ILLINOIS COMMERCE COMMISSION

DIRECT TESTIMONY

OF

KATHLEEN C. MCSHANE

Submitted On Behalf

Of

MIDAMERICAN ENERGY COMPANY

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MidAmerican Exhibit KCM 1.1 QUALIFICATIONS OF KATHLEEN C. McSHANE

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I. INTRODUCTION

Q. Please state your name and business address.

A: My name is Kathleen C. McShane. My business address is 4550 Montgomery Avenue, Suite 350N, Bethesda, Maryland 20814.

Q. By whom are you employed and in what capacity?

A. I am President of and Senior Consultant with Foster Associates, Inc., an economic consulting firm.

Q. Please provide your educational and employment history.

A. I hold a Masters in Business Administration with a concentration in Finance from the University of Florida (1980) and the Chartered Financial Analyst designation (1989). I have testified on issues related to cost of capital and various ratemaking issues on behalf of local gas distribution utilities, pipelines, electric utilities and telephone companies, in more than 190 proceedings in Canada and the U.S. My professional experience is provided in MidAmerican Exhibit KCM 1.2.

Q. What is the purpose of your direct testimony?

A. I have been asked to render an opinion on the fair rate of return on equity that would be applicable to the Illinois gas utility operations of MidAmerican Energy Company ("MidAmerican" or "Company"). My analysis and conclusions regarding the fair return follow; the statistical support for the studies I have conducted is contained in MidAmerican Exhibit KCM 1.2, containing Schedules 1 to 11.

II. SUMMARY OF CONCLUSIONS

Q. What were the key factors considered in conducting your analysis and arriving at your recommendation?

A. My analysis and recommendation took into account the following considerations:

(1) The allowed return on equity for MidAmerican's Illinois gas utility operations should reflect the risk profile and cost of equity of comparable gas distribution utilities (LDCs) so as to provide a return commensurate with returns in other enterprises with corresponding risks. A sample of LDCs serves as the comparable group for MidAmerican's Illinois gas utility operations.

(2) In arriving at a recommended return, no single test result should be given exclusive weight. Each of the various tests employed provide a different perspective on a fair return. Each test has its own strengths and weaknesses, which may vary with both the business cycle and stock market conditions. In the end, the governing principles of *Bluefield*[1] and *Hope*[2], require that a utility be allowed the opportunity to earn a return commensurate with those of enterprises of comparable risk.

[1] *Bluefield Water Works & Improv. Co. v. Public Serv. Comm'n of West Virginia,* 262 U.S. 679 (1923).
[2] *Federal Power Comm'n v. Hope Natural Gas Co.,* 320 U.S. 591 (1944).

(3) For the purpose of determining a fair return on equity for a utility, a critical factor that needs to be recognized is that the cost of capital is determined in the capital markets. The cost of capital estimates reflect the market value of the firm's capital, both debt and equity. While the DCF and risk premium tests estimate the return required on the market value of common equity, regulatory convention applies that return to the book value of the assets included in rate base. The determination of a fair return on book equity needs to recognize that distinction and the resulting differences in financial risk.

(5) In principle, the comparable earnings test is most compatible with regulation on an original cost book value rate base. For purposes of this testimony, I have used the comparable earnings test results to demonstrate the reasonableness of the recommended return in relation to the level of returns being earned by comparable risk unregulated companies.

(6) The results of the DCF and equity risk premium tests used to estimate a fair return for MidAmerican's Illinois gas utility operations are summarized below.

Table 1

	Cost of Equity	**ROE Adjusted for MidAmerican's Equity Ratio**
DCF		
Constant-I/B/E/S	10.8%	11.5%
Constant-Sustainable Growth	10.9%	11.6%
Three-Stage	10.4%	11.1%
Equity Risk Premium		
CAPM Forward	10.7%	12.1%
CAPM Historic	9.8%	10.9%
Historic – Utility vs. risk-free rate	11.1%	11.1%
Historic – Utility vs. A-rated public utility bonds	11.4%	11.4%
DCF-based Risk Premium vs. A-rated public utility bonds	9.8%	10.7%
Recommendation		**11.25%**

The tests indicate that the cost of equity is approximately 10.5% based on all of the tests performed. As there is a difference between MidAmerican's book value common equity ratio of 47.75% and the market value common equity ratios of the sample of LDCs over the relevant periods of analysis, an upward adjustment of approximately 75 basis points to the 10.5% cost of equity is required for differences in financial risk between MidAmerican and the proxy LDCs. I recommend that the allowed return on equity for MidAmerican's Illinois gas utility operations be set at 11.25%.

III. KEY CONSIDERATIONS FOR A FAIR RETURN ON EQUITY

Q. Please explain the importance of the allowed return on equity.

A. The allowed return on equity is one of the most critical elements of the revenue requirement. The allowed return on equity reflects the cost of equity capital. The cost of equity capital is a real cost to the utility. The return on equity capital represents the compensation investors require to make available the funds necessary to build, grow and maintain the infrastructure necessary to deliver services essential to the economic well-being of a region.

A just and reasonable return on the capital provided by investors not only fairly compensates the investors who have put up, and continue to commit, the funds necessary to deliver service, but benefits all stakeholders, especially ratepayers. A fair and reasonable return on the capital invested in a utility provides the basis for attraction of capital for which investors have alternative investment opportunities. Fair compensation on the capital committed to the utility provides the utility with the financial means to invest in the infrastructure for the supply of energy that is required to support long-term growth in the underlying economy, to comply with the requirements that ensure that the production of needed energy is not harmful to the environment, and to pursue technological innovations to meet the future needs of a vibrant economy.

An inadequate return, on the other hand, undermines the ability of a utility to compete for investment capital. Moreover, inadequate returns act as a disincentive to expansion within the service area, may potentially degrade the quality of service or deprive existing customers from the benefit of lower unit costs which might be achieved from growth. In short, if the utility is not provided the opportunity to earn a fair and reasonable return, it may be prevented from making the requisite level of investments in the existing infrastructure in order to reliably provide utility services for its customers.

MidAmerican will be competing for capital in markets that may be characterized by an unprecedented requirement for regulated infrastructure investment. The International Energy Agency in its 2008 *World Energy Outlook* estimated that between 2007 and 2030 close to $4.3 trillion in investment would be required by the gas transmission and distribution ($1.7 trillion) and electricity ($2.6 trillion) industries in North America. The opportunity to earn a fair return on equity is critical to the ability to achieve and maintain strong credit metrics and to access capital on reasonable terms and conditions even when capital markets are under pressure.

Q. How do you ensure that the allowed return provides fair compensation to investors for committing their equity capital to the utility?

A. To ensure that the allowed return fairly compensates investors for committing equity capital, the utility must be given the opportunity to:

1. earn a return on investment commensurate with that of comparable risk enterprises;

2. maintain its financial integrity; and,

3. attract capital on reasonable terms.

These standards arise from United States Supreme Court precedents,[3] and have been echoed in numerous regulatory decisions across North America.

Q. Please explain the implication of "the opportunity to earn a return on investment commensurate with that of comparable risk enterprises".

A. This criterion is at the heart of the "opportunity cost principle". It means that the fair return must be determined by estimating the return investors would receive if they committed their funds to alternative investment opportunities with comparable risks to MidAmerican's Illinois gas utility operations. It means that any estimate of the cost of equity capital must look to comparable risk enterprises and the returns available to them.

Q. Does the need to look to comparable risk companies mean that each utility in a sample of proxies must exhibit identical risk characteristics to those of MidAmerican's Illinois gas utility operations?

A. No. Each utility will have risk characteristics that are unique. However, on balance, the level of total risks (business plus financial) should be reasonably comparable.

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[3] In *Bluefield*, 262 U.S. at 692, for example, the Court stated,

> 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. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties

In *Hope*, 320 U.S. at 603, Justice Douglas, writing for the Court, stated,

> 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. . . . By that standard the return on 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.

Q. How have you selected comparable risk enterprises for this purpose?

A. I selected a sample of nine natural gas distribution utilities (LDCs) according to the criteria delineated in Section IV.B.3 of this testimony.

Q. Does the proxy group of LDCs that you employed to estimate the cost of equity face the same level of business risk to which the MidAmerican's Illinois gas distribution operations are exposed?

A. On balance, the fundamental business risks (operating, market, supply) and regulatory model are similar. However, with regard to the regulatory model, unlike the proxy utilities in my LDC sample, MidAmerican's Illinois gas utility operations have no protection against weather. Of the nine proxy LDCs in my sample, eight have either full or partial protection from weather and customer consumption decline risk through weather normalization clauses, rate design and/or revenue decoupling. Consequently, with no weather protection, MidAmerican's Illinois gas utility operations would be considered somewhat riskier than the proxy sample. Nevertheless, I have not adjusted the cost of equity estimates for MidAmerican's lack of weather protection; from a diversified portfolio perspective, weather risk is diversifiable and should have no impact on the investors' required rate of return.

With respect to the fundamental business risks (market, supply, operating), the Illinois gas utility operations of MidAmerican are of reasonably similar business risk to the selected proxy sample of natural gas LDCs so that no adjustment to the cost of equity estimates of the proxy sample is required for differences in business risk.

Q. With respect to the capital structure that MidAmerican proposes to use for ratemaking purposes, how does it compare to the book value capital structures of the proxy LDC sample?

A. MidAmerican is proposing to use its December 31, 2008 capital structure for ratemaking purposes. The proposed common equity ratio of 47.75% is close to

the average of the 2008 book value common equity ratios maintained by the proxy sample of LDCs; see MidAmerican Exhibit KCM 1.2, Schedule 3).

Q. In your opinion, is MidAmerican's proposed capital structure reasonable for ratemaking purposes?

A. Yes. In principle, the actual capital structure should be relied upon for ratemaking purposes, except under unusual circumstances (e.g., where the capital structure is demonstrably out of line with the capital structures maintained by the industry).

Q. How do MidAmerican Company's debt ratings compare to those of your proxy sample of LDCs?

A. Similar to my proxy sample of LDCs, MidAmerican Company is rated in the A category (A- by S&P, A2 by Moody's and A by Fitch) by the debt rating agencies.

Given the similarity in business risks between MidAmerican's Illinois gas utility operations and the sample of LDCs, the similar book value capital structures, and the similar debt ratings, I have relied on the sample of LDCs' cost of equity as a measure of the opportunity cost of equity for MidAmerican's Illinois gas utility operations (as adjusted for market and ratemaking financial risk differences as required, discussed in Section V.D.2).

IV. ECONOMIC AND CAPITAL MARKET TRENDS

Q. Please summarize the recent trends in, and forecasts for, the key economic and capital market indicators that bear on the cost of capital environment.

A. The sections below discuss the trends in the economy, interest rates, and equity markets, both for the market generally and for utilities specifically.

A. ECONOMIC AND INTEREST RATE TRENDS

The U.S. economy is currently facing the worst financial crisis since the Great Depression. As a result, the U.S. economy is in a deep recession that is expected to last for an extended period of time.

The roots of the financial crisis can be traced to the search for higher yield investment products in a period of stable markets and low credit spreads, leading to excessive lending to borrowers with poor credit (subprime mortgages), which in turn fuelled the housing market bubble. The associated high risk mortgage loans were securitized, given relatively high credit ratings, and the resulting structured financial projects were spread throughout the global financial system. In early 2007, the subprime mortgage market began to unravel. Mortgage delinquencies rose, large mortgage lenders began facing increasingly difficult financial conditions, including bankruptcy, hundreds of mortgage-backed securities were downgraded, institutional holders' confidence in the ability to value the securities eroded and confidence in global financial institutions with significant exposure to asset-backed securitized products began to deteriorate. A liquidity crunch emerged in world financial markets, as the market for asset-backed commercial paper (ABCP) dried up.

As the markets became increasingly nervous, and credit began to dry up, the Federal Reserve stepped in, attempting to restart the flow of credit. Between December 2006 and December 2007, the federal funds rate (the rate at which banks lend to each other) was lowered three times. During the first six months of 2008, in addition to lowering the federal funds rate four more times, the Federal Reserve implemented other measures aimed at maintaining an orderly financial system, including the creation of lending facilities and increased swap lines with other central banks.

Efforts by the Federal Reserve to stem the global financial crisis were unsuccessful. By the end of the third quarter of 2008, the crisis had reached full-blown proportions, with the failure, merger, or conservatorship of several large

United States-based financial firms. For example, in early September, the Federal Housing Finance Agency (FHFA) created to regulate Fannie Mae, Freddie Mac and the 12 Federal Home Loan Banks, placed Fannie Mae and Freddie Mac in government conservatorship. In September, Lehman Brothers Holdings, the fourth largest U.S. investment bank, having failed to elicit either government support or a buyer, filed for Chapter 11 bankruptcy protection. On September 16th the Federal Reserve authorized $85 billion to shore up American International Group (AIG). At the end of the month, the Office of Thrift Supervision closed Washington Mutual Bank.

