of A- from Standard & Poor's ("S&P"). The Company has a Ba1 issuer rating and a Baa2 First Mortgage Bond rating from Moody's Investors Service ("Moody's"). In light of these various ratings, to improve the group's comparability with ETI, I restricted the group to companies with investment grade bond ratings by S&P or Moody's. I also required the comparable companies to derive at least 70 percent of revenues from regulated utility sales, to have consistent financial records not affected by recent mergers or restructuring, and to have a consistent dividend record with no dividend cuts or resumptions during the past two years. The fundamental characteristics and bond ratings of the 24 companies in my comparable group are presented in Exhibit SCH-1.

In my risk premium analysis, I relied on current and projected triple-B utility bond interest rates. These rates are consistent with ETI's triple-B-range credit ratings. The data sources and the details of my cost of equity studies are contained in Exhibits SCH-1 through SCH-5.

Q9. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

A. The remainder of my testimony is divided into four additional sections. In Section II, I discuss ETI's organizational structure and fundamental operating characteristics. In Section III, I review general capital market costs and conditions and discuss recent developments in the electric utility industry. In Section IV, I review various methods for estimating the cost of equity, including comparable earnings methods, risk premium methods,

and DCF methods. In Section V, I present the details of my cost of equity studies and describe the specific results from my various models. Also in this section, I provide a summary table of my results and restate my conclusions and recommendations.

II. ETI'S FUNDAMENTAL OPERATING FINANCIAL CHARACTERISTICS

Q10. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. The purpose of this section is to describe the Company's organizational structure and discuss its fundamental operating characteristics.

Q11. PLEASE DESCRIBE ETI'S STRUCTURAL ORGANIZATION AND OPERATING CHARACTERISTICS.

A. ETI was formed by a December 31, 2007 jurisdictional separation of Entergy Gulf States, Inc. into two vertically integrated utility companies. ETI operates under the sole retail jurisdiction of the Public Utility Commission of Texas, while the other entity that was the product of the jurisdictional separation, Entergy Gulf States Louisiana, L.L.C., operates under the sole retail jurisdiction of the Louisiana Public Service Commission. ETI now owns all of the former Entergy Gulf States, Inc. distribution and transmission assets located in Texas, the gas-fired generating plants located in Texas, and an undivided 42.5% ownership share of the former Entergy Gulf States, Inc.'s ownership interest in Nelson 6 and Big Cajun 2, Unit 3, which are coal-fired generating plants

located in Louisiana. Other power plants formerly owned by Entergy Gulf States, Inc. and sited in Louisiana, including the River Bend nuclear plant and several gas plants, now are owned by Entergy Gulf States Louisiana and provide capacity and energy to ETI under life of the unit purchased power contracts. ETI also owns other assets and contract rights to the extent that such items are related to utility operations in Texas. On a book value basis, approximately 58.1% of the Entergy Gulf States, Inc. assets were allocated to Entergy Gulf States Louisiana, L.L.C. and approximately 41.9% were allocated to ETI (2008 10-K at 74).

ETI is one of six principal utility operating subsidiaries of Entergy Corporation. For 2012, ETI provided approximately 15.4 percent of Entergy's operating revenues and comprised 9.3 percent of its assets.

ETI serves a diverse group of residential, commercial, industrial, and public authority customers. For 2012, ETI's retail revenues were approximately $1.2 billion. Based on energy sales volume, residential customers accounted for 34.3 percent of total retail sales; commercial customers, 26.9 percent; industrial customers, 37.1 percent; and public authority customers, 1.7 percent. ETI's dependence on commercial and industrial revenues is important because sales to such customers may be significantly affected by changes in economic conditions or other factors beyond ETI's control.

Q12. HOW DOES ETI'S REQUESTED CAPITAL STRUCTURE COMPARE TO THE CAPITAL STRUCTURES OF THE COMPANIES IN YOUR INVESTMENT GRADE COMPARABLE COMPANY GROUP?

A. ETI's requested capital structure, containing approximately 51 percent debt, 0 percent preferred stock and 49 percent equity, is similar to the year-end 2012 average capital structure for my comparable companies. (*See* Exhibit SCH-1, page 1).

Q13. HOW DOES ETI'S RELIANCE ON PURCHASED POWER TO MEET ITS CAPACITY NEEDS AFFECT YOUR ROE ANALYSIS?

A. As explained in the testimony of Company witness Robert R. Cooper, ETI continues to place significant reliance on purchased power as a reasonable means to meet its ongoing need for capacity to reliably serve Texas retail customers. Mr. Cooper further explains how reliance on purchased power has yielded energy savings for customers, which are reflected in the over $460 million in net purchased power energy expense incurred during the Reconciliation Period in this case (more than half of the Total Texas Jurisdictional Fuel Factor Cost), as shown in Figure MHT-1 to the testimony of Company witness Michelle H. Thiry. At the same time, ETI's per books test year capacity costs totaled approximately $260 million, approximately 39% of its Present Base Rate Revenues.[1]

[1] Present Base Rate Revenues, per Schedule Q-1, total approximately $671 million.

