question as well as knowledge
10 about the risk and expected rate of return characteristics of other available
11 investments.

12 **Q. How does the market account for risk differences among the various**
13 **investments?**

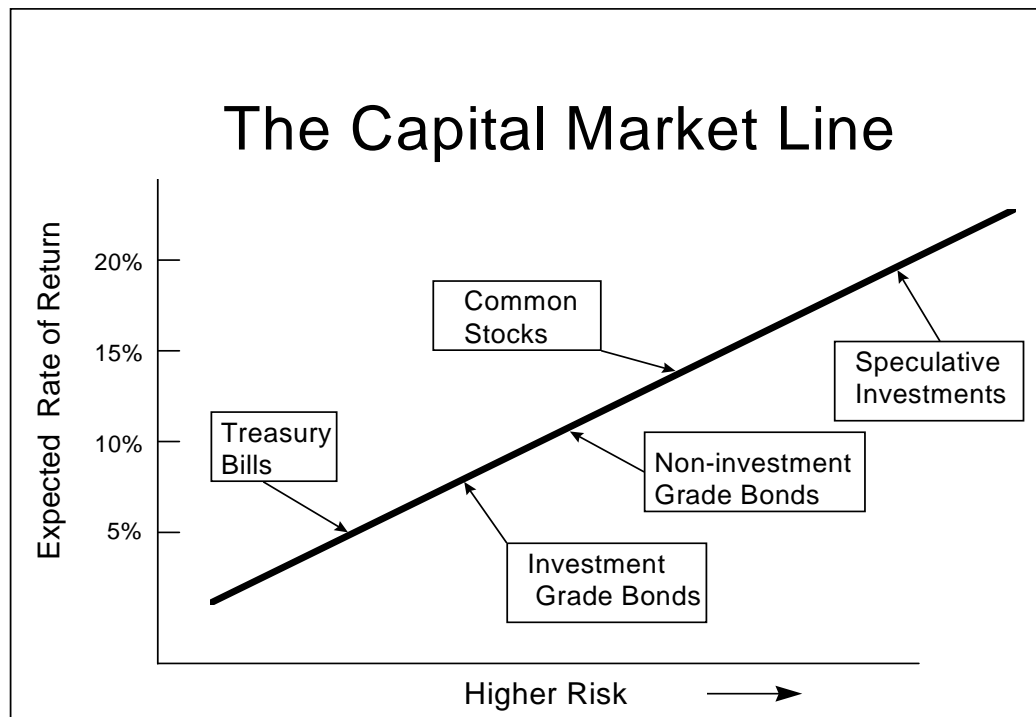
14 A. Risk-return tradeoffs among capital market investments have been the subject of
15 extensive financial research. Literally dozens of textbooks and hundreds of
16 academic articles have addressed the issue. Generally, such research confirms the
17 common sense conclusion that investors will take additional risks only if they
18 expect to receive a higher rate of return. Empirical tests consistently show that
19 returns from low risk securities, such as U.S. Treasury bills, are the lowest; that
20 returns from longer-term Treasury bonds and corporate bonds are increasingly
21 higher as risks increase; and generally, returns from common stocks and other
22 more risky investments are even higher. These observations provide a sound
23 theoretical foundation for both the DCF and risk premium methods for estimating

1 the cost of equity capital. These methods attempt to capture the well founded risk-
2 return principle and explicitly measure investors' rate of return requirements.

3 **Q. Can you illustrate the capital market risk-return principle that you just**
4 **described?**

5 A. Yes. The following graph depicts the risk-return relationship that has become
6 widely known as the Capital Market Line (CML). The CML offers a graphical
7 representation of the capital market risk-return principle. The graph is not meant
8 to illustrate the actual expected rate of return for any particular investment, but
9 merely to illustrate in a general way the risk-return relationship.

Risk-Return Tradeoffs



1 As a continuum, the CML can be viewed as an available opportunity set for
2 investors. Those investors with low risk tolerance or investment objectives that
3 mandate a low risk profile should invest in assets depicted in the lower left-hand
4 portion of the graph. Investments in this area, such as Treasury bills and short-
5 maturity, high quality corporate commercial paper, offer a high degree of investor
6 certainty. Before considering the potential effects of inflation, such assets are
7 virtually risk-free.