On October 14, 2008, the Treasury announced the Troubled Asset Relief Program (TARP) designed to purchase capital in financial institutions under the authority of the Emergency Economic Stabilization Act of 2008. By the end of December 2008, the U.S. Treasury held a stake in more than 200 financial institutions. By this time, the effects of the crisis had penetrated other industries, including the U.S. auto industry. Loans from TARP of over $17 billion were approved for the ailing General Motors and Chrysler Corporations.

On December 1, 2008, the National Bureau of Economic Research (NBER) announced what many had long believed, that the US economy, after peaking in the 4th quarter of 2007, had entered into recession. Despite further reduction in the federal funds rate to 1.00% in October 2008, the economy failed to respond to the previous monetary and fiscal policy initiatives. As a result, following the NBER's announcement, the Federal Reserve reduced the federal funds rate to the unprecedented level of 0-0.25% in mid-December, citing deterioration in labor market conditions, the declines in consumer spending, business investment, and industrial production, the strained financial markets and the tight credit conditions. Real growth dropped sharply in the fourth quarter of 2008 (-6.3%), its biggest decline since the 1980-1981 recession.

The prospects for 2009 are dim; real growth is expected to be negative for the year (-2.6%). Although the consensus of economists expects growth to turn

positive by the 3rd Quarter of 2009, real GDP growth is not anticipated to exceed 2% until 1st Quarter of 2010, or to exceed 3.0% until 4th quarter of 2010. Thus while the economy is expected to gradually pull out of recession, the recovery is not expected to be either rapid or robust.

The table below provides a brief summary of the most recent actual and consensus forecast of economic indicators that are relevant to the cost of capital environment.

Table 2

	2008 (Actual)	Consensus Forecasts			
		2009	2010	2009-2013	2011-2020
Economic Growth (Real GDP)	1.1%	-2.6%	1.8%	1.8%	2.9%
GDP Chained Price Index	2.2%	1.3%	1.2%	1.7%	2.2%
Inflation (CPI)	3.8%	-0.7%	1.6%	1.5%	2.5%

Source: Blue Chip *Economic Indicators*, April and March 2009

As the financial crisis spread, investors sought a safe haven in government securities. The "flight to quality" put downward pressure on 30-year Treasury bond yields, which fell from under 5% in August 2007 to below 2.7%, a level not seen since the mid-1950s, by the end of 2008.

While the "flight to quality" pushed yields on government securities down, yields and spreads on corporate bonds began to rise as the financial crisis took hold. From early 2004 to mid-2007, spreads on long-term A- and Baa-rated corporate bonds relative to the government benchmark yields had been fairly stable, averaging approximately 110 and 150 basis points respectively. Between mid-2007 and the end of November 2008, the spread between long-term A-rated corporate and long-term Treasury bond yields had soared to almost 390 basis points (yield of 8%). The corresponding spread between long-term Baa-rated corporate and Treasury bond yields had ballooned to 560 basis points (yield of

9%).[4] The wide differential between Baa-rated and A-rated bond spreads in late 2008 was a clear signal of the importance of credit quality.

Some signs of a thaw in the credit markets have emerged in early 2009; yields on 30-year government bonds have risen moderately (3.6% at the end of March 2009). Nevertheless, long-term Treasury bond yields remain well below their long-term expected level of 5.6% (See Table 3 below).

Yields on long-term corporate bonds have receded from their 2008 peaks. At the end of March 2009, yields on long-term A-rated and Baa-rated corporate bonds had declined to 6.64% and 8.45% respectively. Their corresponding spreads with Treasury bond yields had also fallen, to approximately 310 and 490 basis points respectively, but, despite this decline, remained well above their historic averages of 110 and 150 basis points.

Long-term Treasury yields are expected to remain at or below 2008 levels through mid-2010. Through mid-year 2010, the long-term Treasury bond yield is expected to average approximately 3.8%. As the economy gradually recovers, yields on the 30-year Treasury bond are expected to rise gradually, averaging 4.7% from 2009-2013. Over the longer term, 2011-2020, the 30-year Treasury is expected to average approximately 5.6%. Corporate spreads are expected to decline only slightly from their current levels in 2009. While the spreads are expected to continue to decline over the longer-term, they are expected to remain above the historic levels maintained prior to the onset of the current financial crisis of 110 and 150 basis points on average for A- and Baa-rated corporate bonds respectively. Table 3 summarizes actual and forecast government and corporate interest rate forecasts.

[4] The peak in absolute yields occurred on October 31, 2008, when A-rated and Baa-rated corporate yields hit 8.07% and 9.54% respectively.

Table 3

	2008 (Actual)	Consensus Forecasts			
		2009	2010	2009-2013	2011-2020
90-day Treasury Bills	1.3%	0.3%	1.0%	2.3%	4.0%
10-year Treasury Notes	3.6%	2.9%	3.7%	4.25%	5.25%
30-year Treasury Bonds	4.2%	3.5%	4.0%[1]	4.7%[2]	5.6%[2]
Long-term A-Rated Corp. Bonds	6.6%	6.6%[3]	NA	NA	NA
Long-term Baa-Rated Corp. Bonds	7.5%	7.8%	7.6%[1]	7.5%[4]	7.8%[4]

[1] Through June 2010.
[2] Based on March 2009 forecast yields and forecast long-term spreads between 10 and 30-year Treasury yields as per December 2008 Blue Chip *Financial Forecasts*. Blue Chip *Financial Forecasts* publishes long-term forecasts in December and June only.
[3] Actual through March 2009.
[4] Based on March 2009 forecast yields and forecast long-term spreads between corporate Baa-rated bond and 30-year Treasury yields as per December 2008 Blue Chip *Financial Forecasts*.

Source: Blue Chip *Economic Indicators*, March 2009 and Blue Chip *Financial Forecasts*, December 2008 and March 2009

B. EQUITY MARKET TRENDS

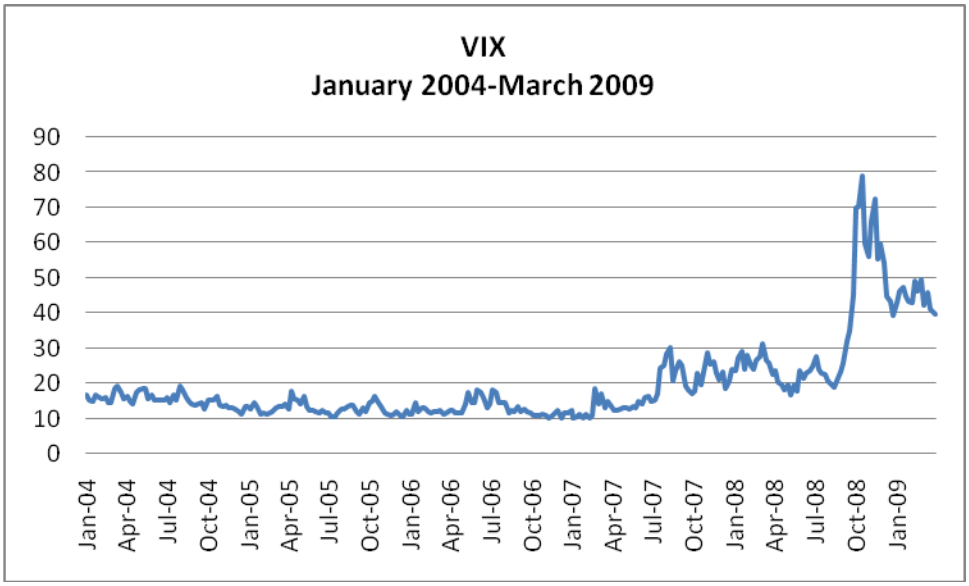
Following the 2001-2002 recession, as the economy strengthened, fuelled by low interest rates, easy credit and a buoyant housing market, the equity markets also strengthened. They continued to climb even as the housing bubble started to deflate in late 2006. Even as the credit markets coped with an increasingly severe credit crunch in 2007, the equity markets remained steady, reaching their peak in mid-October. However, during 2008, as the crisis in the credit markets expanded globally, commodity prices (e.g., oil, copper, aluminum, wheat, corn) began to collapse and global economies appeared more likely to be heading toward recession, the equity markets began an incessant retreat. Following the Lehman Brothers bankruptcy announcement in September 2008, the equity market retreat erupted into a full-fledged panic.

From its October 2007 peak through the mid-March 2009 trough, the S&P 500 fell over 55%, from a high of 1,565 on October 9, 2007 to a low of 676 on March 9, 2009, the lowest level since 1997. Relatively positive reports on retail sales, inflation and housing starts in March 2009 did boost the market slightly, but at the end of March, the S&P 500 remained 50% below its October 2007 peak.

Equity market volatility rose significantly in during 2008. The VIX index, an equity volatility index (often referred to as the "Fear Gauge"), introduced in 1993 by the Chicago Board Options Exchange, is an indicator of investor risk aversion. An increase in the VIX index signals rising risk aversion and an increase in the required equity market risk premium.

As demonstrated in the figure below, the index indicates that, during much of 2004-2006, the equity market was perceived as unusually stable; trading within a range of 10 to 19, and averaging 13.5. The VIX index rose steadily throughout much of 2007; during the first eight months of 2008 it averaged 23, 70% higher than its 2004-2006 average. During the fourth quarter of 2008, as investor concerns accelerated, the index jumped sharply, peaking at almost 80 in October 2008, its highest level since inception, and averaging close to 60 during the entire 4th quarter. While the volatility has since declined, on average during the first quarter of 2009, the VIX has traded at 45, still over three times above its pre-crisis levels. To put this in perspective, on only six days prior to the onset of the current financial market crisis in August 2007 has the index traded at or above 40.

Figure 1



Source: Chicago Board Options Exchange

C. TRENDS IN THE MARKETS FOR UTILITY SECURITIES

During the past 18 months, trends in the markets for long-term debt and equity indicate a significant increase in the cost of capital for BBB/Baa-rated utilities (which account for approximately 60% of the total number of utilities rated by Standard & Poor's and Moody's).

The yield on Moody's long-term Baa-rated public utility bond index rose from approximately 6.4% at the beginning of 2008 and exceeded 9% in October 2008. By the end of March 2009, the yield on Baa-rated utility bonds was still over 8%, representing a spread of 450 basis points over long-term Treasury bond yields. To put this in perspective, the historical spread (April 1953-March 2009) between long-term Baa-rated public utility and Treasury bond yields has been approximately 165 basis points.

Long-term A-rated public utility bond yields also rose significantly, from approximately 6.1% at the beginning of 2008 to over 8% in October. The yields have since declined to 6.4% at the end of March 2009, but the spreads with long-term Treasury bond yields are materially higher than their long-term levels. The spread at the end of March 2009 was 285 basis points, compared to the long-term (April 1953-March 2009) average of approximately 130 basis points.

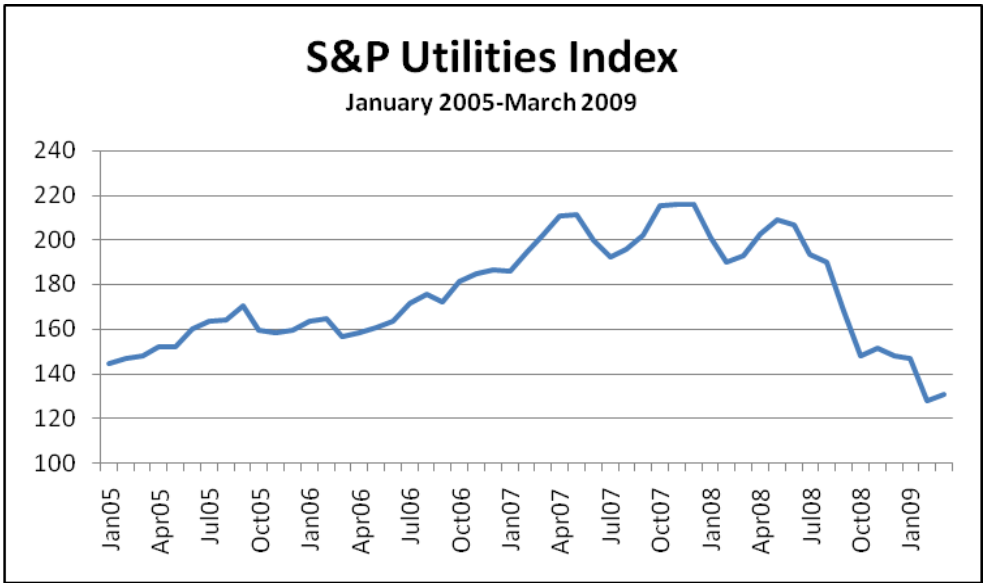
While both the costs of A- and Baa-rated rated public utility debt and spreads have risen, the increase in cost to Baa-rated public utilities has been significantly greater. At the end of March 2009, at 165 basis points, the spread was over 100 basis points higher than the long-term average (less than 50 basis points).

