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

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

Q. On whose behalf are you testifying?

A. I am testifying on behalf of Rocky Mountain Power (hereinafter the Company).

Q. Briefly describe your educational and professional background.

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

Purpose and Summary of Testimony

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to estimate Rocky Mountain Power's cost of equity capital.

Q. Please define the term "cost of equity capital."

A. The cost of equity capital is the rate of return that equity investors expect to receive. Conceptually it is no different than the cost of debt or the cost of preferred stock. Equity investors expect a return on their capital commensurate with the risks they take and consistent with returns that might be available from other similar investments.

Q. Have you determined the cost of common equity capital for utilities comparable to the Company?

A. Yes. I estimate the cost of equity capital for a utility comparable to the Company to be in the range of 10.1 percent to 10.7 percent based upon a discounted cash flow (DCF) analysis. I also perform an equity risk premium analysis. However,

under present market conditions, I discount the results of that analysis because the analysis is negatively affected by artificially low interest rates that have resulted from the government's expansionary monetary policy. I will discuss these factors in more detail later in this testimony. Based upon my analyses, I conclude that a return on common equity (ROE) of 10.5 percent is reasonable for establishing the Company's rates at this time and should be authorized by the Commission.

Q. Didn't the Idaho Public Utilities Commission recently conclude that 9.9 percent was a reasonable ROE for the Company's rates?

A. Yes. On December 27, 2010, the Idaho Commission issued an interim decision regarding revenue requirement that was based on a 9.9 percent ROE. I was a witness in that proceeding. The interim decision does not explain the Idaho Commission's rationale for selecting 9.9 percent ROE, so the basis for its decision is unknown at the time that I am preparing this testimony. What I do know is that the Commission made its decision based upon evidence that reflected a trough in single-A utility bond interest rates. As shown in Table 1 on page 8 of this testimony, between the time that I prepared direct testimony in the Idaho case (April 2010) and the data that I had available when I prepared rebuttal testimony in that case (October 2010), single-A utility bond rates fell 71 basis points (0.71 percent). Since the time that I filed rebuttal testimony in that case, single-A utility bond rates have risen 46 basis points (as of December 2010). The Idaho record reflected a sharp drop in interest rates that has now been substantially reversed.

Q. How is your analysis structured?

A. In my DCF analysis, I apply a comparable company approach. Rocky Mountain

Power's cost of equity cannot be estimated directly from its own market data because the Company is wholly-owned subsidiary of MidAmerican Energy Holdings Company. As such, Rocky Mountain Power does not have publicly traded common stock or other independent market data that would be required to estimate its cost of equity directly. I begin my comparable company review with all the electric utilities that are included in the *Value Line Investment Survey* (Value Line). Value Line is a widely-followed, reputable source of financial data that is often used by professional regulatory economists. To improve the group's comparability with Rocky Mountain Power, which has a senior secured bond rating of A from Standard & Poor's (S&P) and A2 from Moody's Investors Service (Moody's), I restricted the group to companies with senior secured bond ratings of at least A- by S&P or A3 by Moody's. I also required the comparable companies to derive at least 70 percent of their revenues from regulated utility sales, to have consistent financial records not affected by recent mergers or restructuring, and to have a consistent dividend record with no dividend cuts or resumptions during the past two years. The fundamental characteristics and bond ratings of the 20 companies in my comparable group are presented in Exhibit RMP___(SCH-1), page 1.

In my risk premium analysis, I present estimates from both current and projected single-A utility bond interest rates. These rates are consistent with Rocky Mountain Power's bond ratings. As stated above, however, under current market conditions, I discount the risk premium results and rely on the DCF model for estimating the cost of equity. The data sources and the details of my cost of

equity studies are contained in Exhibits RMP___(SCH-1) through RMP___(SCH-5).

Q. How is the remainder of your testimony organized?

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

Fundamental Factors That Affect the Cost of Equity

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

A. Signs of improvement are beginning to appear. While unemployment remains stubbornly high at near 10 percent, manufacturing output has increased and in some areas new hiring has begun. Most forecasts for 2011 indicate continuing, but slow recovery through the end of the year. Even with the government's continuing expansionary monetary policy, since the low levels reached in September, both Treasury bond and corporate bond interest rates have increased by more than 50 basis points. Although caution remains, and utility stocks remain relatively depressed, the overall stock market has recovered significantly from is March 2009 low levels. All these factors point to gradually improving conditions

this year and into the next.

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

A. In Exhibit RMP___(SCH-2), page 1, I provide a 10-year review of annual interest rates and rates of inflation in the U.S. economy. During that time inflation and fixed income market costs declined and, generally, have been lower than rates that prevailed in the previous decade. Inflation, as measured by the Consumer Price Index (CPI), until 2003 had remained at historically low levels not seen consistently since the early 1960s. Since 2003, however, inflation rates have fluctuated with the average CPI increase for 2004 though 2006 similar to the longer-term historical average above three percent. The inflation rate for 2007 was even higher at 4.1 percent. Following the economic slowdown, however, on a December to December basis the CPI was unchanged in 2008, and in 2009 it increased by 2.8 percent.