8 Investment risks increase as one moves up and to the right along the CML.
9 A higher degree of uncertainty exists about the level of investment value at any
10 point in time and about the level of income payments that may be received.
11 Among these investments, long-term bonds and preferred stocks, which offer
12 priority claims to assets and income payments, are relatively low risk, but they are
13 not risk-free. The market value of long-term bonds, even those issued by the U.S.
14 Treasury, often fluctuates widely when government policies or other factors cause
15 interest rates to change.

16 Farther up the CML continuum, common stocks are exposed to even more
17 risk, depending on the nature of the underlying business and the financial strength
18 of the issuing corporation. Common stock risks include market-wide factors, such
19 as general changes in capital costs, as well as industry and company specific
20 elements that may add further to the volatility of a given company's performance.
21 As I will illustrate in my risk premium analysis, common stocks typically are
22 more volatile (have higher risk) than high quality bond investments and,
23 therefore, they reside above and to the right of bonds on the CML graph. Other

1 more speculative investments, such as stock options and commodity futures
2 contracts, offer even higher risks (and higher potential returns). The CML's
3 depiction of the risk-return tradeoffs available in the capital markets provides a
4 useful perspective for estimating investors' required rates of return.

5 **Q. What specific methods and capital market data are used to evaluate the cost**
6 **of equity?**

7 A. Techniques for estimating the cost of equity normally fall into three groups:
8 comparable earnings methods, risk premium methods, and DCF methods. The
9 first set of estimation techniques, the comparable earnings methods, has evolved
10 over time. The original comparable earnings methods were based on book
11 accounting returns. This approach developed ROE estimates by reviewing
12 accounting returns for unregulated companies thought to have risks similar to
13 those of the regulated company in question. These methods have generally been
14 rejected because they assume that the unregulated group is earning its actual cost
15 of capital, and that its equity book value is the same as its market value. In most
16 situations these assumptions are not valid, and, therefore, accounting-based
17 methods do not generally provide reliable cost of equity estimates.

18 More recent comparable earnings methods are based on historical stock
19 market returns rather than book accounting returns. While this approach has some
20 merit, it too has been criticized because there can be no assurance that historical
21 returns actually reflect current or future market requirements. Also, in practical
22 application, earned market returns tend to fluctuate widely from year-to-year. For

1 these reasons, a current cost of equity estimate (based on the DCF model or a risk
2 premium analysis) is usually required.

3 The second set of estimation techniques is grouped under the heading of
4 risk premium methods. These methods begin with currently observable market
5 returns, such as yields on government or corporate bonds, and add an increment to
6 account for the additional equity risk. The capital asset pricing model (CAPM)
7 and arbitrage pricing theory (“APT”) model are more sophisticated risk premium
8 approaches. The CAPM and APT methods estimate the cost of equity directly by
9 combining the "risk-free" government bond rate with explicit risk measures to
10 determine the risk premium required by the market. Although these methods are
11 widely used in academic cost of capital research, their additional data
12 requirements and their potentially questionable underlying assumptions have
13 detracted from their use in most regulatory jurisdictions. The basic risk premium
14 methods generally provide a useful parallel approach with the DCF model and
15 assure consistency with other capital market data in the equity cost estimation
16 process.

17 The third set of estimation techniques, based on the DCF model, is the
18 most widely used regulatory cost of equity estimation method. Like the risk
19 premium approach, the DCF model has a sound basis in theory, and many argue
20 that it has the additional advantage of simplicity. I will describe the DCF model in
21 detail below, but in essence its estimate of ROE is simply the sum of the expected
22 dividend yield and the expected long-term dividend, earnings, or price growth rate
23 (all of which are assumed to grow at the same rate). While dividend yields are

1 easy to obtain, estimating long-term growth is more difficult. Because the
2 constant growth DCF model also requires very long-term growth estimates
3 (technically to infinity), some argue that its application is too speculative to
4 provide reliable results, resulting in the preference for the multistage growth DCF
5 analysis.