Purchased power is a very significant element of the Company's cost of serving retail customers, and is viewed as having the attributes and impact of additional debt on an electric utility's balance sheet, which increases the perceived riskiness of the utility.

In addition, PURA § 36.204 (2) states that "in establishing rates for an electric utility, the commission may . . . authorize additional incentives for . . . purchased power. . . ." Mr. Cooper's testimony explains that ETI has chosen to buy incremental purchased power capacity on an ongoing basis as a preferred means of meeting customer reliability needs at reasonable cost, and that ETI will continue to factor purchased capacity into its resource planning going forward. Unlike investment in the construction of owned generation, which is included in rate base and earns a return to compensate investors, purchased power capacity costs are simply pass through expenses that earn no return. While the market data discussed later in my testimony supports my recommended ROE level without factoring in ETI's commitment to purchased power, the Commission should also consider that granting an ROE no less than my recommendation will provide incentives to the Company to continue to purchase capacity when that decision is in the best interests of customers.

Q14. ARE THERE OTHER ETI-SPECIFIC FACTORS THAT MAY BE CONSIDERED IN DETERMINING A FAIR RETURN FOR THE COMPANY'S TEXAS OPERATIONS?

A. Yes, there are. Section 36.052 of the Public Utility Regulatory Act provides that in:

> establishing a reasonable return on invested capital, the regulatory authority shall consider applicable factors, including:
>
> (1) the efforts and achievements of the utility in conserving resources;
>
> (2) the quality of the utility's services;
>
> (3) the efficiency of the utility's operations; and
>
> (4) the quality of the utility's management.

In this regard, Company witnesses Shawn B. Corkran, Philip N. Sharp, and Vernon Pierce address the improvements in service quality and operational efficiency that ETI has achieved under current management for its southeast Texas customers. Given the language of PURA § 36.052, although the Company could have but has not requested an ROE adjustment based on these factors, in my opinion it is reasonable to consider the Company's quality, reliability and efficiency of service and the quality of its management as further support for adoption of a return on equity no lower than what I recommend in this case.

III. MARKET FACTORS THAT AFFECT THE COST OF EQUITY CAPITAL

Q15. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. In this section, I review recent capital market conditions and industry factors that should be reflected in the cost of capital estimate.

Q16. WHAT IS THE CURRENT OUTLOOK FOR THE U.S. ECONOMY?

A. The U.S. economy is finally on what appears to be a sustainably improving track. The housing markets in many parts of the country have firmed up and prices are increasing. Although the stock market remains turbulent, it has largely recovered from the losses sustained during the financial crisis and consumer confidence is improving. Although unemployment remains a concern, most economists now expect the government's monetary policy to become less stimulative over the coming year.

In this regard, on June 19, the Fed's Federal Open Market Committee ("FOMC") issued the following policy statement indicating somewhat improved economic conditions:

> Information received since the Federal Open Market Committee met in May suggests that economic activity has been expanding at a moderate pace. **Labor market conditions have shown further improvement in recent months, on balance, but the unemployment rate remains elevated. Household spending and business fixed investment advanced, and the housing sector has strengthened further**, but fiscal policy is restraining economic growth. Partly reflecting transitory influences, inflation has been running below the Committee's longer-run

> objective, but longer-term inflation expectations have remained stable.
>
> Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that, with appropriate policy accommodation, economic growth will proceed at a moderate pace and the unemployment rate will gradually decline toward levels the Committee judges consistent with its dual mandate. **The Committee sees the downside risks to the outlook for the economy and the labor market as having diminished since the fall.** The Committee also anticipates that inflation over the medium term likely will run at or below its 2 percent objective.
>
> The Committee will closely monitor incoming information on economic and financial developments in coming months. The Committee will continue its purchases of Treasury and agency mortgage-backed securities, and employ its other policy tools as appropriate, until the outlook for the labor market has improved substantially in a context of price stability. The Committee is prepared to increase or reduce the pace of its purchases to maintain appropriate policy accommodation as the outlook for the labor market or inflation changes. In determining the size, pace, and composition of its asset purchases, the Committee will continue to take appropriate account of the likely efficacy and costs of such purchases as well as the extent of progress toward its economic objectives. (FOMC Press Release, www.federalreserve.gov, June 19, 2013, emphasis added.)

As noted in the highlighted portions of the announcement, in its June 19 comments, the FOMC recognized the economy's improving conditions. This slightly changed stance from the FOMC has led to expectations for less accommodative monetary policy, which, in turn, have led to significant increases in long-term interest rates.

Q17. WHAT IS THE CONNECTION BETWEEN FOMC MONETARY POLICY AND THE CHANGES IN INTEREST RATES?

A. Over the past two years, the FOMC has attempted to stimulate the economy by various monetary policy methods. Recently, the most widely discussed of those methods have been programs called "Quantitative Easing 3" ("QE3") and "Operation Twist." Under the QE3 program, the FOMC has directed the purchase of $85 billion per month of long-term mortgage back securities and other long-term U.S. Government instruments, thus pushing down the yields on those securities. Through Operation Twist, the Fed has effectively used the issuance of short-term U.S. Treasury bills to repurchase longer-term U.S. Treasury bonds, thus again holding down yields in the longer-term markets. As noted above, in its June 19, 2013 press release, the FOMC indicated the improving economic conditions might lead to tapering off of its stimulus programs. That announcement, therefore, led to the jump in interest rates that has occurred.