Q. How has recent market turbulence affected the cost of equity for utilities?

A. During the past two years, capital markets in the U.S. have been more volatile than at any time since the 1930s. Extremely large daily swings in the stock market and unprecedented corporate interest rate spreads in the debt markets during late 2008 and early 2009 resulted in near chaos. The S&P 500 and the Dow Jones Industrial Average declined by over 50 percent from their November 2007 highs to the low point in March 2009. In this environment, many large financial institutions such as Countrywide Financial, Washington Mutual, the Federal Home Loan Mortgage Association, the Federal National Mortgage

Association, Wachovia, Bear Sterns, and Merrill Lynch were unable to survive as independent institutions. Lehman Brothers was forced to file for bankruptcy. Other surviving institutions such as Citigroup, Goldman Sachs, American International Group, Morgan Stanley and others have required multibillion dollar capital infusions.

The Federal government enacted emergency legislation (the $700 billion Troubled Asset Relief Program) in October 2008, in an attempt to stabilize the economy. As part of that effort, federal deposit insurance was increased, billions of dollars were lent to financial institutions, hundreds of billions of dollars in illiquid securities were purchased. In November 2008, the Federal Reserve System (Fed) pledged to pump an additional $800 billion into ailing credit markets - $600 billion to purchase federal government agency mortgage securities and, with support from the U.S. Treasury, up to $200 billion in financing to investors buying securities tied to student loans, car loans, credit card debt and small business loans was provided. President Obama also signed an additional $789 billion economic package in early 2009 in hopes of providing further economic stimulus. These efforts all reflect the heighted economic and financial uncertainties that were generated by the financial crisis.

Q. Is the government continuing in its efforts to stimulate the economy?

A. Yes. After the Fed reduced the overnight Federal Funds rate for banks to virtually zero in late 2008, its traditional monetary policy options became limited. Using less traditional tools, however, beginning in November 2008, the Fed announced the $600 billion purchase of mortgage backed securities and government bonds.

In early 2009, that program was expanded to $1.8 trillion. On November 3, 2010, the Fed extended these activities further with its additional Quantitative Easing plan (dubbed QE2) for repurchases of an additional $600 billion of long-term government bonds – a direct attempt to lower longer term interest rates, which may distort the results produced by equity risk premium models.

The government's unprecedented monetary expansion efforts have stabilized the economy and they have resulted in record low interest rates. However, the economic recovery is slow and unemployment remains high. The increase in unemployment to 9.8 percent in November 2010 (relative to a 10.1 percent peak in November 2009) simply confirmed the Fed's concerns about slow economic growth and the potential for deflation. On December 14, the Fed reconfirmed its QE2 bond-purchase program, stating that the program will continue through June 2011. Low inflation along with the government's aggressive monetary policies have produced the desired low level of interest rates, but continuing economic uncertainties have caused the more risky equity markets to remain volatile.

Q. What has been the trend in long-term interest rates during the past two years?

A. The month-by-month interest rate data for the past two years are presented in Exhibit RMP___(SCH-2), page 2. Those data are 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
3-Mo Avg	**5.34**	**4.16**	**1.18**
12-Mo Avg	**5.46**	**4.25**	**1.21**

Sources: Mergent Bond Record (Utility Rates); www.federalreserve.gov (Treasury Rates).

Three month average is for October 2010 - December 2010.

Twelve month average is for January 2010 - December 2010.

The data in Table 1 vividly illustrate the market turmoil that occurred. In 2008 and early 2009, government intervention and investors' "flight to safety" pushed Treasury bond rates down to record low levels. However, corporate interest rates increased so that the rate spreads between corporate and U.S. Treasury bonds reached unprecedented levels. Lower quality borrowers, for a period of time, were entirely excluded from traditional funding sources. While these crisis conditions have abated, the ongoing effects of the market's turbulence and the elevated risk aversion that continues in the equities markets must be considered in estimating the cost of equity capital.

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

A. No. While the credit markets have stabilized from the near-chaotic conditions that existed in late 2008, investors remain concerned about high unemployment, large federal deficits, and the potential for further fallout from foreclosures and other effects of the financial crisis. I will demonstrate below that the equity markets, particularly for utility shares, have not recovered to their prior levels. Lower utility prices reflect the heighted risk aversion that remains and show that the cost of equity for utilities has not declined as much as interest rates.

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

A. In Exhibit RMP___(SCH-2), page 3, I provide S&P's most recent economic forecast from its *Trends & Projection*s publication for December 2010. The S&P

data reflects the significant economic contraction that occurred in 2009, with 2.6 percent drop in real GDP. For all of 2010 and 2011, S&P forecasts that real GDP will increase by 2.8 percent and 2.6 percent, respectively. While this forecast does not reflect a full "double-dip" recession into 2011, the lack of further expansion in 2011 is a more pessimistic outlook than S&P has previously provided. The S&P forecast now delays the resumption of more robust real GDP growth (above 3.0 percent) until beyond the 4th Quarter of 2011.