6 **Q. Of the three estimation methods, which do you believe provides the most**
7 **reliable results?**

8 A. From my experience, a combination of DCF and risk premium methods usually
9 provides the most reliable approach. While the caveat about estimating long-term
10 growth must be observed, the DCF model's other inputs are readily obtainable,
11 and the model's results typically are consistent with capital market behavior. The
12 risk premium methods provide a good parallel approach to the DCF model and
13 further ensure that current market conditions are accurately reflected in the cost of
14 equity estimate. However, due to ongoing market turmoil and current government
15 monetary policy, which I will discuss later in this testimony, ROE estimates
16 obtained from the risk premium methodology should be discounted.

17 **Cost of Equity Capital for Rocky Mountain Power**

18 **Q. What is the purpose of this section of your testimony?**

19 A. The purpose of this section is to present my quantitative studies of the cost of
20 equity capital for RMP and to discuss the details and results of my analysis.

21 **Q. How are your studies organized?**

22 A. In the first part of my analysis, I apply three versions of the DCF model to a 16-
23 company group of electric utilities based on the selection criteria discussed

1 previously. In the second part of my analysis, I apply equity risk premium models
2 and review projected economic conditions and projected capital costs for the
3 coming year.

4 My DCF analysis is based on three versions of the DCF model. In the first
5 version of the DCF model, I use the constant growth format with long-term
6 expected growth based on analysts' estimates of five-year utility earnings growth.
7 While I continue to endorse a longer-term growth estimation approach based on
8 growth in overall gross domestic product, I show the analyst growth rate DCF
9 results because this is the approach that has traditionally been used by many
10 regulators. In the second version of the DCF model, for the estimated growth rate,
11 I use only the long-term estimated GDP growth rate. Finally, in the third version
12 of the DCF model, I use a two-stage growth approach, with stage one growth
13 based on Value Line's three-to-five-year dividend projections and stage two
14 growth based on long-term projected GDP growth. The dividend yields in all
15 three of the models are from Value Line's projections of dividends for the coming
16 year and stock prices are from the three-month average for the months that
17 correspond to the Value Line editions from which the underlying financial data
18 are taken.

19 **Q. Why do you believe the long-term GDP growth rate should be used to**
20 **estimate long-term growth expectations in the DCF model?**

21 A. Growth in nominal GDP (real GDP plus inflation) is the most general measure of
22 economic growth in the U.S. economy. For long time periods, such as those used
23 in the Morningstar/Ibbotson Associates rate of return data, nominal GDP growth

1 has averaged between five percent and eight percent per year. From this
2 observation, Professors Brigham and Houston offer the following observation
3 concerning the appropriate long-term growth rate in the DCF Model:

4 Expected growth rates vary somewhat among companies, but
5 dividends for mature firms are often expected to grow in the future
6 at about the same rate as nominal gross domestic product (real
7 GDP plus inflation). On this basis, one might expect the dividend
8 of an average, or "normal," company to grow at a rate of 5 to 8
9 percent a year. (Eugene F. Brigham and Joel F. Houston,
10 *Fundamentals of Financial Management*, 11th Ed. 2007, page
11 298).

12 Other academic research on corporate growth rates offers similar conclusions
13 about GDP growth as well as concerns about the long-term adequacy of analysts'
14 forecasts:

15 Our estimated median growth rate is reasonable when compared to
16 the overall economy's growth rate. On average over the sample
17 period, the median growth rate over 10 years for income before
18 extraordinary items is about 10 percent for all firms. ... After
19 deducting the dividend yield (the median yield is 2.5 percent per
20 year), as well as inflation (which averages 4 percent per year over
21 the sample period), the growth in real income before extraordinary
22 items is roughly 3.5 percent per year. This is consistent with the
23 historical growth rate in real gross domestic product, which has
24 averaged about 3.4 percent per year over the period 1950-1998.
25 (Louis K. C. Chan, Jason Karceski, and Josef Lakonishok, "The
26 Level and Persistence of Growth Rates," *The Journal of Finance*,
27 April 2003, p. 649).

28 IBES long-term growth estimates are associated with realized
29 growth in the immediate short-term future. Over long horizons,
30 however, there is little forecastability in earnings, and analysts'
31 estimates tend to be overly optimistic. ... On the whole, the
32 absence of predictability in growth fits in with the economic
33 intuition that competitive pressures ultimately work to correct
34 excessively high or excessively low profitability growth. (Ibid,
35 page 683).