Q18. WHAT HAS BEEN THE EXPERIENCE IN THE U.S. CAPITAL MARKETS FOR THE PAST SEVERAL YEARS?

A. In Exhibit SCH-2, page 1, I provide a 10-year review of annual interest rates and rates of inflation. During this time period, interest rates and inflation generally have been lower than in the previous decade. Inflation in this time period, as measured by the Consumer Price Index ("CPI"),

fluctuated between a low of zero percent (in 2008) and a high of 4.1 percent (caused by the spike in energy costs that occurred in 2007). The decade's average annual inflation rate (2.4 percent) was 100 basis points lower than the longer-term average rate of the past 60 years (see Exhibit SCH-3). Interest rates declined steadily over most of the period, with the 2012 average utility interest rate at its lowest level for more than 30 years (see Exhibit SCH-5, page 1).

Q19. WHAT HAS THE MORE RECENT TREND IN UTILITY BORROWING COSTS BEEN?

A. In Exhibit SCH-2, page 2, I provide the month-by-month interest rate data since mid-2010. The most recent two years of those data are summarized below in Table 1.

Table 1
Long-Term Interest Rate Trends

Month	Triple-B Utility Rate	30-Year Treasury Rate	Triple-B Utility Spread
Aug-11	5.22	3.65	1.57
Sep-11	5.11	3.18	1.93
Oct-11	5.24	3.13	2.11
Nov-11	4.93	3.02	1.91
Dec-11	5.07	2.98	2.09
Jan-12	5.06	3.03	2.03
Feb-12	5.02	3.11	1.91
Mar-12	5.13	3.28	1.85
Apr-12	5.11	3.18	1.93
May-12	4.97	2.93	2.04
Jun-12	4.91	2.70	2.21
Jul-12	4.85	2.59	2.26
Aug-12	4.88	2.77	2.11
Sep-12	4.81	2.88	1.93
Oct-12	4.54	2.90	1.64
Nov-12	4.42	2.80	1.62
Dec-12	4.56	2.88	1.68
Jan-13	4.66	3.08	1.58
Feb-13	4.74	3.17	1.57
Mar-13	4.72	3.16	1.56
Apr-13	4.49	2.93	1.56
May-13	4.65	3.11	1.54
Jun-13	5.08	3.40	1.68
Jul-13	5.21	3.61	1.60
3-Mo Avg	**4.98**	**3.37**	**1.61**
12-Mo Avg	**4.73**	**3.06**	**1.67**

Sources: Mergent Bond Record; www.federalreserve.gov.
Three month average is for May-July 2013.
Twelve month average is for August 2012-July 2013.

The data in Table 1 partially reflect the increase in interest rates that has occurred since the June 19 FOMC announcement, with the July 2013 average rates near the highest levels during the past two years.

Q20. HAVE LONG-TERM INTEREST RATES MOVED UP FURTHER RELATIVE TO THE JULY 2013 AVERAGES?

A. Yes. The June and July average rates contain about three weeks of data in June from before the FOMC announcement. Although a changed Fed posture had been partially anticipated, with interest rates firming up slightly in May, the June 19 announcement caused a sharper jump. While I normally rely on the monthly averages and generally base my analysis on three-month averages to smooth out random fluctuations, when a significant policy shift occurs, I believe near-term rates should be considered as well. Therefore, in Table 2, I provide the daily yields for the 30-year and 10-year Treasuries and for long-term single-A corporate and utility bonds for August 1 forward. In my risk premium analysis, presented later, I also use the more recent August data to illustrate the effect of higher interest rates on current ROE estimates.

Table 2
August 2013 Interest Rates

	30- Year Treasury	10- Year Treasury	Baa Corporate	Baa Utility
8/1/2013	3.77	2.74	5.40	5.27
8/2/2013	3.69	2.63	5.31	5.18
8/5/2013	3.73	2.67	5.31	5.18
8/6/2013	3.73	2.67	5.37	5.24
8/7/2013	3.68	2.61	5.36	5.23
8/8/2013	3.65	2.58	5.33	5.19
8/9/2013	3.63	2.57	5.31	5.17
8/12/2013	3.67	2.61	5.33	5.20
8/13/2013	3.75	2.71	5.43	5.30
8/14/2013	3.75	2.71	5.43	5.30
8/15/2013	3.81	2.77	5.47	5.33
8/16/2013	3.86	2.84	5.54	5.39
8/19/2013	3.89	2.88	5.58	5.43

Sources: www.federalreserve.gov, H-15 Series.
Moody's (Mergent) Bond Record.

Q21. WHAT DO INTEREST RATE FORECASTS SHOW FOR THE COMING YEAR?