Consistent with S&P's tepid outlook for the economy, its long-term interest rate forecasts also remain relatively low. Table 2 below summarizes the interest rate forecasts:

Table 2
Standard & Poor's Interest Rate Forecast

	Dec. 2010 Average	Average 2010 Est.	Average 2011 Est.
Treasury Bills	0.1%	0.1%	0.3%
10-Yr. T-Bonds	3.3%	3.2%	3.2%
30-Yr. T-Bonds	4.4%	4.3%	4.4%
Aaa Corporate Bonds	5.0%	5.0%	5.1%

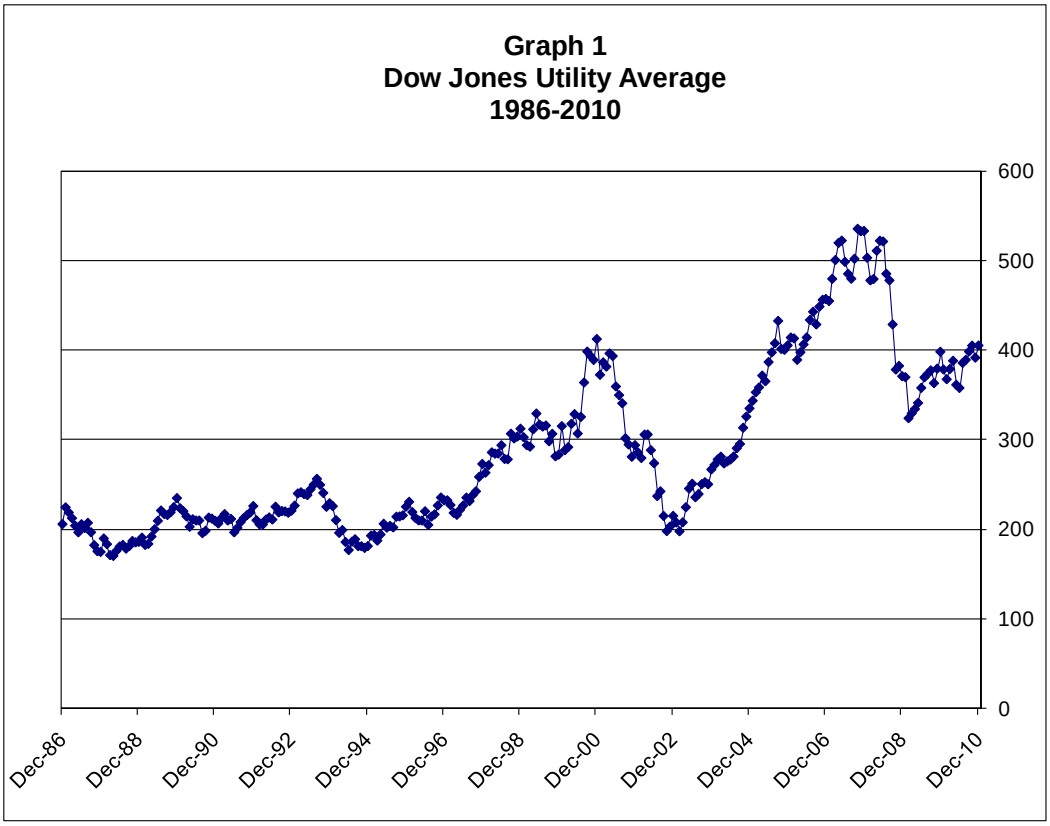
Sources: www.federalreserve.gov, (Current Rates). Standard & Poor's *Trends & Projections*, December 2010, page 8 (Projected Rates).

The data in Table 2 show that S&P expects, during 2011, that long-term Treasury interest rates remain at current (December 2010) levels. Although in the turbulent market environment it is difficult to project interest rates, continuing government expansionary policies are reflected in the S&P projections.

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

A. Utility stock prices have fluctuated widely. After reaching a level of over 400 in 2000, the Dow Jones Utility Average (DJUA) dropped to about 200 by October 2002. From late 2002 until late 2007, the DJUA trended upward. However,