The comparison of the increase in the costs of debt to A- and Baa-rated public utilities on a relative basis underscores the importance of maintaining strong credit metrics and credit ratings. The opportunity to earn a fair return on equity is critical to the ability to achieve and maintain strong credit metrics and ratings. Ratings below the A category can impair a utility's access to capital on reasonable

terms and conditions, particularly when capital markets are under pressure. The significantly higher cost of Baa-rated public utility debt relative to A rated debt under current market conditions demonstrates that the cost to ratepayers of credit ratings lower than the A category can be substantial.

In the equity markets, the S&P Utilities Index fell 40% from its 2007 peak to its March 2009 trough as shown in Figure 2 below.

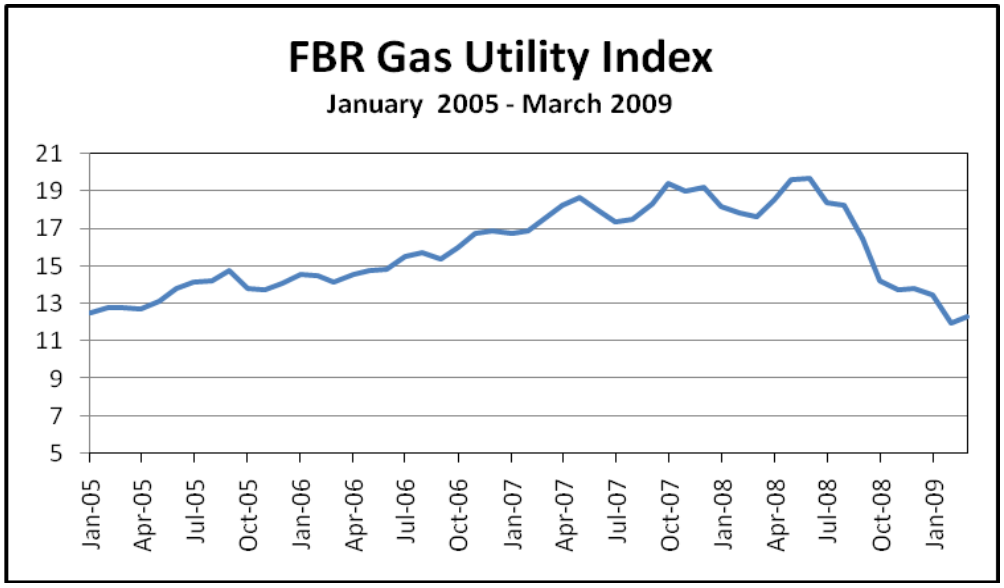
Figure 2



Source: S&P Research Insight

With respect to the gas utility industry, the FBR Gas Utility Index, an index composed of the stocks of gas distribution and transmission companies that are members of the American Gas Association, is almost 40% lower at March 31, 2009 than its 2008 peak as shown in Figure 3 below.

Figure 3



Source: www.yahoo.com

While there has been some improvement in the market for public utility equities since the trough in March 2009, at the end of March 2009, equity markets remain difficult and both the S&P Utilities and FBR Gas Utility Index remain well below their respective peaks.

V. ESTIMATE OF A FAIR RETURN ON EQUITY

A. CONCEPTUAL CONSIDERATIONS

Q. Please summarize your approach to estimating a fair return on equity for the Illinois gas utility operations of MidAmerican.

A. My estimation of a fair return on equity starts with a recognition of the objective of regulation. That objective is to simulate competition, i.e., to establish a regulatory framework that will mimic the competitive model. Under the competitive model, the required return on equity is expected to reflect the opportunity cost of capital, i.e., a return that is commensurate with the returns

available on foregone investments of similar risk. As discussed in Section III, a fair return is one that provides the utility with an opportunity to earn a return on the investment that it has made and has dedicated to public service that is commensurate with that of comparable risk enterprises, and also will ensure confidence in the financial integrity of the company in order to maintain its credit and attract necessary capital.

The ability to attract capital is not synonymous with being allowed a return comparable with those of similar risk entities. A return that simply allows a utility to attract capital, irrespective of the cost, does not lead to the conclusion that it is consistent with the comparable returns standard.

The criteria for a fair return give rise to two separate standards, the capital attraction standard and the comparable return, or comparable earnings, standard. The fact that the allowed return is applied to an original cost rate base is key to distinguishing between the capital attraction and comparable earnings standards. The base to which the return is applied determines the dollar earnings stream to the utility, which, in turn, generates the return to the shareholder (dividends plus capital appreciation). When the allowed return on original cost book value is set, a market-derived cost of attracting capital must be converted to a fair and reasonable return on book equity. Failure to equate a market-derived equity cost rate to a stream of earnings on book value in dollar terms will result in an allowed level of earnings that will discourage utilities from making the significant required investments in critical infrastructure.

Q. What tests have you applied to estimate a fair return on equity for MidAmerican's natural gas utility operations?

A. I have applied both a constant growth and a three-stage growth discounted cash flow (DCF) model and three equity risk premium (ERP) tests, including the capital asset pricing model (CAPM). I have also applied the comparable earnings test for purposes of assessing the reasonableness of these results. However, my

recommendation relies on the results of the market-based tests, that is, the DCF and ERP tests.

Reliance on multiple tests recognizes that no one test produces a definitive estimate of the fair return.[5] Each test is a forward-looking estimate of investors' equity return requirements. However, the premises of each of the tests differ; each test has its own strengths and weaknesses and not all tests are equally reliable in different capital market conditions. In principle, the concept of a fair and reasonable return does not reduce to a simple mathematical construct. It would be unreasonable to view it as such.

In contrast to the cost of debt, the cost of equity is not directly observable. No one knows with certainty what "cost of equity" is in each equity investor's mind, or even what cost of equity is required by the "consensus" of investors who set equity market prices through their buying and selling of shares. The cost of equity must be inferred using relatively simple models that attempt to quantify the way investors collectively price common equity. Since individual investors commit capital for many different reasons, there is no way to be certain what factors account for their decisions.

Discounted cash flow and equity risk premium models represent conceptually different ways that investors might approach estimating the return they require on the market value of an equity investment. Both the discounted cash flow and equity risk premium approaches are intuitively appealing, and both types of tests are relatively simple in principle to apply. Nevertheless, any DCF or ERP test is a simplified, stylized model of complex behavior with different assumptions and inputs. These differences can result in a range of estimates of the return that investors require to provide equity capital. Ultimately, establishing a fair return requires informed judgment to ensure that both the capital attraction and comparable return requirements of the fair return standard are met.

[5] As stated in Bonbright, "No single or group test or technique is conclusive." (James C. Bonbright, Albert L. Danielsen, David R. Kamerschen, *Principles of Public Utility Rates*, 2nd Ed., Arlington, Va.: Public Utilities Reports, Inc., March 1988).

B. DISCOUNTED CASH FLOW MODEL

B.1. Conceptual Underpinnings

Q. Please discuss the conceptual basis for the DCF model.

A. The discounted cash flow approach proceeds from the proposition that the price of a common stock is the present value of the future expected cash flows to the investor, discounted at a rate that reflects the riskiness of those cash flows. If the price of the security is known (can be observed), and if the expected stream of cash flows can be estimated, it is possible to approximate the investor's required return (or capitalization rate) as the rate that equates the price of the stock to the discounted value of future cash flows.

B.2. DCF Models

Q. What DCF models did you use?

A. There are multiple versions of the discounted cash flow model available to estimate the investor's required return. An analyst can employ a constant growth model or a multiple period growth model to estimate the cost of equity. One can also utilize different timing of receipt of cash flow assumptions, e.g., annual or quarterly.

The constant growth model rests on the assumption that investors expect cash flows to grow at a constant rate throughout the life of the stock. Similarly, a multiple period growth model rests on the assumption that growth rates will change over the life of the stock. In determining the DCF cost of equity for the gas utilities that are a proxy for MidAmerican's Illinois natural gas utility operations, I utilized both constant growth and three-stage growth models.

B.3. Proxy Companies

Q. To what companies did you apply the DCF test?

A. I applied the DCF test to a sample of companies that includes every natural gas utility:

1. classified by *Value Line* as a natural gas utility and has *Value Line* forecasts;
2. that is rated investment grade, i.e., BBB- or better, by S&P;
3. that has no less than 80% of total assets devoted to natural gas distribution;
4. that has I/B/E/S[6] forecasts of long-term growth rates for each of the preceding 12 months;
5. that has not omitted dividends since 1st Quarter 2008; and,
6. is not publicly known to be an acquisition target or involved in a merger.

The resulting nine gas utilities are listed on MidAmerican Exhibit KCM 1.2, Schedule 3.

Q. Is a proxy group containing nine companies of sufficient size to yield a reasonable estimate of the investor required rate of return on common equity for MidAmerican's Illinois natural gas utility operations?

A. Yes. First of all, the total number of companies in the *Value Line* natural gas universe is only 18, of which 12 have forecasts. Thus my screening criteria have included half of the available universe and three-quarters of the distributors for

[6] The consensus forecasts are obtained from I/B/E/S, a leading provider of earnings expectations data. The data are collected from over 7,000 analysts at over 1,000 institutions worldwide, and cover companies in more than 60 countries.

which *Value Line* provides long-term forecasts. The screening criteria could be relaxed to allow more companies into the proxy group. For example, I could have included companies with below investment grade bond ratings or companies that had less than 80% of their assets devoted to natural gas distribution. However, doing so would increase the risk that the proxy group did not contain reasonably comparable companies. Eliminating companies that are not comparable is just as important as identifying those companies that are comparable. In my experience, a proxy group of nine should be of sufficient size to provide a reasonable estimate of the cost of equity for MidAmerican's Illinois gas utility operations.

Q. Did you apply the discounted cash flow test specifically to MidAmerican?

A. No, I did not apply the model specifically (or solely) to MidAmerican or its parent, MidAmerican Energy Holdings Company, for five reasons. First, MidAmerican and its parent are private companies, i.e., their stock is not publicly traded, and it was, therefore, not possible to do so. Second, even if the company's stock (or that of its parent) had been publicly traded, I would not have applied the model solely to it because MidAmerican is primarily an electric utility. Third, any DCF estimate which relies only on data for a single company is subject to measurement error. Fourth, the application of the test to the "subject" utility entails considerable circularity. Fifth, the application of the DCF test solely to the same corporation is incompatible with the comparable returns criterion for estimating a fair and reasonable return. It is the performance of companies comparable to the utility in terms of risk that must be the focus of the return on equity analysis.

Q. What is "measurement error"?

A. In this context, measurement error refers to the use of an input to the model which is theoretically inconsistent with the other inputs to the model. Specifically, the application of the DCF approach requires inferring investor growth expectations; the resulting DCF cost estimate is very sensitive to the inferred growth expectations. Measurement error results when the forecast of growth used in the

DCF model does not equate to the investors' expectation of growth that is embedded in the dividend yield component. By relying on a sample of companies, the amount of "measurement error" in the data can be reduced. The larger the sample, the more confidence the analyst has that the sample results are representative of the cost of equity. As noted in a widely utilized finance textbook:

> Remember, [a company's] cost of equity is not its personal property. In well-functioning capital markets investors capitalize the dividends of all securities in [the company's] risk class at exactly the same rate. But any estimate of [the cost of equity] for a single common stock is noisy and subject to error. Good practice does not put too much weight on single-company cost-of-equity estimates. It collects samples of similar companies, estimates [the cost of equity] for each, and takes an average. The average gives a more reliable benchmark for decision making.[7]

Q. What factual support do you have for the existence of potential measurement error?

A. In principle, the cost of equity for firms of similar risk in the same industry should be quite similar. The fact that individual company DCF costs differ widely (MidAmerican Exhibit KCM 1.2, Schedules 4 to 6) is a strong indication that a single company DCF cost does not lead to a reliable estimate of the cost of equity.

B.4. Application of the DCF Test

B.4.1. Constant Growth Model

Q. Please summarize the premises of the constant growth model.

A. The assumption that investors expect a stock to grow at a constant rate over the long-term is most applicable to stocks in mature industries. Growth rates in these

[7] Richard A. Brealey, Stewart C. Myers and Franklin Allen, *Principles of Corporate Finance*, Eighth Edition, Boston, MA: Irwin McGraw Hill, 2006, p. 67 (emphasis added).

industries will vary from year to year and over the business cycle, but will tend to deviate around a long-term expected value.

The annual constant growth model is expressed as follows:

$$\text{Cost of Equity (k)} = \frac{D_1}{P_o} + g,$$

where,

D_1 = next expected dividend

P_o = current price

g = constant growth rate

Q. How does the model set forth above reflect a simplification of reality?

A. First, it is based on the notion that investors expect all cash flows to be derived through dividends. Second, the underlying premise is that dividends, earnings, and price all grow at the same rate.[8] While capital appreciation (price growth) is implicit in the model, it is not an explicit input to the model. It is likely that, at any given point in time, investors expect growth in dividends, earnings and prices to be different from each other, and, in the near term, to deviate from their long-run values. Third, the annual version of the DCF model assumes investors receive their dividends annually and that the dividend grows at an annually compounded rate. The annual growth rate DCF model simplifies from the reality that dividends are received by investors quarterly and can be reinvested so as to compound quarterly. Finally, the model is perpetual. It literally assumes that an investor's holding period is equal to infinity. Clearly that is a simplification of reality.