A. Interest rates are expected to rise further. In Exhibit SCH-2, page 3, I provide the forward Bloomberg curve for Treasury yields through December 31, 2015. These forecasts reflect the significant expected increase in interest rates. These data are summarized in Table 3 below.

Table 3
Interest Rate Forecast

	July 2013	Dec 2014E
1-Yr. Treasuries	0.1%	0.9%
10-Yr. Treasuries	2.6%	3.4%
30-Yr. Treasuries	3.6%	4.2%

Source: www.federalreserve.gov (July rates). Projected rates are from the Bloomberg Active Treasuries curve, August 19, 2013, shown in Exhibit SCH-2, page 3.

Q22. HOW DO THESE TRENDS AFFECT THE COST OF EQUITY FOR UTILITIES SUCH AS ETI?

A. There are at least two effects. First, with the tapering off of the Fed's stimulative monetary policy, which has artificially depressed market interest rates over the past two years, more normal market supply and demand conditions should begin to prevail. As this happens, the costs of both debt and equity should move more in parallel relative to disequilibrium conditions between debt and equity costs that have existed while the government's debt market intervention has occurred. As economic conditions improve and as market-driven, higher interests prevail, the reliability of cost of equity estimates from the traditional cost of equity models should improve.

Q23. WHAT IS THE UTILITY INDUSTRY'S CURRENT FUNDAMENTAL POSITION?

A. The industry has seen significant volatility both in terms of fundamental operating characteristics and the effects of the economy. Slow economic growth has reduced sales volumes and uncertain environmental rules have both increased the difficulty of planning for future load requirements. Value Line provides a warning of possible overvaluation in its recent Electric Utility update.

Value Line Investor Survey

> [M]ost electric utility issues are up solidly year to date, and are still trading within their 2016-2018 Target Price Ranges. Historically, this is an indication that these equities are expensively priced. Income-oriented investors don't have a lot of options, with money market and savings instruments having such low yields. They must be cognizant of the market risks they are assuming when they purchase stocks for their generous dividends. (*Value Line Investor Survey*, June 21, 2013, p. 901.)

Artificially low interest rates and the resulting lack of income opportunities have caused investors to ignore market risk-return relationships. This in turn has led to potentially overpriced utility shares and an understatement of the cost of equity in COE estimation models.

Standard & Poor's provides further perspective for investors' dividend preferences for utility shares.

S&P Industry Survey

> Electric utility shares underperformed in 2012, but outperformed in first quarter of 2013. The S&P Electric Utilities subindex declined 4.3% in 2012, versus a 13.4% increase for the benchmark S&P 500 Composite stock index and a 13.7% increase in the broader S&P 1500 SuperComposite stock index. We believe the underperformance in 2012 reflected, to some degree, a consolidation of the strong performance in 2011. Primarily, however, it was driven by the continuing weakness in the economy and the power markets, the uncertainties related to the federal tax policy on dividends, the strength of the broader market, and the impact of Superstorm Sandy (for those utilities that were affected). (Standard & Poor's Electric Utility Industry Survey, March 2013, p. 6.)

Q24. DO UTILITIES CONTINUE TO FACE THE OPERATING AND FINANCIAL RISKS THAT EXISTED PRIOR TO THE RECENT FINANCIAL CRISIS?

A. Yes. Prior to the recent financial crisis, the most significant risk factor for utility investors was the industry's continuing transition to more open market conditions and competition. With the passage of the Energy Policy Act ("EPAC") in 1992 and the Commission's Order No. 888 in 1996, the stage was set for vastly increased competition in the electric utility industry. EPAC's mandate for open access to the transmission grid and FERC's implementation through Order No. 888 effectively opened the market for wholesale electricity to competition. Previously protected utility service territory and lack of wholesale transmission access in some parts of the country had limited the availability of competitive bulk power prices. EPAC and Order No. 888 have essentially eliminated such constraints and allowed most utilities to seek alternative wholesale suppliers for their incremental power needs.

In addition to wholesale issues at the federal level, in states that have implemented retail access, even retail markets have opened to competition. Concerns about these issues and additional efforts for dealing with larger construction programs and power cost recovery mechanisms have developed as well. As expected, the opening of previously protected utility markets to competition, the uncertainty created by the removal of regulatory protection, and continuing fuel price volatility

have raised the level of uncertainty about investment returns across the entire industry.

Q25. IS ETI AFFECTED BY THESE SAME UNCERTAINTIES AND INCREASING UTILITY CAPITAL COSTS?

A. Yes. To some extent all electric utilities are being affected by the industry's transition to competition. Although retail deregulation has not occurred in the ETI's service territory in Texas, the Company's power costs and other operating activities have been significantly affected by transition and restructuring events around the country. In fact, the uncertainty associated with the changes that are transforming the utility industry as a whole, as viewed from the perspective of the investor, remain a factor in assessing any utility's required ROE, including the ROE from ETI's operations in Texas.

Q26. HOW DO CAPITAL MARKET CONCERNS AND FINANCIAL RISK PERCEPTIONS AFFECT THE COST OF EQUITY CAPITAL?