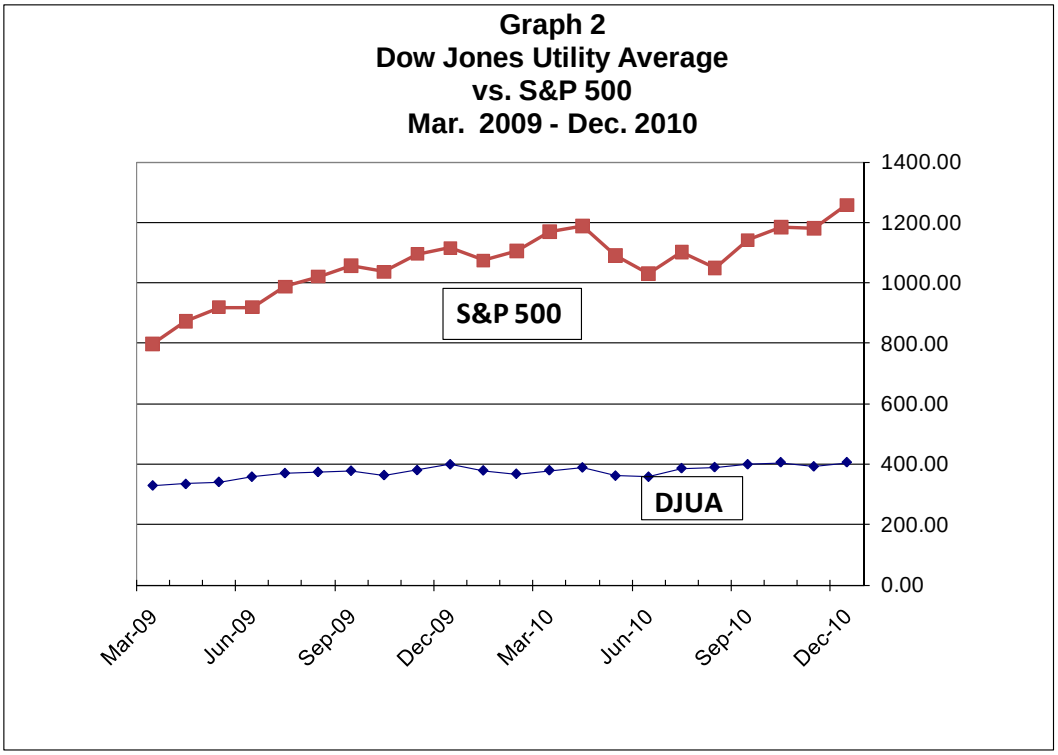
utility stock prices dropped materially with the overall market decline in 2008 and early 2009. The current level for the DJUA remains 27 percent below the highest levels attained in October 2007. The wider utility stock price fluctuations in the more recent years are vividly illustrated in the Graph 1 below, which depicts the DJUA over the past 25 years.



In this environment, investors' return expectations and requirements for providing capital to the utility industry remain high relative to the longer-term, traditional view of the utility industry.

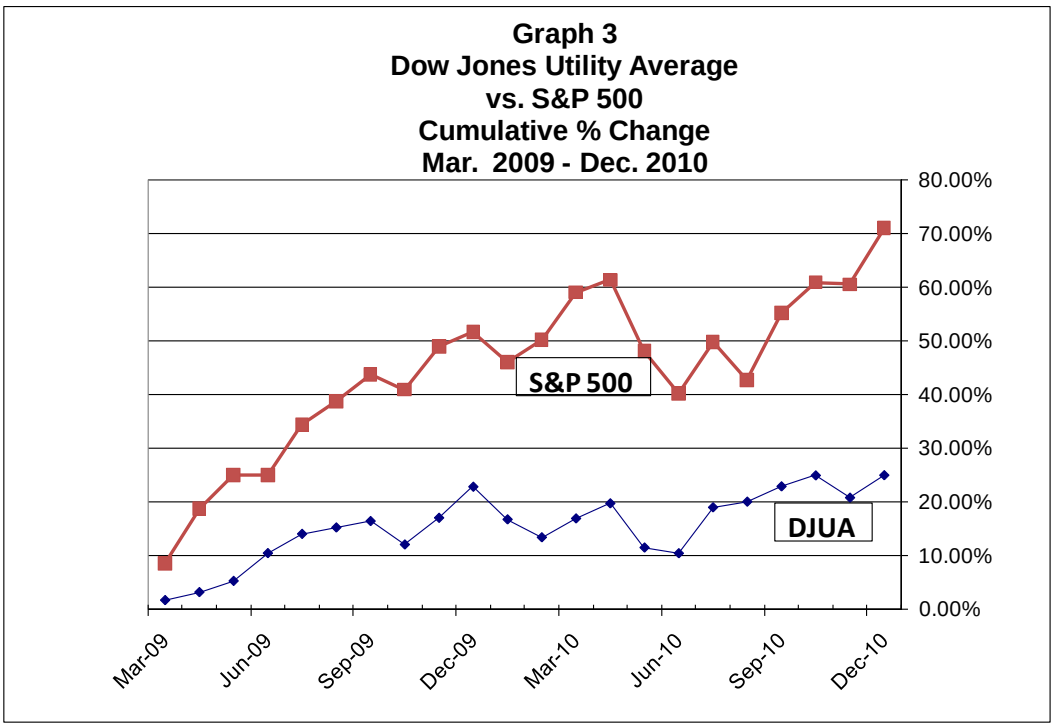
Q. How have utility stocks performed relative to the overall market recovery since March 2009?

A. Utility stock prices have lagged well behind the overall market. Graph 2 shows the monthly levels for the DJUA versus the broader market S&P 500 index since the market lows that occurred in February and March of 2009.



While the S&P 500 has increased significantly since its lowest levels, utility prices have recovered by only about one-third as much. This result is a further indication that the cost of equity for utility companies has not declined to the same extent that interest rates have fallen or to the same extent that the cost of equity may have come down for the broader equity market. The relatively lower prices for utility shares indicate that the cost of capital for utilities remains high.