[8] Additional assumptions include: a constant price/earnings multiple, a constant growth rate in book value per share, a constant retention ratio and a constant payout ratio.

Q. Did you incorporate quarterly compounding into your estimates of the DCF cost of equity?

A. Yes. I have incorporated quarterly compounding to capture the impact on the cost of equity of the reinvestment of dividends. The quarterly compounding constant growth DCF model is expressed as follows:

$$\text{Cost of Equity (k)} = \frac{[d_1*(1+k)^{.75}+d_2*(1+k)^{.5}+d_3*(1+k)^{.25}+d_4]}{P_o} + g,$$

where,

k	=	required return on equity
d_i	=	dividends expected over coming year
P_o	=	current price
g	=	constant growth rate

The model is solved iteratively because the required return on equity (k) appears on both sides of the equation.

Q. Has the Illinois Commerce Commission ("ICC") accepted the premise of the quarterly compounding model?

A. Yes, it has, most recently in Docket 08-0363 (*See, Northern Illinois Gas Company d/b/a Nicor Gas Company (Tariffs filed April 29, 2008), Proposed general increase in rates, and revision to other terms and conditions of service,* Docket No. 08-0363, March 25, 2009 at pages 69-70).

Q. How does one apply the constant growth model given the potential disparity between forecasts of earnings, dividends and price growth?

A. The model can be applied by recognizing that all investor returns must ultimately come from earnings. Hence, focusing on investor expectations of earnings growth will encompass all of the sources of investor returns (i.e., dividends and retained earnings).

B.4.2. Three-Stage Growth Model

Q. Please explain your application of the three-stage growth model.

A. My application of the three-stage growth model is based on the premise that investors expect the growth rate for the sample of LDCs to be equal to company-specific growth rates for the near-term (Stage 1 Growth), but, in the longer-term (from Year 6 onward) will migrate to the expected long-run rate of growth in the economy (nominal GDP Growth).

Q. Why did you use a three-stage, rather than a two-stage, model as you have done in previous cases?

A. The two-stage model implicitly assumes that investors' growth expectations will suddenly change, either upward or downward, from the Stage 1 growth rate to the long-term growth rate at the end of Stage 1. The three-stage model is based on the more realistic assumption that investors would expect the utilities' growth prospects to gradually trend toward the longer-term growth rate.

Q. Why would you expect utilities to grow at the overall rate of growth in the economy in the long-term?

A. Industries go through various stages in their life cycle. Utilities are generally considered to be a mature industry. Mature industries are those whose growth parallels that of the overall economy.

Q. Is reliance on expected GDP growth as an estimate of the longer-term growth rate an accepted approach?

A. Yes. Use of forecast GDP growth as the long-term growth component is a widely utilized approach. For example, the Merrill Lynch discounted cash flow model for valuation utilizes GDP growth as a proxy for long-term growth expectations. The Federal Energy Regulatory Commission relies on GDP growth to estimate expected long-term growth in its standard DCF models (applied to companies with conventional corporate structures) for gas and oil pipelines. Most recently,

in Docket 08-0363 (Nicor, March 25, 2009, page 70) the ICC found that the use of a terminal growth rate in a non-constant DCF analysis "that effectively caps the terminal growth rate for companies in the sample at the GDP growth rate, which is a reasonable proxy for growth in the U.S. economy, will provide useful information and produce a reasonable estimate of the cost of common equity".

Q. How is the DCF cost estimated using a three-stage DCF model?

A. The DCF cost of equity is estimated as the internal rate of return that causes the price of the stock to equal the present value of all future cash flows to the investor.

The cash flows, in annualized terms, are as follows:

Year 1, cash flow is equal to:

Last Paid Annualized Dividend x (1 + Stage 1 Growth)

For each of years 2 through 5, cash flow is defined as:

Cash Flow $_{t-1}$ x (1 + Stage 1 Growth)

Cash flows from Year 6 through 10 are estimated as:

Cash Flow $_{t-1}$ x (1 + Average of Stage 1 Growth and GDP Growth)

Cash flows from Year 11 and onward are estimated as:

Cash Flow $_{t-1}$ x (1 + GDP Growth)

Q. Have you incorporated quarterly compounding in your application of the three-stage DCF cost of equity model?

A. Yes**.** In the quarterly compounding three-stage model, the present value of each quarterly cash flow is calculated as follows:

$$\text{Cash flow}_{Qi} = d_i/(1+k)\text{^}N$$

where,

Qi	=	quarter for i = 1 to 40
k	=	required return on equity
d_i	=	dividends expected in quarter i
N	=	the percentage of days in a year until dividend is paid[9]

The dividend is increased in the same quarter each year by an amount equal to the I/B/E/S growth rate during the first 20 quarters (5 years) and by an amount equal to the average of the I/B/E/S growth rate and rate of growth in GDP during the next 20 quarters. A final (terminal value) cash flow is calculated as follows:

$$\text{Cash Flow}_{\text{Final}} = \{ [d_1*(1+k)^{.75}+d_2*(1+k)^{.50}+d_3*(1+k)^{.25}+d_4]/(k-g_2)\}/(1+k)\text{^}N$$

where,

k	=	required return on equity
d_i	=	dividends expected in next four quarters
g_2	=	GDP growth
N	=	value of N in period 40

The model is solved iteratively to find the value for k which causes the current price of the stock to equal the present value of all future cash flows (Cash Flow_{Qi} plus Cash $\text{Flow}_{\text{Final}}$) to the investor.

B.5. Investor Growth Expectations for the DCF Models

Q. Please discuss how you have estimated investor growth expectations.

A. In the application of the constant growth model, I relied upon both the I/B/E/S consensus earnings forecasts and an estimate of the sustainable growth rate. The sustainable growth rate was derived from *Value Line* forecasts. In the application of the three-stage growth model, I relied upon the I/B/E/S consensus earnings

[9] For the first observation, N = the number of days from the last payment until the next payment divided by the number of days in the year. In subsequent observations, 0.25 is added to this value.

forecasts as the estimate of investor growth expectations during Stage 1. During the second stage, I relied upon an average of the Stage 1 and Stage 3 growth rates. Use of an average of the I/B/E/S growth rate (Stage 1) and the consensus forecast for long-term growth in the economy (Stage 3) is consistent with the expectation that the adjustment to the long-term growth rate would occur gradually rather than abruptly.

Q. Please explain sustainable growth.

A. Sustainable growth, or earnings retention growth, is premised on the notion that future dividend growth depends on both internal and external financing. Internal growth is achieved by the firm retaining a portion of its earnings in order to produce earnings and dividends in the future. External growth measures the long-run expected stock financing undertaken by the utility and the percentage of funds from that investment that are expected to accrue to existing investors. The internal growth rate is estimated as the fraction of earnings (b) expected to be retained multiplied by expected return on equity (r). The external growth rate is estimated by the forecast growth in common stock outstanding (s) multiplied by the fraction of the investment expected to be retained (v). The sustainable growth rate is then calculated as the sum of br and sv. The external growth component recognizes that investors may expect future growth to be achieved not only through the retention of earnings but also through the issuance of additional equity capital which is invested in projects that are accretive to earnings.

Q. Why have you utilized only forecast growth rates and not historic growth rates?

A. I have utilized forecast growth rates for the following reasons. First, various studies have concluded that analysts' forecasts are a better predictor of growth than naïve forecasts equivalent to historic growth; moreover, analysts' forecasts have been shown to be more closely related to investors' expectations.[10]

Second, to the extent history is relevant to the outlook for earnings, it should already be reflected in the forecasts.

B.6. Application of the Constant Growth DCF Model

Q. Please summarize your application of the constant growth DCF model.

A. I applied the constant growth DCF model to the sample of nine gas distribution utilities using the following inputs to calculate the dividend yield:

1. the most recent annualized dividend paid prior to March 26, 2009 as D_o; and

[10] Empirical studies that conclude that investment analysts' growth forecasts serve as a better surrogate for investors' expectations than historic growth rates include Lawrence D. Brown and Michael S. Rozeff, "The Superiority of Analyst Forecasts as Measures of Expectations: Evidence from Earnings", *The Journal of Finance*, Vol. XXXIII, No. 1, March 1978; Dov Fried and Dan Givoly, "Financial Analysts' Forecasts of Earnings, A Better Surrogate for Market Expectations", *Journal of Accounting and Economics*, Vol. 4, 1982; R. Charles Moyer, Robert E. Chatfield, Gary D. Kelley, "The Accuracy of Long-Term Earnings Forecasts in the Electric Utility Industry", *International Journal of Forecasting*, Vol. I, 1985; Robert S. Harris, "Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return", *Financial Management*, Spring 1986; James H. Vander Weide and William T. Carleton, "Investor Growth Expectations: Analysts vs. History", *The Journal of Portfolio Management*, Spring 1988; and David Gordon, Myron Gordon and Lawrence Gould, "Choice Among Methods of Estimating Share Yield," *The Journal of Portfolio Management*, Spring 1989.

The Vander Weide and Carleton study cited

> …found overwhelming evidence that the consensus analysts' forecast of future growth is superior to historically oriented growth measures in predicting the firm's stock price [and that these results] also are consistent with the hypothesis that investors use analysts' forecasts, rather than historically oriented growth calculations, in making stock buy-and-sell decisions.

The Gordon, Gordon and Gould study concluded,

> …the superior performance by KFRG [forecasts of [earnings] growth by securities analysts] should come as no surprise. All four estimates [securities analysts' forecasts plus past growth in earnings and dividends and historic retention growth rates] rely upon past data, but in the case of KFRG a larger body of past data is used, filtered through a group of security analysts who adjust for abnormalities that are not considered relevant for future growth."

2. the average of the daily closing stock prices for the period February 26 to March 26, 2009 as P_o.

Q. Why did you rely on an average price, rather than a "spot" price?

A. The use of an average price lowers the possibility that the estimated cost of equity is attributable to any capital market anomalies that may arise due to transitory investor behavior. In other words, using an average price reduces the possibility of "measurement error" as discussed above. The use of an average price is particularly critical in current market conditions which have been characterized by significant volatility.

Q. What are the results of the constant growth model?

A. The results of my application of the constant growth model are detailed in MidAmerican Exhibit KCM 1.2, Schedules 4 and 5 and summarized below:

Table 4

	Mean	**Median**	**Average**
I/B/E/S	10.5%	11.0%	10.8%
Sustainable Growth	11.2%	10.6%	10.9%

B.7. Three-Stage Growth Model

Q. Please summarize the results of your application of the three-stage growth model.

A. The three-stage growth model, as previously noted, relies on the I/B/E/S consensus of analysts' earnings forecasts for Stage 1 (20 quarters), and the average of this growth rate with the forecast nominal growth in the economy for the Stage 2 (second 20 quarters). In the long-run (Stage 3), represented by the model's terminal value, growth equals the forecast nominal rate of growth in the

economy (GDP). The expected long-run rate of growth in the economy is based on the consensus of economists' forecasts found in Blue Chip *Economic Indicators* (March 2009). The consensus expected long-run (2011-2020) nominal rate of growth in GDP is 5.0%.

Q. What are the estimated DCF costs of equity using the three-stage growth model?

A. As detailed in MidAmerican Exhibit KCM 1.2, Schedule 6, the three-stage DCF model estimates of the cost of equity for the sample of LDCs are as follows:

Table 5

Mean	Median	Average
10.3%	10.4%	10.4%

B.8. DCF Cost of Equity and a Fair Return on Book Equity

Q. What do the constant growth and three-stage growth models together indicate is the cost of equity for the proxy sample of gas LDCs?

A. The results of the two DCF models indicate a required return of approximately 10.7%.

Q. Do the results of the DCF test underscore the importance of using proxy groups and multiple DCF models in estimating the investors' required return on equity?

A. Yes. First, while the results for the proxy sample of LDCs are not widely varying, individual company values do vary significantly among utilities that are of relatively similar total investment risk. To illustrate, the DCF costs of equity based on the I/B/E/S earnings forecasts range from 8.8% to 12.0%, a difference of just over three percentage points. Second, the different growth estimates result in significantly different costs of equity for an individual company. For example,

the I/B/E/S consensus earnings forecast for Nicor is 2.9% whereas the sustainable growth rate developed from *Value Line* forecasts is 5.4%. The resulting constant growth estimates of Nicor's DCF cost of equity are 9.4% and 12.3%, respectively. These examples underscore the importance both of using proxy groups rather than a single company and the application of more than one model.