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

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

Q27. HOW HAVE REGULATORY COMMISSIONS RESPONDED TO THESE CHANGING MARKET AND INDUSTRY CONDITIONS?

A. Over the past five years, average allowed ROEs have ranged between 10.6 percent to 9.8 percent. Table 4 below summarizes the ROE data for integrated electric utilities like ETI.

Table 4

Authorized Equity Returns for Vertically-Integrated Electric Utilities

	2009	2010	2011	2012	2013*
Average ROE	10.63%	10.38%	10.24%	10.10%	9.84%

Source: Regulatory Focus, SNL Regulatory Research Associates, Major Rate Case Decisions, July 9; 2013 and Exhibit SCH-1, page 2.
*2013 average is for first two quarters only.

Q28. WHAT DO THESE RESULTS IMPLY FOR THE COST OF EQUITY RELATIVE TO THE DECLINE IN INTEREST RATES?

A. While interest rates had dropped by 150 basis points or more over the past three years, allowed ROE has dropped by only about one-half that amount. This result is consistent with most regulators recognizing the artificial impact that the government's expansive monetary policy has had on interest rates. The federal government responded to the economic crisis by artificially depressing interest rates through its ongoing purchases of Treasury bonds and other securities. This action dropped interest rates and removed yield opportunities for traditional investors in safe, fixed income investments. As discussed above by Value Line and Standard & Poor's, investors responded by buying dividend paying stocks, like utilities, at rates not consistent with normal risk-return relationships. Their search for income pushed up utility stock prices to potentially excessive levels, which thus reduced dividend yields and, therefore, ROE estimates from the traditional "yield plus growth" DCF model. The quantitative COE estimation models, both risk premium models and DCF models, skewed by government-induced low interest rates and resulting low dividend yields, therefore, produced artificially low estimates of ROE.

IV. ESTIMATING THE COST OF EQUITY CAPITAL

Q29. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. The purpose of this section is to present a general definition of the cost of equity capital and to compare the strengths and weaknesses of several of the most widely used methods for estimating the cost of equity. Estimating the cost of equity is fundamentally a matter of informed judgment. The various models provide a concrete link to actual capital market data and assist with defining the various relationships that underlie the ROE estimation process.

Q30. CAN YOU ILLUSTRATE THE COST OF EQUITY CONCEPT?

A. Yes. As noted previously, the cost of equity is the rate of return that equity investors expect to receive. Unlike returns from debt and preferred stocks, however, the equity return cannot be observable directly and, therefore, it must be estimated or inferred from capital market data and trading activity.

An example helps to illustrate the cost of equity concept. Assume that an investor buys a share of common stock for $20 per share. If the stock's expected dividend is $1.00, the expected dividend yield is 5.0 percent ($1.00 / $20 = 5.0 percent). If the stock price is also expected to increase to $21.00 after one year, this one dollar expected gain adds an additional 5.0 percent to the total expected rate of return ($1.00 / $20 = 5.0 percent). Therefore, buying the stock at $20 per share, the investor

expects a total return of 10.0 percent: 5.0 percent dividend yield, plus 5.0 percent price appreciation. In this example, the total expected rate of return of 10.0 percent is the appropriate measure of the cost of equity capital, because it is this rate of return that caused the investor to commit the $20 of equity capital in the first place. If the stock had been riskier, or if expected returns from other investments were higher, investors would have required a higher rate of return from the stock, which would have resulted in a lower initial purchase price in market trading.

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

Q31. HOW DOES THE MARKET ACCOUNT FOR RISK DIFFERENCES AMONG THE VARIOUS INVESTMENTS?

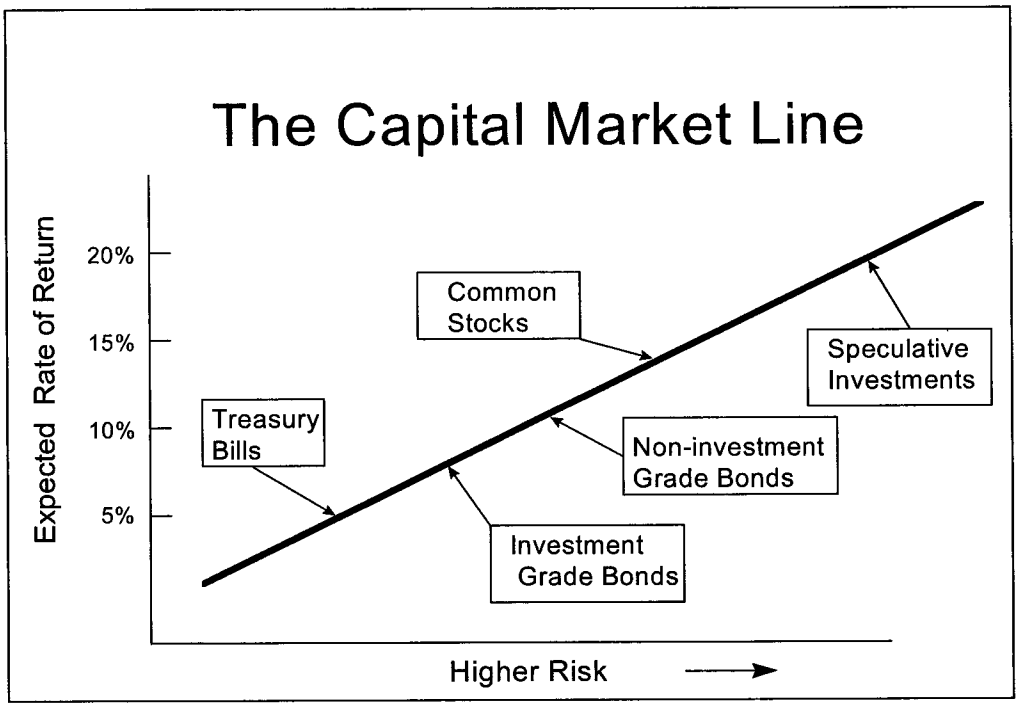
A. Risk-return tradeoffs among capital market investments have been the subject of extensive financial research. Literally dozens of textbooks and hundreds of academic articles have addressed the issue. Generally, such research confirms the common sense conclusion that investors will take additional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