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



While the S&P 500 has recovered over 70 percent (71.09%) from its March 2009 lows, utility stock prices have increased by 25 percent (25.01%). This result again points out the market difficulties that utilities face and the continuing relatively higher cost of equity for utility companies.

Q. What is the industry's current fundamental position?

A. The industry has seen significant volatility both in terms of fundamental operating characteristics and the effects of the economy. While many companies have refocused their businesses on more traditional utility service, the effects of deregulation of the wholesale power markets and continuing fuel price uncertainties remain prominent. The economic crisis has also reduced sales volumes and increased the difficulty of planning for future load requirements. Value Line reflects its views in its recent review of electric utility prospects:

Value Line Investor Survey

> Through mid-December, the Value Line Utility Average had risen 10% in 2010. That's a strong showing, but it fell short of the 19% rise in the Value Line Composite Average over that time period. The average yield on electric utility stocks is now 4.45%, which is more than twice the 1.9% median for dividend-paying issues under our coverage. Despite the relative underperformance, some of these stocks are getting pricey. Several are trading well within their 2013-2015 Target Price Range…. In general, we advise taking a cautious stance toward such utility equities. (Value Line Investor Survey, December 24, 2010, page 901).

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

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

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

Concerns also exist about the potential costs of new climate change legislation, including the House of Representatives' passage of H.R. 2454 – the American Clean Energy and Security Act of 2009, also referred to as the Waxman-Markey bill. While the bill has not been passed by the Senate, it remains likely that in the foreseeable future climate change initiatives will require utilities to balance a diverse set of supply-side and demand-side resources in order to respond. In particular, utilities with significant coal-fired generation would have the added risk of addressing a reduction in greenhouse gas emissions by needing to make costly changes to existing generation fleets such as retiring existing coal plants in favor of lower-emission alternatives, operating higher cost supply options, purchasing domestic and/or foreign carbon offsets, or purchasing more expensive low-or-zero emission power. In addition, climate change legislation would likely place added pressure on utilities to offer demand-side alternatives, including energy efficiency programs, that will reduce customers' demand for power.

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

Q. Is Rocky Mountain Power affected by these same uncertainties and increasing utility capital costs?

A. Yes. To some extent all electric utilities are being affected by the industry's

transition to competition. Although retail deregulation has not occurred in the state of Utah, Rocky Mountain Power's power costs and other operating activities have been significantly affected by transition and restructuring events around the country. In fact, the uncertainty associated with the changes that are transforming the utility industry as a whole, as viewed from the perspective of the investor, remain a factor in assessing any utility's cost of common equity and required ROE, including the ROE from Rocky Mountain Power's operations in Utah.

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

A. As I discussed previously, equity investors respond to changing assessments of risk and financial prospects by changing the price they are willing to pay for a given security. When the risk perceptions increase or financial prospects decline, investors refuse to pay the previously existing market price for a company's securities and market supply and demand forces then establish a new lower price. The lower market price typically translates into a higher cost of capital through a higher dividend yield requirement as well as the potential for increased capital gains if prospects improve. In addition to market losses for prior shareholders, the higher cost of capital is transmitted directly to the company by the need to earn a higher cost of capital on existing and new investment just to maintain the stock's new lower price level and the reality that the firm must issue more shares to raise any given amount of capital for future investment. The additional shares also impose additional future dividend requirements and may reduce future earnings per share growth prospects if the proceeds of the share issuance are

unable to earn their expected rate of return.

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

A. Over the past five years, the quarterly averages of allowed ROEs have generally been in the 10.4 percent to 10.5 percent range. During 2009 and 2010, the average allowed returns increased slightly, with average rates in integrated electric utility cases at approximately 10.4 percent to 10.6 percent.[1] Table 3 below summarizes the ROE data for the past five years:

Table 3
Authorized Electric Utility Equity Returns

	2006	2007	2008	2009	2010
1st Quarter	10.38%	10.27%	10.45%	10.29%	10.66%
2nd Quarter	10.68%	10.27%	10.57%	10.55%	10.08%
3rd Quarter	10.06%	10.02%	10.47%	10.46%	10.26%
4th Quarter	10.39%	10.56%	10.33%	10.54%	10.30%
Full Year Average	10.36%	10.36%	10.46%	10.48%	10.34%
Average Utility Debt Cost	6.08%	6.11%	6.65%	6.28%	5.55%
Indicated Average Risk Premium	4.28%	4.25%	3.81%	4.20%	4.79%

Source: Regulatory Focus, Regulatory Research Associates, Inc., Major Rate Case Decisions, January 7, 2010. Utility debt costs are the "average" public utility bond yields as reported by Moody's.

Since 2006, equity risk premiums (the difference between allowed equity returns and utility interest rates) have ranged from 3.81 percent to 4.79 percent.

[1] See Exhibit RMP___(SCH-1), page 2.

Estimating the Cost of Equity Capital

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

A. The purpose of this section is to compare the strengths and weaknesses of several of the most widely used methods for estimating the cost of equity. Estimating the cost of equity is fundamentally a matter of informed judgment. The various models provide a concrete link to actual capital market data and assist with defining the various relationships that underlie the ROE estimation process. (Please Appendix C for further technical discussion of the DCF and risk premium models.)