C. EQUITY RISK PREMIUM TESTS

C.1. Conceptual Underpinnings

Q. What is the underlying premise of equity risk premium tests?

A. The premise of all equity risk premium tests is the basic concept of finance that there is a direct relationship between the level of risk assumed and the return required. Since an investor in common equity is exposed to greater risk than an investor in bonds, the former requires a premium above bond yields as compensation for the greater risk. Like the DCF test, equity risk premium test results are measures of the market-related cost of attracting capital, i.e., a return on the market value of the common stock, not the book value.

Q. What equity risk premium tests did you apply?

A. I used the capital asset pricing model ("CAPM"), plus two direct estimates of utility equity risk premiums. The first of the two direct estimates was made by reference to historic achieved equity returns and risk premiums for both electric and natural gas distribution utilities (an *ex post* model); the second direct approach is based on differences between DCF cost of equity estimates for my proxy sample of nine LDCs and contemporaneous interest rates (an *ex ante* model).

C.2. Capital Asset Pricing Model

C.2.1. Conceptual Underpinnings of CAPM

Q. Please discuss the assumptions that underpin the CAPM.

A. The CAPM is a formal equity risk premium model, which specifies that the required return on an equity security is a linear function of the required return on a risk-free investment. In its simplest form, the CAPM posits the following relationship between the required return on the risk-free investment and the required return on an individual equity security (or portfolio of equity securities):

$$R_E = R_F + b_e (R_M - R_F)$$

where,

R_E = Required return on individual equity security
R_F = Risk-free rate
R_M = Required return on the market as a whole
b_e = Beta on individual equity security

The CAPM relies on the premise that an investor requires compensation for non-diversifiable risks only. Non-diversifiable risks are those risks that are related to overall market factors (e.g., interest rate changes, economic growth). Company-specific risks, according to the CAPM, can be diversified away by investing in a portfolio of securities, and therefore the shareholder requires no compensation to bear those risks.

The non-diversifiable risk is captured in the beta variable, which, in principle, is a forward-looking measure of the expected volatility of a particular stock or group of stocks, relative to the market. Specifically, the beta is equal to:

$$\frac{\text{Covariance } (R_E, R_M)}{\text{Variance } (R_M)}$$

The variance of the market return is intended to capture the uncertainty related to economic events as they impact the market as a whole. The covariance between

the return on a particular stock and that of the market reflects how responsive the required return on an individual security is to changes in events, which also change the required return on the market.

In simplistic terms, the CAPM requires determining the equity risk premium required for the market as a whole ("market risk premium"), then adjusting it to account for the risk of the particular security or portfolio of securities using the beta. The result (market risk premium multiplied by beta) is an estimate of the equity risk premium specific to the particular security or portfolio of securities.

C.2.2. Risk-Free Rate

Q. What is the proxy for the risk-free rate?

A. The simple CAPM model is a single holding period model which, if the model were applied assuming a single year holding period, would entail using a short-term government interest rate as the risk-free rate. However, it is widely recognized that short-term rates are largely the effect of monetary policy and, as such, are administered, rather than market-driven, rates. In principle, a longer-term Treasury should be used, so as to more closely match the duration of the risk-free rate and common equities, whose values reflect expected cash flows that are perpetual in nature. Hence, in the application of the CAPM, most analysts rely on a long-term government yield, which is risk-free, in that there is no default risk associated with U.S. Treasury securities. Thus I have utilized forecast yields on the 30-year Treasury bond as a proxy for the risk-free rate in the simple CAPM model.

Q. In past proceedings before the ICC, you used the forecast of 10-year Treasury bonds in your application of the CAPM? Why have you switched to the 30-year forecast?

A. For two reasons. First, the duration of the 30-year Treasury bond more closely matches perpetual life of equities. Second, the Federal Government had stopped issuing 30-year bonds in 2002 as a result of reduced financing requirements,

leaving the 10-year Treasury bond as the benchmark. The government began issuing 30-year Treasury bonds again in 2006, and is highly likely to continue to do so in light of the significant government deficits that have been created in recent months. The 30-year Treasury bond is once again considered a benchmark bond for the purpose of pricing securities.

Q. What is your forecast of the risk-free rate in the CAPM analysis?

A. Over the next five years, 2009-2013, as the economy recovers from the current crisis, yields on the 30-year Treasury are expected to average 4.7%. In the longer term, 2011-2020, the 30-year Treasury is expected to average approximately 5.6%.[11] I have utilized both forecasts in my CAPM analysis, as explained in further detail below.

C.2.3. Beta

Q. What is the appropriate beta to be used for the sample of LDCs?

A. In estimating the appropriate beta, there were two main considerations:

1. Empirical studies have shown that the CAPM understates the return requirement for companies with betas less than the market mean of 1.0.[12] Reliance on *Value Line* betas, which are adjusted for the tendency of betas

[11] Blue Chip *Financial Forecasts*, December 2008 and Blue Chip *Economic Indicators*, March 2009.
[12] Evidence of this is found in the following studies:

Fisher Black, Michael C. Jensen, and Myron S. Scholes, "The Capital Asset Pricing Model: Some Empirical Tests," Studies *in the Theory of Capital Markets*, edited by Michael Jensen. (New York: Praeger, 1972), pp. 79-121.

Marshall E. Blume and Irwin Friend, "A New Look at the Capital Asset Pricing Model," *Journal of Finance*, Vol. XXVIII (March 1973), pp. 19-33.

Eugene F. Fama, and James D. MacBeth, "Risk, Return and Equilibrium: Empirical Tests." Unpublished Working Paper No. 7237, University of Chicago, Graduate School of Business, August 1972.

Nancy Jacob, "The Measurement of Systematic Risk for Securities and Portfolios: Some Empirical Results," *Journal of Financial and Quantitative Analysis*, Vol. VI (March 1971), pp. 815-833.

to trend toward the market mean of 1.0, assists in mitigating the model's tendency toward understatement of required returns for low beta (e.g., utility) stocks.

2. The beta is a forward-looking concept. However, typically, betas are calculated from historic data.[13] The applicability of a calculated historic beta to a future period must be analyzed in the context of events that gave rise to the calculation.

Q. What are the recent betas for the sample of gas LDCs that you used?

A. The most recent *Value Line* betas for the proxy sample of gas LDCs are in the range of 0.65-0.67 (midpoint of 0.66); see MidAmerican Exhibit KCM 1.2, Schedule 3, page 1 of 2.

C.2.4. Market Risk Premium

C.2.4.1 <u>Conceptual Considerations</u>

Q. Please discuss your estimates of the required market risk premium.

A. While the market risk premium concept is deceptively simple, its quantification is, in principle, quite complex, because the level of the risk premium expected or required by investors is not static; it changes with economic and capital market conditions (particularly with inflation expectations), as well as with investors' willingness to bear risk.

The required market equity risk premium can be developed (1) from estimates of prospective market risk premiums and (2) from an analysis of experienced market risk premiums. With respect to the former, the discounted cash flow model can be used to estimate the cost of equity, where the expected return is comprised of the dividend yield plus investor expectations of longer-term growth based on

[13] Calculated betas are typically simple regressions between the daily, weekly or monthly price changes for individual stocks and the corresponding price changes of the market index for a period of five years.

prevailing capital market conditions. The estimated market equity risk premiums are obtained by subtracting the corresponding government bond yield from the estimated cost of equity.

C.2.4.2 Market Risk Premium from DCF Cost of Equity for the Market

Q. Please explain why an estimate of a forward-looking market risk premium is of value.

A. It is widely accepted that the required market risk premium is not static, but varies with the outlook for inflation, interest rates and profits. Hence, a direct measure of the prospective market risk premium may provide a more accurate measure of the current level of the expected differential between stock and bond returns than experienced risk premiums. In particular, the application of a current interest rate to a longer-term average may be unrepresentative of investor expectations in a specific capital market environment. An estimate of a forward-looking market risk premium provides value because 1) the equivalence of past return to what were investors' *ex ante* expectations may be pure coincidence and 2) the determination of a fair return on equity reflective of the expected interest rate environment requires a direct assessment of current stock market expectations.

Q. Please explain how your estimate of the *ex ante* (forward-looking) market risk premium was calculated.

A. The forward-looking market premium may be determined by an application of the discounted cash flow model to the S&P 500. To estimate the DCF cost of equity for the S&P 500, an expected dividend yield and an expected growth rate are required. The expected dividend yield is equal to the average of the month-end February and March 2009 market-value weighted expected dividend yields for the S&P 500 companies of 3.7%.[14] For the expected growth rate, the market-value weighted consensus forecasts of earnings growth for the companies in the S&P

[14] The current dividend yield of 3.4% was adjusted by the expected growth rate to estimate the expected dividend yield.

500 were used as a proxy for investor expectations of long-term growth. The market-value weighted average I/B/E/S forecast of five-year growth for the S&P 500 companies was approximately 10.1%. The resulting expected market return is 13.8%.

For the risk-free rate, I used the forecast 30-year Treasury yield expected to prevail over the same five-year time frame for which the forecast growth rates for the market are made. The use of the five-year forecast also recognizes that currently government bond yields are abnormally low, partly as a response to monetary policy initiatives and partly the result of a flight to quality, as discussed in Section IV.A. With a forecast 30-year Treasury yield of 4.7%, the resulting forward-looking estimate of the market risk premium is 9.1%.

Q. Do the current economic and financial circumstances cause you to give greater weight to the DCF-based market risk premium than you have in the past?

A. Yes. As discussed in Section IV.C, the equity markets are currently experiencing significant turmoil and uncertainty. Given the extent of equity market risk at present, the current level of the market risk premium is undoubtedly higher by a significant margin than its long-term average. As a result, I have made two CAPM estimates of the cost of equity, one based on *ex post* market risk premiums and one based on an *ex ante* estimate of the market risk premium.

C.2.4.3 Experienced Market Risk Premiums

Q. Please explain your estimate of the market risk premium from historic values.

A. The estimation of the expected market risk premium from achieved (*ex post* or experienced) market risk premiums is premised on the notion that investors' expectations are linked to their past experience. Basing calculations of achieved risk premiums on the longest periods available reflects the notion that it is necessary to include as broad a range of event types as possible to avoid

overweighting periods that represent unusual circumstances. On the other hand, since the objective of the analysis is to assess investor expectations in the current economic and capital market environment, weight should be given to periods whose equity characteristics, on balance, are more closely aligned with what today's investors are likely to anticipate over the longer term.

Q. What type of average is required when an estimated market risk premium is developed from historic average returns?

A. When historic risk premiums are used as a basis for estimating the expected risk premium, arithmetic averages, rather than geometric averages, need to be used.[15]

The appropriateness of arithmetic averages, as opposed to geometric averages, for this purpose is succinctly explained by Ibbotson Associates[16] (*Stocks, Bonds, Bills and Inflation, 1998 Yearbook*, pp. 157-159):

> The expected equity risk premium should always be calculated using the arithmetic mean. The arithmetic mean is the rate of return which, when compounded over multiple periods, gives the mean of the probability distribution of ending wealth values . . . in the investment markets, where returns are described by a probability distribution, the arithmetic mean is the measure that accounts for uncertainty, and is the appropriate one for estimating discount rates and the cost of capital.

Expressed simply, the arithmetic average recognizes the uncertainty in the stock market; the geometric average removes the uncertainty by smoothing over annual differences. Equity risk premiums were calculated for two historic periods: 1926-2008 and 1947-2008. The year 1926 represents the first year for which the seminal Ibbotson Associates risk premium data are available. The data for the post-World War II period (1947-2008) were also relied upon, because the end of

[15] The arithmetic average is the sum of the holding period returns divided by the number of returns in the sample. The geometric average, also referred to as the constant rate of return, is calculated by adding one to each of the holding period returns, multiplying all of the values together, raising the product of the values to the power of one divided by the number of returns in the sample, and then subtracting one.
[16] Now owned by Morningstar.

World War II marked significant changes in the economic structure, which remain relevant today.[17]

Q. What should be the measure of the historic risk-free rate used when calculating historic risk premiums?

A. It should be the income return, as contrasted with the total return on long-term government bonds. The income return represents the riskless portion of the bond return. Since the CAPM requires a riskless return, the income return is the appropriate measure for estimating the historic differential between equity market returns and the risk-free rate.

Q. What were the historic market risk premiums?

A. The experienced risk premiums for the two periods were as follows:

Table 6

1926-2008	1947-2008
6.5%	6.2%

Source: MidAmerican Exhibit KCM 1.2, Schedule 7, page 1 of 2.

C.2.5. CAPM Risk Premiums

Q. Please provide your CAPM risk premiums for your sample of gas LDCs based on your estimated values for the market risk premium and the proxy gas LDC sample beta.

[17] The key structural changes that have occurred since the end of World War II are:

1. The globalization of the economy, which has been facilitated by the reduction in trade barriers of which GATT (1947) was a key driver;
2. The exertion of the independence of the Federal Reserve commencing in 1951, and its focus on promoting domestic economic stability, which has been instrumental in tempering economic cyclicality;
3. Demographic changes, specifically suburbanization and the rise of the middle class, which have impacted the patterns of consumption;
4. Transition from a predominately manufacturing to a service-oriented economy; and,
5. Technological change, particularly in the areas of telecommunications and computerization, which have facilitated both market globalization and rising productivity.