Q32. CAN YOU ILLUSTRATE THE CAPITAL MARKET RISK-RETURN PRINCIPLE THAT YOU JUST DESCRIBED?

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

any particular investment, but merely to illustrate in a general way the risk-return relationship.

Risk-Return Tradeoffs



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

considering the potential effects of inflation), such assets are virtually risk-free.

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

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

provides a useful perspective for estimating investors' required rates of return.

Q33. HOW IS THE FAIR RATE OF RETURN IN THE REGULATORY PROCESS RELATED TO THE ESTIMATED COST OF EQUITY CAPITAL?

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

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

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

Based on these principles, the fair rate of return should closely parallel investor opportunity costs as discussed above. If a utility earns its market

cost of equity, neither its stockholders nor its customers should be disadvantaged.

Q34. WHAT SPECIFIC METHODS AND CAPITAL MARKET DATA ARE USED TO EVALUATE THE COST OF EQUITY?

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

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

equity estimate (based on the DCF model or a risk premium analysis) is usually required.

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

The third set of estimation techniques, based on the DCF model, is the most widely used regulatory cost of equity estimation method. Like the risk premium approach, the DCF model has a sound basis in theory, and many argue that it has the additional advantage of simplicity. I will describe the DCF model in detail below, but in essence its estimate of ROE is simply the sum of the expected dividend yield and the expected

long-term dividend, earnings, or price growth rate (all of which are assumed to grow at the same rate). While dividend yields are easy to obtain, estimating long-term growth is more difficult. Because the constant growth DCF model also requires very long-term growth estimates (technically to infinity), some argue that its application is too speculative to provide reliable results, resulting in the preference for the multistage growth DCF analysis.

Q35. OF THE THREE ESTIMATION METHODS, WHICH DO YOU BELIEVE PROVIDES THE MOST RELIABLE RESULTS?

A. From my experience, in periods of reasonable capital market equilibrium, a combination of DCF and the basic risk premium methods usually provide the most reliable approach. While the caveat about estimating long-term growth must be observed, the DCF model's other inputs are readily obtainable, and the model's results typically are consistent with equilibrium capital market behavior. The basic risk premium methods provide a good parallel approach to the DCF model and further ensure that current market conditions are accurately reflected in the cost of equity estimate. However, due to the government's stimulative monetary policy, which I previously discussed in this testimony, low COE estimates obtained from all of these methods should be discounted accordingly.

Q36. PLEASE EXPLAIN THE DCF MODEL.

A. The DCF model is predicated on the concept that stock prices represent the present value or discounted value of all future dividends that investors expect to receive. In the most general form, the DCF model is expressed in the following formula:

$$P_0 = D_1/(1+k) + D_2/(1+k)^2 + ... + D_\infty/(1+k)^\infty \quad (1)$$

where P_0 is today's stock price; D_1, D_2, etc. are all future dividends and k is the discount rate, or the investor's required rate of return on equity. Equation (1) is a routine present value calculation based on the assumption that the stock's price is the present value of all dividends expected to be paid in the future.

Under the additional assumption that dividends are expected to grow at a constant rate "g" and that k is strictly greater than g, equation (1) can be solved for k and rearranged into the simple form:

$$k = D_1/P_0 + g \quad (2)$$

Equation (2) is the familiar constant growth DCF model for cost of equity estimation, where D_1/P_0 is the expected dividend yield and g is the long-term expected dividend growth rate.

Under circumstances when growth rates are expected to fluctuate or when future growth rates are highly uncertain, the constant growth model may not give reliable results. Although the DCF model itself is still valid (equation 1 is mathematically correct), under such circumstances the

simplified form of the model must be modified to capture market expectations accurately.