36 These findings support the notion that long-term growth expectations are more

1 closely predicted by broader measures of economic growth than by near-term
2 analysts' estimates. Especially for the very long-term growth rate requirements of
3 the DCF model, the growth in nominal GDP should be considered an important
4 input.

5 **Q. How did you estimate the expected long-run GDP growth rate?**

6 A. I developed my long-term GDP growth forecast from nominal GDP data
7 contained in the St. Louis Federal Reserve Bank data base. That data for the
8 period 1950 through 2010 are summarized in my Exhibit No. 15. As shown at the
9 bottom of that exhibit, the overall average for the period was 6.7 percent. The data
10 also show, however, that in the more recent years since 1980, lower inflation has
11 resulted in lower overall GDP growth. For this reason I gave more weight to the
12 more recent years in my GDP forecast. Based on this approach, my overall
13 forecast for long-term GDP growth at 5.8 percent is almost 100 basis points lower
14 than the long-term average GDP growth rate.

15 **Q. Why do you believe your forecast of GDP growth based on long-term
16 historical data is appropriate in the DCF model?**

17 A. There are at least three reasons. First, most econometric forecasts are derived
18 from the trending of historical data or the use of weighted averages. This is the
19 approach I have taken in Exhibit No. 15. The long-run historical average GDP
20 growth rate is 6.7 percent, but my estimate of long-term expected growth is only
21 5.8 percent. My forecast is lower because my forecasting method gives much
22 more weight to the more recent 10- and 20-year periods.

23 Second, some currently lower GDP growth forecasts likely understate very

1 long growth rate expectations that are required in the DCF model. Many of those
2 forecasts are currently low because they are based on the assumption of
3 permanently low inflation rates, in the range of two percent. As shown in my
4 Exhibit No. 15, the average long-term inflation rate has been over three percent in
5 all but the most recent 10- and 20- year periods. Also, as shown in Exhibit No. 14,
6 page 1, from December 2008 to December 2009, even with the continuing effects
7 of the economic recession, the CPI increased by 2.8 percent. Use of long-term
8 inflation rates of two percent or less to estimate long-term nominal growth in the
9 DCF model is not consistent with reasonable long-term expectations for the U.S.
10 economy or investors' long-term experience.

11 Finally, the current economic turmoil makes it even more important to
12 consider longer-term economic data in the growth rate estimate. As discussed in
13 the previous section, current near-term forecasts for both real GDP and inflation
14 are severely depressed. To the extent that even the longer-term outlooks of
15 professional economists are also depressed, their forecasts will be low. Under
16 these circumstances, a longer-term balance is even more important. For all these
17 reasons, while I am also presenting other growth rate approaches based on
18 analysts' estimates in this testimony, I believe it is appropriate also to consider
19 long-term GDP growth in estimating the DCF growth rate.

20 **Q. Please summarize the results of your DCF analyses.**

21 A. The DCF results for my comparable company group are presented in Exhibit No.
22 16. As shown in the first column of page 1 of that exhibit, the traditional constant
23 growth model indicates a cost of common equity of 10.1 percent to 10.5 percent.

1 In the second column of page 1, I recalculate the constant growth results with the
2 growth rate based on long-term forecasted growth in GDP. With the GDP growth
3 rate, the constant growth model indicates a cost of common equity range of 10.3
4 percent to 10.5 percent. Finally, in the third column of page 1, I present the results
5 from the multistage DCF model. The multistage model indicates a cost of
6 common equity of 10.1 percent. The results from the DCF model, therefore,
7 indicate a reasonable cost of common equity range of 10.1 percent to 10.5
8 percent.

9 **Q. What are the results of your equity risk premium studies?**

10 A. The details and results of my equity risk premium studies are shown in my
11 Exhibit No. 17. These studies indicate a cost of common equity range of 10.25
12 percent to 10.45 percent.

13 **Q. How are your equity risk premium studies structured?**

14 A. My equity risk premium studies are divided into two parts. First, I compare
15 electric utility authorized ROEs for the period 1980-2010 to contemporaneous
16 long-term utility interest rates. The differences between the average authorized
17 ROEs and the average interest rate for the year is the indicated equity risk
18 premium. I then add the indicated equity risk premium to the forecasted and
19 current single-A utility bond interest rate to estimate the cost of common equity.
20 Because there is a strong inverse relationship between equity risk premiums and
21 interest rates (when interest rates are high, risk premiums are low and vice versa),
22 further analysis is required to estimate the current equity risk premium level.