A. The CAPM analysis above gives rise to two separate estimates of the market risk premium, the *ex ante* DCF-based market risk premium of 9.1% and the *ex post* or historic market risk premium of 6.25% to 6.5%. Applying the sample beta to the two risk premium estimates results in CAPM risk premiums as follows:

CAPM Risk Premium = Beta X Market Risk Premium

Based on DCF-based market risk premium:

6.00% = 0.66 X 9.1%

Based on historic market risk premium:

4.25% = 0.66 X (6.25% to 6.5%)

C.2.6. CAPM Returns on Equity

Q. What is the CAPM return on equity produced by the *ex ante* DCF-based market risk premium approach?

A. The application of the CAPM using the DCF-based market risk premium approach to estimating the market return relies on the same forecast of the 30-year Treasury bond yield of 4.7% as the risk-free rate in both places in the model in which a risk-free rate is required. The resulting CAPM cost of equity is:

Cost of Equity = Risk-free Rate + Beta X (Market Return – Risk-free Rate)

10.7% = 4.7% + 0.66 X (13.8%-4.7%)

Q. What is the CAPM return on equity produced by the *ex post* (or historic) market risk premium approach?

A. If the CAPM is to be applied to the long-run average equity risk premium, the corresponding risk-free rate needs to be representative of the long-term expected risk-free rate also. The long-term average forecast 30-year Treasury bond yield is 5.6% as indicated in Section IV.B above. The long-term average expected bond yield of 5.6% is quite close to the historic average levels of 5.2% to 6.0% for

1926-2008 and 1946-2008, respectively, as shown in MidAmerican Exhibit KCM 1.2, Schedule 7, page 1 of 2.

Q. The preceding historic average risk premiums reflect differentials between equity market returns and income returns on a 20-year government security. Did you adjust the risk premiums for the fact that you are using a 30-year Treasury note as the risk-free rate?

A. No. From October 1993 to March 2009, the longest period for which data for both series are available, the average spread between 30- and 20-year Treasury bond yields was approximately 10 basis points.[18] The differential spread is minimal and thus no adjustment is warranted.

The CAPM result based on a long-term average expected risk-free rate and the long-term average market equity risk premium is:

Cost of Equity = Risk-Free Rate + Beta X (Market Risk Premium)

9.8% = 5.6% + 0.66 X (6.25% to 6.5%)

Q. What bearing does the current state of financial markets have on the weight to be given to each of these two estimates?

A. The DCF-based market risk premium approach explicitly captures current financial market conditions and, as between the two approaches, should be given greater weight.

[18] The 20-year constant maturity yield reported by the Department of the Treasury since October 1993 is based on outstanding Treasury bonds with approximately 20 years remaining to maturity. The Treasury discontinued issuing a 20-year bond in 1986.

C.3. Equity Risk Premium Test Based on Utility Achieved Risk Premiums

Q. Please summarize the basis for estimating the required equity risk premium by reference to historic utility data.

A. Reliance on achieved risk premiums for the gas distribution utility industry as an indicator of what investors expect for the future is based on the same proposition as that used in the development of the market risk premium: over the longer term, investors' expectations and experience converge. The more stable an industry, the more likely it is that this convergence will occur.

Q. What are the historic equity risk premiums derived from historic utility data?

A. Over the period 1947-2008, the risk premium achieved by the gas distribution utility industry (as estimated from returns on the S&P/Moody's Gas Distribution Stock Indices) in relation to the risk-free rate (that is, the income return component of Treasury bonds) was 6.1% (MidAmerican Exhibit KCM 1.2, Schedule 7, page 1 of 2). Given the historic similarity in risk between the natural gas and electric utility industries, I also considered the achieved equity risk premiums of the electric utilities. Over the same period, the corresponding achieved equity risk premium for the S&P/Moody's Electric Utility Index was 4.8% (MidAmerican Exhibit KCM 1.2, Schedule 7, page 1 of 2).

Based on both natural gas distribution and electric utility historic risk premiums, the indicated expected risk premium is in the range of 4.8% to 6.1%, or approximately 5.5%. Similar to the CAPM, if the risk premium is estimated by reference to long-term historic averages, the corresponding risk-free rate should be estimated as the expected yield over the longer-term. That forecast 30-year Treasury yield over the longer term is 5.6%. The corresponding equity return at the long-term forecast 30-year Treasury bond yield of 5.6% is 11.1% (5.6% + 5.5%).

Q. Did you estimate the historic utility equity risk premium relative to long-term utility bonds?

A. Yes, I have estimated the historic equity risk premium relative to the total return on Moody's long-term A-rated public utility bonds, which represents the current average bond rating of the proxy sample of gas LDCs.

Q. What have been the historic equity risk premiums for utilities relative to long-term A-rated public utility bonds?

A. Based on both the gas and electric historic utility returns of, respectively, 12.1% and 10.8% (average of approximately 11.4%), and historic long-term A-rated public utility bond returns over the period 1947-2008 of 7.0%, the historic risk premium is approximately 4.5%. (MidAmerican Exhibit KCM 1.2, Schedule 7, page 2 of 2)

Q. Does the application of the test by reference to A-rated public utility bond returns require a forecast of those bond yields over the long run, similar to your application of the test using the risk-free rate?

A. Yes, for the same reason.

Q. What is your forecast of the A-rated public utility bond yield for the long term?

A. To my knowledge, there is no readily available forecast of long-term A-rated public utility bond yields. On average historically, long-term A-rated public utility bonds have traded at a spread of approximately 130 basis points over the 30-year Treasury bond yield. Adding a 130 basis point spread to my 5.6% longer-term forecast for the 30-year Treasury bond yield results in a forecast longer-term yield of 6.9% for A-rated utility bonds.

Q. What is the corresponding equity return requirement?

A. The corresponding equity return requirement at a 6.9% forecast long-term A-rated public utility bond yield is 11.4%.

C.4. DCF-Based Equity Risk Premium Test for Natural Gas LDCs

Q. Please summarize your DCF-based equity risk premium test.

A. A forward-looking equity risk premium for a utility can be estimated as a time series of differences between the discounted cash flow estimates of the cost of equity for a representative sample of utilities and the corresponding long government bond yield, where the DCF cost is the sum of the expected dividend yield (that is, adjusted for expected growth) and investors' expectations of long-term growth. The I/B/E/S investment analysts' consensus forecasts of five-year (normalized) earnings growth can be used as a proxy for investors' expectations of long-term growth.

For each gas distribution utility used in this study,[19] monthly DCF costs were estimated as the sum of the month-end expected dividend yield and the corresponding I/B/E/S five-year earnings growth expectation. Monthly equity risk premiums were calculated two ways: (1) as the differences between the DCF cost of equity and the month-end 30-year Treasury bond yield and (2) as the differences between the DCF cost of equity and the month-end long-term A rated utility bond yield.

Q. Over what period did you conduct your analysis?

A. The analysis was limited to a period which most closely resembles current capital market conditions, that is, the period August 2007 (which represents the onset of the current capital market crisis) through March 2009.

[19] My DCF-based equity risk premium test utilizes the same sample of nine natural gas LDCs relied upon in the application of the DCF test.

Q. Please explain why you chose to estimate the equity return relative to long-A-rated utility bond yields rather than long-term Treasury bond yields.

A. As discussed in Section IV.A, the financial markets are currently characterized by long-term Treasury bond yields at levels not seen since the late 1950's. These abnormally low yields are partly the result of monetary policy decisions taken by the Federal Reserve to free up credit markets and partly the result of a flight to quality. While yields on long-term government securities have declined, the spread between long-term A-rated utility bond yields and 30-year Treasury bond yields have risen dramatically, from an average of 114 basis points at the end of 2006, peaking at approximately 375 basis points in November 2008 and are now (end of March 2009) 285 basis points above Treasury bond yields, as compared to the long-run yield spread of approximately 130 basis points. The absolute cost of A-rated public utility debt has also risen, with the yield as of the end of March 2009 close to 50 basis points higher than it was at the end of 2006.

The trends in A-rated public utility bond yields and spreads provide some indication of the increase in the cost of capital both in the broader market and to utilities in particular over the past 20 months. (See discussion in Section IV.A above) In contrast, the downward trend in the long-term Treasury bond yields due to the flight to quality does not capture the increased cost of capital that has occurred across a broad range of debt and equity securities. Given the divergent trends in long-term Treasury bond and A-rated public utility bond yields and spreads, I have estimated the equity return based on the forecast long-term A-rated public utility bond yield.

Q. Over what period did you forecast bond yields for purposes of applying the DCF-based risk premium test?

A. I used the same 2009-2013 period as I did in the application of the CAPM using the DCF-based market risk premium.

Q. What is your 2009-2013 forecast for the long-term A-rated public utility bond yield?

A. Over the period of the analysis (August 2007 to March 2009), the spread between long-term A-rated public utility bonds and the long-term Treasury yield has averaged approximately 220 basis points. Adding this spread to my 2009-2013 forecast for the 30-year Treasury bond yield of 4.7% results in a forecast A-rated public utility bond yield of 6.9%. The resulting yield is somewhat higher than the current (end of March 2009) A-rated public utility bond yield of 6.4%, representing the expectation that, while both Treasury bond yields and yields on long-term A-rated corporate (including public utility) bonds will rise, long-term Treasury bond yields will increase by a greater amount.

Q. What is the equity risk premium above A-rated public utility bond yields resulting from your analysis?

A. The resulting equity risk premium is 2.9% (See MidAmerican Exhibit KCM 1.2, Schedule 8).

Q. What cost of equity capital does the DCF-based equity risk premium test indicate?

A. The DCF-based risk premium test result indicates an equity risk premium relative to long-term A-rated public utility bond yields of approximately 2.9%. At the forecast yield of 6.9% for A-rated public utility bonds, the indicated cost of equity is approximately 9.8%.

D. CONCLUSIONS FROM THE DCF AND EQUITY RISK PREMIUM TESTS

D.1. Summary of Market-Derived Costs of Equity

Q. Please summarize the results of your DCF and equity risk premium tests.

A. The table below summarizes the results of the tests.

Table 7

DCF	
Constant-I/B/E/S	10.8%
Constant-Sustainable Growth	10.9%
Three-Stage	10.4%
Equity Risk Premium	
CAPM forward-looking	10.7%
CAPM historic	9.8%
Historic-utility vs. risk free rate	11.1%
Historic-utility vs. A-rated public utility bonds	11.4%
DCF-based Risk Premium vs. A-rated public utility bonds	9.8%

The results of the various tests indicate a required equity return in the range of 9.8% (DCF-based Risk Premium and CAPM Historic) to 11.4% (Historic utility risk premium relative to A-rated public utility bonds). Based on all of the tests, the indicated cost of equity as applied to the proxy sample of natural gas LDCs is approximately 10.5%.

D.2. Adjustment for Market Value Capital Structures

Q. Is the indicated 10.5% return derived from the DCF and equity risk premium tests equivalent to a fair return on equity for MidAmerican's Illinois gas utility operations?

A. No. The DCF and equity risk premium cost of equity estimates are derived from market values of equity capital, and represent investors' expected returns on the market value. Consequently, for the purposes of determining a fair return on equity for a utility, a critical factor that needs to be recognized is that the cost of capital is determined in the capital markets. The cost of capital reflects the <u>market value</u> of the firms' capital, both debt and equity. The market value capital structures may be quite different from the book value capital structures. When the market value common equity ratio is higher (lower) than the book value common equity ratio, the market is attributing less (more) financial risk to the firm than is

"on the books" as measured by the book value capital structure. Higher financial risk leads to a higher cost of common equity, all other things equal.

To put this concept in common sense terms, assume that I purchased my home 10 years ago for $100,000 and took out a mortgage for the full amount. My home is currently worth $250,000 and my mortgage is now $85,000. If I were applying for a loan, the bank would consider my net worth (equity) to be $165,000 (market value of $250,000 less the $85,000 unpaid mortgage), not the "book value" of the equity in my home of $15,000, which reflects the original purchase price less the unpaid mortgage loan amount. It is the market value of my home that determines my financial risk to the bank, not the original purchase price. The same principle applies when the cost of common equity is estimated. The book value of the common equity shares is not the relevant measure of financial risk to investors; it is their market value, that is, the value at which the shares could be sold.

Regulatory convention applies the allowed equity return to a book value capital structure. Application of the market-derived cost of equity for a sample whose average market value common equity ratios have been, for example, approximately 55% to a ratemaking (book value) common equity ratio of 45% would fail to recognize the higher financial risk in the latter. To recognize this fact, the cost of equity estimated using the comparable utilities needs to be increased when applied to a lower ratemaking book value common equity ratio. The converse is also true.