Recent events and current market conditions in the electric utility industry as discussed elsewhere in this testimony appear to challenge the constant growth assumption of the traditional DCF model. Since the mid-1980s, dividend growth expectations for many electric utilities have fluctuated widely. In fact, over one-third of the electric utilities in the U.S. have reduced or eliminated their common dividends over this time period. Some of these companies have reestablished their dividends, producing exceptionally high growth rates. Under these circumstances, long-term growth rate estimates may be highly uncertain, and estimating a reliable "constant" growth rate for many companies is often difficult.

Q37. CAN THE DCF MODEL BE APPLIED WHEN THE CONSTANT GROWTH ASSUMPTION IS VIOLATED?

A. Yes. When growth expectations are uncertain, the more general version of the model represented in equation (1) should be solved explicitly over a finite "transition" period while uncertainty prevails. The constant growth version of the model can then be applied after the transition period, under the assumption that more stable conditions will prevail in the future. There are two alternatives for dealing with the nonconstant growth transition period.

Under the "terminal price" nonconstant growth approach, equation (1) is written in a slightly different form:

$$P_0 = D_1/(1+k) + D_2/(1+k)^2 + ... + P_T/(1+k)^T \quad (3)$$

where the variables are the same as in equation (1) except that P_T is the estimated stock price at the end of the transition period T. Under the assumption that normal growth resumes after the transition period, the price P_T is then expected to be based on constant growth assumptions. With the terminal price approach, the estimated cost of equity, k, is just the rate of return that investors would expect to earn if they bought the stock at today's market price, held it and received dividends through the transition period (until period T), and then sold it for price P_T. In this approach, the analyst's task is to estimate the rate of return that investors expect to receive given the current level of market prices they are willing to pay.

Under the "multistage" nonconstant growth approach, equation (1) is simply expanded to incorporate two or more growth rate periods, with the assumption that a permanent constant growth rate can be estimated for some point in the future:

$$P_0 = D_0(1+g_1)/(1+k) + ... + D_2(1+g_2)^n/(1+k)^n +$$
$$... + [D_T(1+g_T)^{(T+1)}/(k-g_T)]/(1+k)^T \quad (4)$$

where the variables are the same as in equation (1), but g_1 represents the growth rate for the first period; D_2 is the dividend at the beginning of the second period and g_2 is the growth rate for the second period; and D_T is

the dividend at the beginning of the third period and g_T for the period from year T (the end of the transition period) to infinity. The difficult task for analysts in the multistage approach is determining the various growth rates for each period.

Although less convenient for exposition purposes, the nonconstant growth models are based on the same valid capital market assumptions as the constant growth version. The nonconstant growth approach simply requires more explicit data inputs and more work to solve for the discount rate, k. Fortunately, the required data are available from investment and economic forecasting services and computer algorithms can easily produce the required solutions. Both constant and nonconstant growth DCF analyses are presented in a subsequent section of my testimony.

Q38. PLEASE EXPLAIN THE RISK PREMIUM METHODOLOGY.

A. Risk premium methods are based on the assumption that equity securities are riskier than debt and, therefore, that equity investors require a higher rate of return. This basic premise is well-supported by legal and economic distinctions between debt and equity securities, and it is widely accepted as a fundamental capital market principle. For example, debt holders' claims to the earnings and assets of the borrower have priority over all claims of equity investors. The contractual interest on mortgage debt must be paid in full before any dividends can be paid to shareholders, and secured mortgage claims must be fully satisfied before any assets can be

distributed to shareholders in bankruptcy. Also, the guaranteed, fixed-income nature of interest payments makes year-to-year returns from bonds typically more stable than capital gains and dividend payments on stocks. All these factors demonstrate the more risky position of stockholders and support the equity risk premium concept.

Q39. ARE RISK PREMIUM ESTIMATES OF THE COST OF EQUITY CONSISTENT WITH OTHER CURRENT CAPITAL MARKET COSTS?

A. Yes. Under normal market conditions, the risk premium approach typically has provided a useful perspective because it is founded on current market interest rates, which are directly observable. Over the past two years,, however, risk premium estimates based on government-induced, artificially low interest rates have been below the market cost of equity capital.

Q40. IS THERE CONSENSUS ABOUT HOW RISK PREMIUM DATA SHOULD BE EMPLOYED?

A. No. In regulatory practice there is often considerable debate about how risk premium data should be interpreted and used. Since the analyst's basic task is to gauge investors' required returns on long-term investments, some argue that the estimated equity risk premium should be based on the longest possible time period. Others argue that market relationships between debt and equity from several decades ago are

irrelevant and that only recent debt-equity observations should be given any weight in estimating investor requirements. There is no consensus on this issue. Since analysts cannot observe or measure investors' expectations directly, it is not possible to know exactly how such expectations are formed or, therefore, to know exactly what time period is most appropriate in a risk premium analysis.

The important point is to answer the following question: "What rate of return should equity investors reasonably expect relative to returns that are currently available from long-term bonds?" The risk premium studies and analyses I discuss later address this question. My risk premium recommendation is based on an intermediate position that avoids some of the problems and concerns that have been expressed about both very long and very short periods of analysis with the risk premium model.

Q41. PLEASE SUMMARIZE YOUR DISCUSSION OF COST OF EQUITY ESTIMATION TECHNIQUES.