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

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

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

> From the investor or company point of view, it is important that there be enough revenue not only for operating expenses, but also for the capital costs of the business. These include service on the debt and dividends on the stock. By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract

capital. *Federal Power Commission v. Hope Natural Gas Co*., 320 U.S. 591, 603 (1944).

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

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

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

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

required a higher rate of return from the stock, which would have resulted in a lower initial purchase price in market trading.

Each day market rates of return and prices change to reflect new investor expectations and requirements. For example, when interest rates on bonds and savings accounts rise, utility stock prices usually fall. This is true, at least in part, because higher interest rates on these alternative investments make utility stocks relatively less attractive, which causes utility stock prices to decline in market trading. This competitive market adjustment process is quick and continuous, so that market prices generally reflect investor expectations and the relative attractiveness of one investment versus another. In this context, to estimate the cost of equity one must apply informed judgment about the relative risk of the company in question and knowledge about the risk and expected rate of return characteristics of other available investments as well.

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

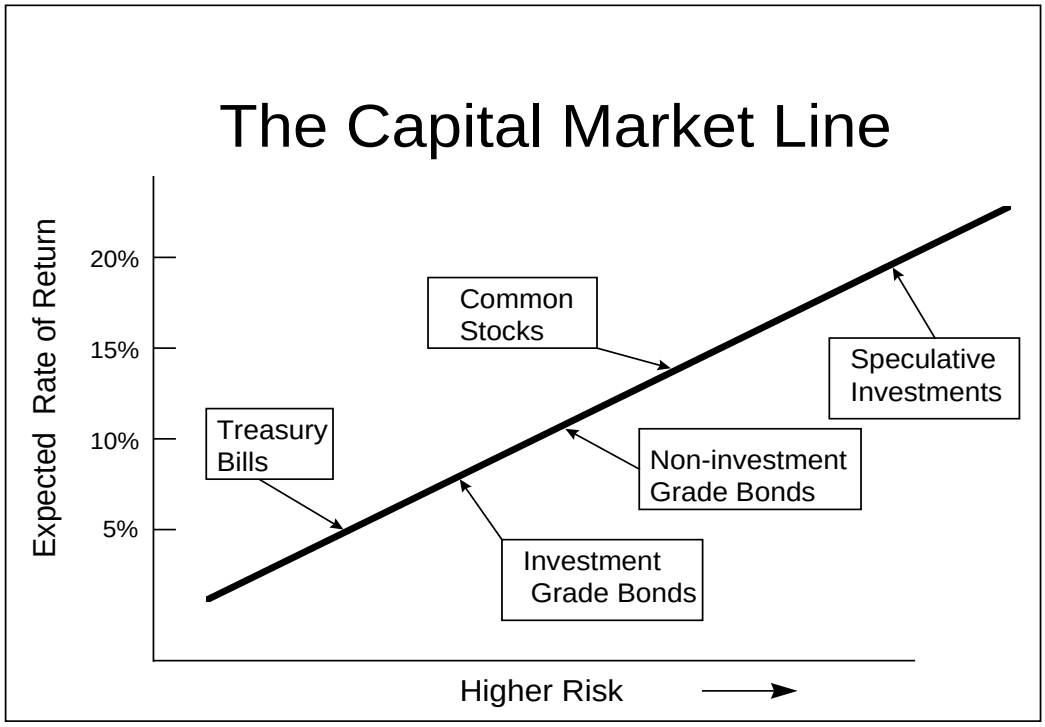
A. Risk-return tradeoffs among capital market investments have been the subject of extensive financial research. Literally dozens of textbooks and hundreds of academic articles have addressed the issue. Generally, such research confirms the common sense conclusion that investors will take additional risks only if they expect to receive a higher rate of return. Empirical tests consistently show that returns from low risk securities, such as U.S. Treasury bills, are the lowest; that returns from longer-term Treasury bonds and corporate bonds are increasingly higher as risks increase; and generally, returns from common stocks and other

more risky investments are even higher. These observations provide a sound theoretical foundation for both the DCF and risk premium methods for estimating the cost of equity capital. These methods attempt to capture the well founded risk-return principle and explicitly measure investors' rate of return requirements.

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

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

Risk-Return Tradeoffs



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

Investment risks increase as one moves up and to the right along the CML. A higher degree of uncertainty exists about the level of investment value at any point in time and about the level of income payments that may be received.

Among these investments, long-term bonds and preferred stocks, which offer priority claims to assets and income payments, are relatively low risk, but they are not risk-free. The market value of long-term bonds, even those issued by the U.S. Treasury, often fluctuates widely when government policies or other factors cause interest rates to change.

Farther up the CML continuum, common stocks are exposed to even more risk, depending on the nature of the underlying business and the financial strength of the issuing corporation. Common stock risks include market-wide factors, such as general changes in capital costs, as well as industry and company specific elements that may add further to the volatility of a given company's performance. As I will illustrate in my risk premium analysis, common stocks typically are more volatile (have higher risk) than high quality bond investments and, therefore, they reside above and to the right of bonds on the CML graph. Other more speculative investments, such as stock options and commodity futures contracts, offer even higher risks (and higher potential returns). The CML's depiction of the risk-return tradeoffs available in the capital markets provides a useful perspective for estimating investors' required rates of return.