The relevant financial principles and the quantification of the incremental required equity return are as follows. The rationale for the differences in the required return on equity for companies of similar business risk but different financial risk begins with the recognition that the overall cost of capital for a firm is primarily a function of business risk. In the absence of both the deductibility of interest expense for income tax purposes and costs associated with excessive debt (e.g., bankruptcy), the overall cost of capital to a firm does not change materially when a firm changes its capital structure. Costs associated with bankruptcy and

the loss of financing flexibility will increase the overall cost of capital at high degrees of leverage, but the conclusion that the cost of capital is essentially flat applies across a broad range of capital structures.

The use of debt creates a class of investors whose claims on the resources of the firm take precedence over those of the equity holder. However, the sum of the available cash flows does not change when debt is added to the capital structure. The available cash flows are now split between debt and equity holders. Since there are fixed debt costs that must be paid before the equity shareholder receives any return, the variability of the equity return increases as debt rises. The higher the debt ratio, the higher the potential volatility of the equity return. Hence, as the debt ratio rises, the cost of equity rises. The higher cost rates of both the debt and equity offset the higher proportion of debt in the capital structure, so that the overall cost of capital does not change.

The deductibility of interest expense for corporate income tax purposes may alter the conclusion that the cost of capital is constant across all capital structures. The deductibility of interest expense for income tax purposes means that there is a cash flow advantage to equity holders from the assumption of debt. When interest expense is deductible for corporate income tax purposes, in the absence of offsetting factors, the after-tax cost of capital would tend to decline as more debt is used. However, there are offsetting factors that severely limit a company's ability to reduce its overall cost of capital by raising the debt ratio. First, there is a loss of financial flexibility and the increasing potential for bankruptcy as the debt ratio rises. The loss of financing flexibility tends to increase the cost of capital as leverage is increased. Particularly, as the percentage of debt in the capital structure increases, the credit rating of the company may decline and its cost of debt will increase.

Second, although interest expense is tax deductible at the corporate level, the corresponding interest income is taxable to individual investors at a higher rate

than equity. Thus, personal income taxes on interest offset some of the advantage of using debt in the capital structure.

It is impossible to state with precision whether, within a broad range of capital structures, raising the debt ratio will leave the overall cost of capital unchanged or result in some decline. However, what is indisputable is that the cost of equity does change when the debt ratio changes; increasing when the debt ratio increases and, conversely, decreasing when the debt ratio falls.

I have used two approaches to quantify the range of the impact of a change in financial risk on the cost of equity. The first approach is based on the widely accepted view that the overall cost of capital does not change materially over a relatively broad range of capital structures. The second approach is based on the theoretical model which assumes that the overall cost of capital declines as the debt ratio rises due to the income tax shield on interest expense. The second approach does not account for any of the factors that offset the corporate income tax advantage of debt, including the costs of bankruptcy/loss of financing flexibility, the impact of personal income taxes on the attractiveness of issuing debt, or the flow-through of the benefits of interest expense deductibility to ratepayers. Thus, the results of applying the second approach will over-estimate the impact of leverage on the overall cost of capital and understate the impact of increasing financial leverage on the cost of equity.

Q. How do you apply the two approaches using the proxy sample of LDCs?

A. To quantify the required increase in the DCF and risk premium cost of equity estimates to recognize the difference in financial risk between the market value capital structures of the LDCs and MidAmerican's book value capital structure, the following steps were taken:

(1) Determine the market value capital structures of the sample companies over the period which corresponds to the relevant period of analysis for the specific cost of equity.

The market value of common equity is calculated by multiplying the number of shares outstanding by the price of the common stock equity. This value is added to the book value of total debt and preferred shares, which for simplicity, were assumed to be trading at par (that is, the embedded cost of debt and preferred are the same as the current cost).

The market value capital structures were calculated over three periods:

- For the DCF test, the prices used were the same as those used in the application of the DCF test, i.e., average daily closing prices over the period February 26 to March 26, 2009; the book value of debt and preferred represents the year-end 2008 amounts.

- For the CAPM test, the average monthly closing prices over the period January 2004 to December 2008 were used, consistent with the historic period over which the beta is measured. The book values of debt and preferred shares represent the averages of year-ends 2004-2008.

- For the DCF-based risk premium test, the average monthly closing prices over the period August 2007 to March 2009 were used. The book values of debt and preferred shares represent the average of year-ends 2007 and 2008.

No market value capital structure was calculated for the purpose of the historic risk premium test. It would be impossible to accurately measure the market value capital structure represented by the underlying companies due to the changes in the composition of the indices over time.

The sample average market value common equity ratios which correspond to the DCF, CAPM and DCF-based risk premium test are shown below:

Table 8

Test	Market Value Equity Ratio
DCF	55.0%
CAPM	62.0%
DCF-Based RP	59.0%

Source: MidAmerican Exhibit KCM 1.2, Schedule 9

(2) Using the appropriate market value common equity ratio and cost of equity, estimate the sample of LDCs' weighted average cost of capital using market value capital structures.

(3) Estimate the change in common equity return requirement for each of the DCF, CAPM and DCF-based risk premium tests required to account for the difference between the sample average market value common equity ratio and MidAmerican's book value common equity ratio of 47.75% (see MidAmerican Exhibit KCM 1.2, Schedule 10).

The results are summarized in the table below:

Table 9

	Market Value Equity Ratio	Cost of Equity	ROE Adjusted for MidAmerican's Equity Ratio
DCF			
Constant-I/B/E/S	55.0%	10.8%	11.5%
Constant-Sustainable Growth	55.0%	10.9%	11.6%
Three-Stage	55.0%	10.4%	11.1%
Equity Risk Premium			
CAPM Forward	62.0%	10.7%	12.1%
CAPM Historic	62.0%	9.8%	10.9%
Historic – Utility vs. risk-free rate	N/A	11.1%	11.1%
Historic – Utility vs. A-rated public utility bonds	N/A	11.4%	11.4%
DCF-based Risk Premium vs. A-rated public utility bonds	59.0%	9.8%	10.7%
Recommendation			**11.25%**

On average, the difference between MidAmerican's 47.75% ratemaking common equity ratio and the relevant market value common equity ratios results in an upward adjustment of approximately 75 basis points to the 10.5% estimated cost of equity for the proxy gas LDCs. Therefore, I recommend that the allowed return on equity for MidAmerican's Illinois gas utility operations be set at 11.25%.

Q. The ICC has previously rejected the use of a market value adjustment as the basis for establishing the cost of common equity. In doing so, it has observed that the utilities in question do not have market traded stock and therefore do not have an observable market value.[20] Please address these observations.

A. The application of a market-derived cost of equity to the book value (ratemaking) capital structure without recognition of the financial risk differences between the market value capital structures which underpin the estimates of the cost of equity and the book value (ratemaking) capital structure of MidAmerican will understate the utility's cost of equity. The absence of an observable market value capital structure for MidAmerican does not detract from this conclusion, as the relevant comparison is between the financial risk inherent in the market value capital structures of proxy utilities and the financial risk inherent in the book value (ratemaking) capital structures of MidAmerican.

Q. Have any other regulators accepted this type adjustment for differences in financial risk?

A. Yes. The Pennsylvania Public Utility Commission (PPUC) has accepted such an adjustment in six decisions, the most recent of which was in February 2007. In Docket No. R-00049255 (Pennsylvania Public Utility Commission *et al.* v. PPL Electric Utilities Corporation, Rulemaking Proceeding), the PPUC stated:

[20] *See, Central Illinois Light Company d/b/a AmerenCILCO Central Illinois Public Service Company d/b/a AmerenCIPS; Illinois Power Company d/b/a AmerenIP Proposed general increase in rates, and revision to other terms and conditions of service (Tariffs filed December 27, 2005)* Docket Nos. 06-0070/06-0071/06-0072 (Cons.) November 21, 2006 at page 141.

> We find it reasonable that a financial risk adjustment, as proposed by PPL, is necessary to compensate PPL for the mismatched application of a market based cost of common equity to a book value common equity ratio. The adjustment is necessary because the DCF method produces the investor required return based on the current market price, not the return on the book value capitalization.

Most recently (March 19, 2009), the National Energy Board of Canada (NEB) accepted the appropriateness of reliance on market value capital structures.[21] Its decision stated:

> …..the Board is of the view that market-value weights should be used to emulate the actual financial risk which each capital component bears. In the Board's view, market values reflect the level of financial risk that equity holders bear for the sample companies. These market values, and ultimately the financial risk, are determined by aggregate expectations of all financial market participants. (page 28)

The NEB explicitly adopted a weighted average cost of capital for a pipeline which was based on market value capital structures. This same regulator has historically relied upon book value capital structures in conjunction with market-derived costs of equity estimated using the traditional cost of equity tests (e.g., equity risk premium).

E. COMPARABLE EARNINGS TEST

E.1. Conceptual Underpinnings

Q. Please discuss the conceptual underpinnings of the comparable earnings test.

A. The comparable earnings test provides a measure of the fair return based on the concept of opportunity cost. Specifically, the test is derived from the premise that capital should not be committed to a venture unless it can earn a return commensurate with that available prospectively in alternative ventures of comparable risk. Since regulation is intended to be a surrogate for competition, the opportunity cost principle entails permitting utilities the opportunity to earn a

[21] National Energy Board, *Reasons for Decision: Trans Québec and Maritimes Pipelines Inc. RH-1-2008*, March 19, 2009.

return commensurate with the levels achievable by competitive firms of similar risk.

The concept that regulation is a surrogate for competition implies that the regulatory application of a fair return to an original cost rate base should result in a value to investors commensurate with that of similar risk competitive ventures. The fact that a return is applied to an original cost rate base does not mean that the original cost of the assets is the appropriate measure of their fair market value. The comparable earnings standard, as well as the principle of fairness, suggests that, if competitive industrial firms of similar risk are able to maintain the value of their assets considerably above book value, the return allowed to utilities should likewise not foreclose them from maintaining the value of their assets as reflected in current stock prices.

Q. The ICC has previously concluded[22] that the comparable earnings test is "faulty because it incorrectly assumes that earned returns on book common equity are the same as, or representative of, investor-required returns on common equity." Please respond.

A. I agree that the comparable earnings test does not measure the investor's opportunity cost of attracting equity capital as measured relative to market values. The comparable earnings test is an implementation of the comparable earnings standard, as distinguished from the cost of attracting capital standard. It provides a measure of the fair return based on the concept of opportunity cost.

Specifically, the test arises from the notion that capital should not be committed to a venture unless it can earn a return commensurate with that available prospectively in alternative ventures of comparable risk. Since regulation is a surrogate for competition, the opportunity cost principle entails permitting utilities

[22] *See, Central Illinois Light Company d/b/a AmerenCILCO Central Illinois Public Service Company d/b/a AmerenCIPS; Illinois Power Company d/b/a AmerenIP Proposed general increase in rates, and revision to other terms and conditions of service (Tariffs filed December 27, 2005)* Docket Nos. 06-0070/06-0071/06-0072 (Cons.) November 21, 2006 at page 141-142.

the opportunity to earn a return commensurate with the levels achievable by competitive firms facing similar risk.

The comparable earnings test recognizes that (1) utility costs are measured in vintaged dollars and (2) rates are based on accounting costs, not economic costs. In contrast, the cost of attracting capital tests rely on costs expressed in dollars of current purchasing power, i.e., a market-related cost of capital. The comparable earnings test remains the only test that explicitly recognizes that, in the North American regulatory framework, the return is applied to an original cost (book value) rate base. The application of the comparable earnings test recognizes that, to achieve the competitive result, the measurement of the return (in percentage terms) needs to match conceptually the measurement of the assets (or in the case of the utility, the rate base) to which the return is applied.

Nevertheless, the comparable earnings test was solely applied for purposes of testing the reasonableness of the market-derived cost of equity results. The comparable earnings returns are not incorporated into my recommended ROE.

Q. Why have you applied the comparable earnings test to competitive firms, and not utilities?

A. Application of the test to utilities would be circular. The achieved returns of utilities are influenced by allowed returns. In contrast, the earnings of competitive firms represent returns available to alternative investments independent of the regulatory process.

E.2. Principal Application Issues

Q. What are the principal issues arising in the application of the comparable earnings test?

A. The principal issues in the application of the comparable earnings test are:

- Selection of a sample of industrials of reasonably comparable risk to a utility;
- Selection of an appropriate time period over which returns are to be measured in order to estimate prospective returns; and
- Assessment of the total investment risk of the sample of utilities relative to that of the selected industrials.

Q. Please discuss the selection process.

A. The selection process starts with the recognition that industrials are generally exposed to higher business risk, but lower financial risk, than utilities. The selection of industrials focuses on total investment risk, i.e., the combined business and financial risks. The comparable earnings test is based on the premise that industrials' higher business risks can be offset by a more conservative capital structure, thus permitting selection of industrial samples of reasonably comparable total investment risk to a sample of utilities.