23 The inverse relationship between equity risk premiums and interest rate

1 levels is well documented in numerous, well-respected academic studies. These
2 studies typically use regression analysis or other statistical methods to predict or
3 measure the equity risk premium relationship under varying interest rate
4 conditions. On page 3 of Exhibit No. 17, I provide regression analyses of the
5 allowed annual equity risk premiums relative to interest rate levels. The negative
6 and statistically significant regression coefficients confirm the inverse relationship
7 between equity risk premiums and interest rates. This means that when interest
8 rates rise by one percentage point, the cost of equity increases, but by a smaller
9 amount. Similarly, when interest rates decline by one percentage point, the cost of
10 equity declines by less than one percentage point. I use this negative interest rate
11 change coefficient in conjunction with current and forecasted interest rates to
12 estimate the appropriate cost of common equity.

13 **Q. Can you illustrate the inverse relationship between equity risk premiums and**
14 **interest rates without using the statistical analysis described above?**

15 A. Yes. Statistical analysis is often used, especially in academic research, to
16 substantiate certain economic and financial relationships. For the equity risk
17 premiums, however, the issue is so basic that simple observation and averaging of
18 the data for various time periods makes the inverse relationship clear. In Table 4
19 below, I have averaged the utility bond yields and equity risk premiums for each
20 non-overlapping five-year period between 1980 and 2010 from the data in my risk
21 premium study in Exhibit No. 17, page 1.

Table 4
Average Five-Year Interest Rates and Equity Risk Premiums
(1980-2010)

Period	Average Utility Bond Interest Rate	Average Equity Risk Premium
1980-1985	13.96%	1.23%
1986-1990	9.86%	3.21%
1991-1995	8.31%	3.48%
1996-2000	7.61%	3.72%
2001-2005	6.75%	4.16%
2006-2010	6.13%	4.27%

Source: Exhibit No. 17, page 1.

1 These data clearly show that equity risk premiums have consistently increased as
2 interest rates have declined. This result is a simple reflection of the fact that
3 expected and achieved rates of return in the stock market are not entirely
4 dependent on changes in interest rates. Because utilities must compete with other
5 types of equity investments for capital, the COE for utilities does not change by as
6 much as the observed changes in interest rates. Those who argue that unadjusted
7 long-term averages of equity risk premiums can be used with current, historically
8 low interest rates to estimate COE are mistaken. Such an approach to equity risk
9 premium analysis will consistently understate the required equity rate of return.

10 **Q. Please summarize the results of your cost of equity analysis.**

11 A. Table 5 below summarizes my results:

Table 5

Summary of Cost of Equity Estimates

<u>DCF Analysis</u>	<u>Indicated Cost</u>
Constant Growth (Analysts' Growth)	10.1%-10.5%
Constant Growth (GDP Growth)	10.3%-10.5%
Multistage Growth Model	10.1%
Reasonable DCF Range	<u>10.1%-10.5%</u>
<u>Equity Risk Premium Analysis</u>	<u>Indicated Cost</u>
Forecast Utility Debt Yield+ Equity Risk Premium	
Equity Risk Premium ROE (5.94% + 4.51%)	10.45%
Current Utility Debt + Equity Risk Premium	
Equity Risk Premium ROE (5.60% + 4.65%)	10.25%
<hr/> RMP Cost of Equity	<hr/> 10.50%

1 **Q. How should these results be interpreted to determine a reasonable ROE**
2 **upon which to base rates for Rocky Mountain Power?**

3 A. The fair and reasonable ROE for RMP is 10.5 percent. This conclusion is
4 supported by the upper end of my DCF range and by risk premium results based
5 on projected single-A utility interest rates for 2011. While I typically recommend
6 the middle of the DCF range, in the present case I believe a higher return should
7 be allowed to reflect the further increases in capital costs that are expected for
8 2012 and the equity market turbulence and relatively poor performance for
9 utilities that continue from the financial crisis. In this environment, setting ROE at
10 the lower levels that can be obtained from some equity cost estimation models
11 will understate RMP's market cost of equity capital.

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

13 A. Yes, it does.