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

A. Techniques for estimating the cost of equity normally fall into three groups: comparable earnings methods, risk premium methods, and DCF methods. The first set of estimation techniques, the comparable earnings methods, has evolved over time. The original comparable earnings methods were based on book

accounting returns. This approach developed ROE estimates by reviewing accounting returns for unregulated companies thought to have risks similar to those of the regulated company in question. These methods have generally been rejected because they assume that the unregulated group is earning its actual cost of capital, and that its equity book value is the same as its market value. In most situations these assumptions are not valid, and, therefore, accounting-based methods do not generally provide reliable cost of equity estimates.

More recent comparable earnings methods are based on historical stock market returns rather than book accounting returns. While this approach has some merit, it too has been criticized because there can be no assurance that historical returns actually reflect current or future market requirements. Also, in practical application, earned market returns tend to fluctuate widely from year to year. For these reasons, a current cost of equity estimate (based on the DCF model or a risk premium analysis) is usually required.

The second set of estimation techniques is grouped under the heading of risk premium methods. These methods begin with currently observable market returns, such as yields on government or corporate bonds, and add an increment to account for the additional equity risk. The capital asset pricing model (CAPM) and arbitrage pricing theory (APT) model are more sophisticated risk premium approaches. The CAPM and APT methods estimate the cost of equity directly by combining the "risk-free" government bond rate with explicit risk measures to determine the risk premium required by the market. Although these methods are widely used in academic cost of capital research, their additional data

requirements and their potentially questionable underlying assumptions have detracted from their use in most regulatory jurisdictions. The basic risk premium methods generally provide a useful parallel approach with the DCF model and assure consistency with other capital market data in the equity cost estimation process.

The third set of estimation techniques, based on the DCF model, is the most widely used regulatory cost of equity estimation method. Like the risk premium approach, the DCF model has a sound basis in theory, and many argue that it has the additional advantage of simplicity. I will describe the DCF model in detail below, but in essence its estimate of ROE is simply the sum of the expected dividend yield and the expected long-term dividend, earnings, or price growth rate (all of which are assumed to grow at the same rate). While dividend yields are easy to obtain, estimating long-term growth is more difficult. Because the constant growth DCF model also requires very long-term growth estimates (technically to infinity), some argue that its application is too speculative to provide reliable results, resulting in the preference for the multistage growth DCF analysis.

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

A. From my experience, a combination of DCF and risk premium methods usually provides the most reliable approach. While the caveat about estimating long-term growth must be observed, the DCF model's other inputs are readily obtainable, and the model's results typically are consistent with capital market behavior. The

risk premium methods provide a good parallel approach to the DCF model and further ensure that current market conditions are accurately reflected in the cost of equity estimate. However, due to ongoing market turmoil and current government monetary policy, which I will discuss later in this testimony, ROE estimates obtained from the risk premium methodology should be discounted.

Cost of Equity Capital for Rocky Mountain Power

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

A. The purpose of this section is to present my quantitative studies of the cost of equity capital for Rocky Mountain Power and to discuss the details and results of my analysis.

Q. How are your studies organized?

A. In the first part of my analysis, I apply three versions of the DCF model to a 20-company group of electric utilities based on the selection criteria discussed previously. In the second part of my analysis, I apply various equity risk premium models and review projected economic conditions and projected capital costs for the coming year.

My DCF analysis is based on three versions of the DCF model. In the first version of the DCF model, I use the constant growth format with long-term expected growth based on analysts' estimates of five-year utility earnings growth. While I continue to endorse a longer-term growth estimation approach based on growth in overall gross domestic product, I show the analyst growth rate DCF results because this is the approach that has traditionally been used by many regulators. In the second version of the DCF model, for the estimated growth

rate, I use only the long-term estimated GDP growth rate. In the third version of the DCF model, I use a two-stage growth approach, with stage one based on Value Line's three-to-five-year dividend projections and stage two based on long-term projected growth in GDP. The dividend yields in all three of the models are from Value Line's projections of dividends for the coming year and stock prices are from the three-month average for the months that correspond to the Value Line editions from which the underlying financial data are taken.

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

A. Growth in nominal GDP (real GDP plus inflation) is the most general measure of economic growth in the U.S. economy. For long time periods, such as those used in the Morningstar/Ibbotson Associates rate of return data, GDP growth has averaged between five percent and eight percent per year. From this observation, Professors Brigham and Houston offer the following observation concerning the appropriate long-term growth rate in the DCF Model:

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

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

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

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

These findings support the notion that long-term growth expectations are more closely predicted by broader measures of economic growth than by near-term analysts' estimates. Especially for the very long-term growth rate requirements of the DCF model, the growth in nominal GDP should be considered an important input.