The U.S. industrials were selected as follows: The initial universe consisted of all companies actively traded in the U.S. from S&P's Research Insight database in Global Industry Classification Standard (GICS) sectors 20-30.[23] The resulting universe contained 2,585 companies. Companies were removed which:

- Are not incorporated in the U.S.
- Had 2007 equity less than $100 million.
- Had missing or negative common equity during 1991-2007.
- Had less than five years of market data.

[23] The sectors represented by the GICS codes in this range are: Industrials, Consumer Discretionary and Consumer Staples. Included in these sectors are major industries such as: Food Retail, Food Distributors, Tobacco, Packaged Foods, Soft Drinks, Distillers, Household Appliances, Aerospace and Defense, Electrical Components & Equipment, Industrial Machinery, Publishing & Printing, Department Stores, and General Merchandise.

- Paid no dividends in any year 2004-2008.
- Traded fewer than 5% of their outstanding shares in 2007.
- Had an S&P rating below BBB-.
- Had a *Value Line* Rank of "4" or "5".
- Had a *Value Line* beta of 1.0 or higher.

These screens narrowed the universe to 91 companies. From this group, those companies whose 1996-2007 returns were greater than ±1 standard deviation from the average were removed to eliminate companies whose earnings have been chronically depressed or which have been extraordinarily profitable. The final sample of comparable risk U.S. industrials is comprised of 81 companies.

E.3. Period for Measurement of Returns

Q. Over what period did you measure the industrials' returns?

A. The measurement of returns for competitive industrials starts with historical returns. However, like every test used to estimate a fair return, this test is intended to be prospective in nature. Therefore, the returns earned in the past should be analyzed in the context of the longer-term outlook for the economy to determine the reasonableness of relying on past returns as a proxy for the future. Since returns on equity tend to be cyclical, the returns should be measured over an entire business cycle, in order to give fair representation to years of expansion and decline.

The forward-looking nature of the estimate of the fair return requires selection of a cycle that is reasonably representative of prospective economic conditions. The business cycle, measured from peak to peak, covering the period 1991-2007 meets those criteria. It reflects a nominal rate of growth (5.2%; see MidAmerican

Exhibit KCM 1.2, Schedule 1) that is very close to the 5.0% consensus forecast of nominal GDP growth for the longer-term.[24]

The achieved returns on equity of the 81 companies for 1991-2007 are as follows:

Table 10

Average	15.9%
Median	14.9%
Average of Annual Medians	15.7%

Source: MidAmerican Exhibit KCM 1.2, Schedule 11

E.4. Relative Risk Assessment

Q. What are the industrial sample's quantitative risk measures relative to those of the sample of natural gas LDCs?

A. The industrial sample has the following risk measures, compared to the sample of natural gas LDCs:

Table 11

	Industrials		**Sample of 9 LDCs**	
	Median	Mean	Median	Mean
S&P Debt Ratings	A-	A-	A	A
Value Line Risk Measures:				
Safety	3	2	2	2
Earnings Predictability	85	79	75	75
Financial Strength	B++	A	B++	B++
Beta	0.80	0.80	0.65	0.67

Source: MidAmerican Exhibit KCM 1.2, Schedules 3 and 11

A comparison of risk statistics for the proxy sample of gas LDCs and industrials indicates that, on balance, the gas LDCs and the industrials are in approximately the same risk class and would be considered comparable risk investments.

[24] Blue Chip *Economic Indicators*, March 10, 2009.

E.5. Relevance of Comparable Earnings Test

Q. What is the relevance of the comparable earnings test?

A. Since the objective of regulation is to simulate competition, it is critical that the determination of a fair return explicitly consider the returns achievable by competitive firms on a risk-adjusted basis. This avoids the circularity that a focus on other regulated companies alone entails and ensures that the objective of regulation is achieved.

The results of the comparable earnings test can be used as an indicator of whether the market-based test cost of equity results are reasonable. The DCF test and equity risk premium tests, as adjusted for MidAmerican's book value capital structure, indicate a fair return of 11.25%. The comparable earnings test indicates that competitive firms of similar investment risk to the sample of LDCs are able to earn returns on book value of 15.0-16.0%. An allowed return on equity for MidAmerican's Illinois natural gas utility operations of 11.25%, as indicated by the DCF and equity risk premium tests, is conservative when compared to the earnings level of relatively low risk unregulated companies.

F. RECOMMENDATION

Q. Please summarize your recommendation.

A. As indicated earlier in my testimony, my recommendation is based on the results of the market-derived tests, the discounted cash flow and equity risk premium tests. The DCF and equity risk premium test results as adjusted to recognize the difference in financial risk between the market value capital structures of the LDCs and MidAmerican's book value capital structure indicate that a fair return on equity for MidAmerican's Illinois natural gas utility operations is 11.25%.

Q. Does this conclude your testimony?

A. Yes, it does.

QUALIFICATIONS OF KATHLEEN C. McSHANE

Kathleen McShane is President and senior consultant with Foster Associates, Inc., where she has been employed since 1981. She holds an M.B.A. degree in Finance from the University of Florida, and M.A. and B.A. degrees from the University of Rhode Island. She has been a CFA charterholder since 1989.

Ms. McShane worked for the University of Florida and its Public Utility Research Center, functioning as a research and teaching assistant, before joining Foster Associates. She taught both undergraduate and graduate classes in financial management and assisted in the preparation of a financial management textbook.

At Foster Associates, Ms. McShane has worked in the areas of financial analysis, energy economics and cost allocation. Ms. McShane has presented testimony in more than 190 proceedings on rate of return, capital structure and other ratemaking issues before federal, state, provincial and territorial regulatory boards, on behalf of U.S. and Canadian gas distributors and pipelines, electric utilities and telephone companies. These testimonies include the assessment of the impact of business risk factors (e.g., competition, rate design, contractual arrangements) on capital structure and equity return requirements. She has also testified on various ratemaking issues, including deferral accounts, rate stabilization mechanisms, excess earnings accounts, cash working capital, and rate base issues. Ms. McShane has provided consulting services for numerous U.S. and Canadian companies on financial and regulatory issues, including fin-ancing, dividend policy, corporate structure, cost of capital, automatic adjustments for return on equity, form of regulation (including performance-based regulation), unbundling, corporate separations, stand-alone cost of debt, regulatory climate, income tax allowance for partnerships, change in fiscal year end, treatment of inter-corporate financial transactions, and the impact of weather normalization on risk.

Ms. McShane was principal author of a study on the applicability of alternative incentive regulation proposals to Canadian gas pipelines. She was instrumental in the design and preparation of a study of the profitability of 25 major U.S. gas pipelines, in which she developed

estimates of rate base, capital structure, profit margins, unit costs of providing services, and various measures of return on investment. Other studies performed by Ms. McShane include a comparison of municipal and privately owned gas utilities, an analysis of the appropriate capitalization and financing for a new gas pipeline, risk/return analyses of proposed water and gas distribution companies and an independent power project, pros and cons of performance-based regulation, and a study on pricing of a competitive product for the U.S. Postal Service. She has also conducted seminars on cost of capital for regulated utilities, with focus on the Canadian regulatory arena.

Publications, Papers and Presentations

- *Utility Cost of Capital: Canada vs. U.S.*, presented at the CAMPUT Conference, May 2003.
- *The Effects of Unbundling on a Utility's Risk Profile and Rate of Return*, (co-authored with Owen Edmondson, Vice President of ATCO Electric), presented at the Unbundling Rates Conference, New Orleans, Louisiana sponsored by Infocast, January 2000.
- *Atlanta Gas Light's Unbundling Proposal: More Unbundling Required?* presented at the 24th Annual Rate Symposium, Kansas City, Missouri, sponsored by several commissions and universities, April 1998.
- *Incentive Regulation: An Alternative to Assessing LDC Performance*, (co-authored with Dr. William G. Foster), presented at the Natural Gas Conference, Chicago, Illinois sponsored by the Center for Regulatory Studies, May 1993.
- *Alternative Regulatory Incentive Mechanisms*, (co-authored with Stephen F. Sherwin), prepared for the National Energy Board, Incentive Regulation Workshop, October 1992.

EXPERT TESTIMONY/OPINIONS
ON
RATE OF RETURN AND CAPITAL STRUCTURE

Client	Date
Alberta Natural Gas	1994
AltaGas Utilities	2000
Ameren (Central Illinois Public Service)	2000, 2002, 2005, 2007 (2 cases)
Ameren (Central Illinois Light Company)	2005, 2007 (2 cases)
Ameren (Illinois Power)	2004, 2005, 2007 (2 cases)
Ameren (Union Electric)	2000 (2 cases), 2002 (2 cases), 2003, 2006 (2 cases)
ATCO Electric	1989, 1991, 1993, 1995, 1998, 1999, 2000, 2003
ATCO Gas	2000, 2003, 2007
ATCO Pipelines	2000, 2003, 2007
ATCO Utilities	2008
Bell Canada	1987, 1993
Benchmark Utility Cost of Equity (British Columbia)	1999
Canadian Western Natural Gas	1989, 1996, 1998, 1999
Centra Gas B.C.	1992, 1995, 1996, 2002
Centra Gas Ontario	1990, 1991, 1993, 1994, 1995
Direct Energy Regulated Services	2005
Dow Pool A Joint Venture	1992
Edmonton Water/EPCOR Water Services	1994, 2000, 2006, 2008
Enbridge Gas Distribution	1988, 1989, 1991-1997, 2001, 2002
Enbridge Gas New Brunswick	2000
Enbridge Pipelines (Line 9)	2007
Enbridge Pipelines (Southern Lights)	2007
FortisBC	1995, 1999, 2001, 2004
Gas Company of Hawaii	2000, 2008
Gaz Metropolitain	1988

Gazifère	1993, 1994, 1995, 1996, 1997, 1998
Generic Cost of Capital, Alberta (ATCO and AltaGas Utilities)	2003
Heritage Gas	2004, 2008
Hydro One	1999, 2001, 2006 (2 cases)
Insurance Bureau of Canada (Newfoundland)	2004
Laclede Gas Company	1998, 1999, 2001, 2002, 2005
Laclede Pipeline	2006
Mackenzie Valley Pipeline	2005
Maritimes NRG (Nova Scotia) and (New Brunswick)	1999
Multi-Pipeline Cost of Capital Hearing (National Energy Board)	1994
Natural Resource Gas	1994, 1997, 2006
New Brunswick Power Distribution	2005
Newfoundland & Labrador Hydro	2001, 2003
Newfoundland Power	1998, 2002, 2007
Newfoundland Telephone	1992
Northland Utilities	2008 (2 cases)
Northwestel, Inc.	2000, 2006
Northwestern Utilities	1987, 1990
Northwest Territories Power Corp.	1990, 1992, 1993, 1995, 2001, 2006
Nova Scotia Power Inc.	2001, 2002, 2005, 2008
Ontario Power Generation	2007
Ozark Gas Transmission	2000
Pacific Northern Gas	1990, 1991, 1994, 1997, 1999, 2001, 2005
Plateau Pipe Line Ltd.	2007
Platte Pipeline Co.	2002
St. Lawrence Gas	1997, 2002
Southern Union Gas	1990, 1991, 1993
Stentor	1997
Tecumseh Gas Storage	1989, 1990
Telus Québec	2001
Terasen Gas	1992, 1994, 2005, 2009

Terasen Gas (Whistler)	2008
TransCanada PipeLines	1988, 1989, 1991 (2 cases), 1992, 1993
TransGas and SaskEnergy LDC	1995
Trans Québec & Maritimes Pipelines	1987
Union Gas	1988, 1989, 1990, 1992, 1994, 1996, 1998, 2001
Westcoast Energy	1989, 1990, 1992 (2 cases), 1993, 2005
Yukon Electrical Company	1991, 1993, 2008
Yukon Energy	1991 1993

EXPERT TESTIMONY/OPINIONS
ON
OTHER ISSUES

Client	Issue	Date
New Brunswick Power Distribution	Interest Coverage/Capital Structure	2007
Heritage Gas	Revenue Deficiency Account	2006
Hydro Québec	Cash Working Capital	2005
Nova Scotia Power	Cash Working Capital	2005
Ontario Electricity Distributors	Stand-Alone Income Taxes	2005
Caisse Centrale de Réassurance	Collateral Damages	2004
Hydro Québec	Cost of Debt	2004
Enbridge Gas New Brunswick	AFUDC	2004
Heritage Gas	Deferral Accounts	2004
ATCO Electric	Carrying Costs on Deferral Account	2001
Newfoundland & Labrador Hydro	Rate Base, Cash Working Capital	2001
Gazifère Inc.	Cash Working Capital	2000
Maritime Electric	Rate Subsidies	2000
Enbridge Gas Distribution	Principles of Cost Allocation	1998
Enbridge Gas Distribution	Unbundling/Regulatory Compact	1998
Maritime Electric	Form of Regulation	1995
Northwest Territories Power	Rate Stabilization Fund	1995
Canadian Western Natural Gas	Cash Working Capital/ Compounding Effect	1989
Gaz Metro/ Province of Québec	Cost Allocation/ Incremental vs. Rolled-In Tolling	1984