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

A. I developed my long-term GDP growth forecast from nominal GDP data contained in the St. Louis Federal Reserve Bank data base. That data for the period 1949 through 2009 are summarized in my Exhibit RMP___(SCH-3). As shown at the bottom of that exhibit, the overall average for the period was 6.9 percent. The data also show, however, that in the more recent years since 1980, lower inflation has resulted in lower overall GDP growth. For this reason I gave

more weight to the more recent years in my GDP forecast. Based on this approach, my overall forecast for long-term GDP growth is 90 basis points lower than the long-term average, at a level of 6.0 percent.

Q. The DCF model requires an estimate of investors' long-term growth rate expectations. Why do you believe your forecast of GDP growth based on long-term historical data is appropriate?

A. There are at least three reasons. First, most econometric forecasts are derived from the trending of historical data or the use of weighted averages. This is the approach I have taken Exhibit RMP___(SCH-3). The long-run historical average GDP growth rate is 6.9 percent, but my estimate of long-term expected growth is only 6.0 percent. My forecast is lower because my forecasting method gives much more weight to the more recent 10- and 20-year periods.

Second, some currently lower GDP growth forecasts likely understate very long growth rate expectations that are required in the DCF model. Many of those forecasts are currently low because they are based on the assumption of permanently low inflation rates, in the range of two percent. As shown in my Exhibit RMP___(SCH-3), the average long-term inflation rate has been over three percent in all but the most recent 10- and 20- year periods. Also, as shown in Exhibit RMP___(SCH-2), page 1, from December 2008 to December 2009, even with the continuing effects of the economic recession, the CPI increased by 2.8 percent. Use of long-term inflation rates of two percent or less to estimate long-term nominal growth in the DCF model is not consistent with reasonable long-term expectations for the U.S. economy.

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

Q. Please summarize the results of your DCF analyses.

A. The DCF results for my comparable company group are presented in Exhibit RMP___(SCH-4). As shown in the first column of page 1 of that exhibit, the traditional constant growth model indicates a cost of common equity of 10.1 percent. In the second column of page 1, I recalculate the constant growth results with the growth rate based on long-term forecasted growth in GDP. With the GDP growth rate, the constant growth model indicates a cost of common equity range of 10.6 percent to 10.7 percent. Finally, in the third column of page 1, I present the results from the multistage DCF model. The multistage model indicates a cost of common equity of 10.3 percent. The results from the DCF model, therefore, indicate a reasonable a cost of common equity range of 10.1 percent to 10.7 percent.

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

A. The details and results of my equity risk premium studies are shown in my

Exhibit RMP___(SCH-5). These studies indicate a cost of common equity range of 10.10 percent to 10.24 percent. As noted previously, under current market conditions, I discount these results because current utility bond yields are artificially depressed by the government's expansionary monetary policy. Hence, when the equity risk premiums that have traditionally been allowed by regulators are added to artificially depressed public utility bond yields, the result is an artificially lower a cost of common equity estimate. The reverse would be true if interest rates were artificially high.

Q. How are your equity risk premium studies structured?

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

The inverse relationship between equity risk premiums and interest rate levels is well documented in numerous, well-respected academic studies. These studies typically use regression analysis or other statistical methods to predict or measure the equity risk premium relationship under varying interest rate conditions. On page 3 of Exhibit RMP___(SCH-5), I provide regression analyses

of the allowed annual equity risk premiums relative to interest rate levels. The negative and statistically significant regression coefficients confirm the inverse relationship between equity risk premiums and interest rates. This means that when interest rates rise by one percentage point, the cost of equity increases, but by a smaller amount. Similarly, when interest rates decline by one percentage point, the cost of equity declines by less than one percentage point. I use this negative interest rate change coefficient in conjunction with current and forecasted interest rates to estimate the appropriate cost of common equity.

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

A. Table 4 below summarizes my results:

Table 4

Summary of Cost of Equity Estimates	
DCF Analysis	Indicated Cost
Constant Growth (Analysts' Growth)	10.1%
Constant Growth (GDP Growth)	10.6%-10.7%
Multistage Growth Model	10.3%
Reasonable DCF Range	10.1%-10.7%
Equity Risk Premium Analysis	Indicated Cost
Forecast Utility Debt Yield+ Equity Risk Premium	
Equity Risk Premium ROE (5.58% + 4.66%)	10.24%
Current Utility Debt + Equity Risk Premium	
Equity Risk Premium ROE (5.34% + 4.76%)	10.10%

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

A. I conclude that an ROE of 10.5 percent is reasonable for setting rates. This ROE is well within my DCF range. Under current market conditions, I discount the bond-yield plus risk-premium results because interest rates on high quality debt are currently artificially depressed by government monetary policy and the

continuing turbulence of the equity capital markets. While these conditions make it difficult to strictly interpret quantitative estimates of the cost of equity, my estimates reflect current market conditions, including the government's efforts to stimulate the economy. The relatively poor performance of utility stocks, as compared to the broader market averages, shows that the cost of equity for utilities has not declined in lockstep with interest rates. Based on all these factors, I conclude that 10.5 percent is a reasonable ROE for the Company and should be authorized by the Commission.

Q. Does this conclude your direct testimony?

A. Yes, it does.