A. Estimating the cost of equity is one of the most controversial issues in utility ratemaking. Because actual investor requirements are not directly observable, several methods have been developed to assist in the estimation process. The comparable earnings method is the oldest but perhaps least reliable. Its use of accounting rates of return, or even historical market returns, may or may not reflect current investor

requirements. Differences in accounting methods among companies and issues of comparability also detract from this approach.

The DCF and risk premium methods have become the most widely accepted in regulatory practice. In my professional judgment, a combination of the DCF model and a review of risk premium data provides the most reliable cost of equity estimate. While the DCF model does require judgment about future growth rates, the dividend yield is straightforward, and the model's results are generally consistent with actual capital market behavior. As noted previously, under present market conditions, and with the government's ongoing capital market intervention, estimates provided by all the quantitative models are more difficult to interpret. In addition to the quantitative model estimates, capital market turbulence and the heightened investor risk aversion that has resulted should also be considered.

V. COST OF EQUITY CAPITAL FOR ETI

Q42. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

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

Q43. HOW ARE YOUR STUDIES ORGANIZED?

A. In the first part of my analysis, I apply three versions of the DCF model to a 24-company group of electric utilities based on the selection criteria discussed previously. In the second part of my analysis, I apply basic equity risk premium models based on current and projected capital costs for the coming year.

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

Q44. WHY DO YOU BELIEVE THE LONG-TERM GDP GROWTH RATE SHOULD BE USED TO ESTIMATE LONG-TERM GROWTH EXPECTATIONS IN THE DCF MODEL?

A. Growth in nominal GDP (real GDP plus inflation) is the most general measure of economic growth in the U.S. economy. For long time periods, such as those used in the Morningstar/Ibbotson Associates rate of return data, GDP growth has averaged between 5 percent and 8 percent per year. From this observation, Professors Brigham and Houston offer the following observation concerning the appropriate long-term growth rate in the DCF Model:

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

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

> Our estimated median growth rate is reasonable when compared to the overall economy's growth rate. On average over the sample period, the median growth rate over 10 years for income before extraordinary items is about 10 percent for all firms. ... After deducting the dividend yield (the median yield is 2.5 percent per year), as well as inflation (which averages 4 percent per year over the sample period), the growth in real income before extraordinary items is roughly 3.5 percent per year. This is consistent with the historical growth rate in real gross domestic product, which

> has averaged about 3.4 percent per year over the period 1950-1998. (Louis K. C. Chan, Jason Karceski, and Josef Lakonishok, "The Level and Persistence of Growth Rates," The Journal of Finance, April 2003, p. 649.)
>
> IBES long-term growth estimates are associated with realized growth in the immediate short-term future. Over long horizons, however, there is little forecastability in earnings, and analysts' estimates tend to be overly optimistic. ... On the whole, the absence of predictability in growth fits in with the economic intuition that competitive pressures ultimately work to correct excessively high or excessively low profitability growth. (Ibid, page 683.)

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

Q45. HOW DID YOU ESTIMATE THE EXPECTED LONG-RUN GDP GROWTH RATE?

A. I developed my long-term GDP growth forecast from nominal GDP data contained in the St. Louis Federal Reserve Bank data base. That data for the period 1952 through 2012 are summarized on page 1 of my Exhibit SCH-3. As shown at the bottom of that exhibit, the overall average for the period was 6.5 percent. The data also show, however, that after the early 1980s, lower inflation has resulted in lower nominal GDP growth. For this reason I gave more weight to the more recent years in my GDP forecast. This approach is consistent with the concept that more recent

data should have a greater effect on expectations and with generally lower near- and intermediate-term growth rate forecasts that presently exist. Based on this approach, my overall forecast for long-term GDP growth is somewhat lower than the long-term average, at a level of 5.6 percent.

Q46. THE DCF MODEL REQUIRES AN ESTIMATE OF INVESTORS' LONG-TERM GROWTH RATE EXPECTATIONS. WHY DO YOU BELIEVE YOUR FORECAST OF GDP GROWTH BASED ON LONG-TERM HISTORICAL DATA IS APPROPRIATE?

A. There are at least three reasons. First, most econometric forecasts are derived from the trending of historical data or the use of weighted averages. This is the approach I have taken in my GDP growth forecast shown on page 1 of Exhibit SCH-3. The data in that exhibit show that the long-run historical average GDP growth rate is 6.5 percent. My estimate of expected growth, at 5.6 percent, however, is lower because my forecasting method gives much more weight to the more recent 10- and 20-year periods. Also, as shown on page 2 of Exhibit SCH-3, my 5.6 percent growth rate estimate is in line with the Congressional Budget Office ("CBO") GDP growth estimate (5.7%) for the 2015-2018 time period.

Second, some currently lower GDP growth forecasts, such as the CBO forecast for 2019-2023 shown on page 2 of Exhibit SCH-3, likely understate very long growth rate expectations that are required in the

DCF model. Many of those forecasts are currently low because they are based on the assumption of permanently low inflation rates, in the range of 2 percent. As shown in my Exhibit SCH-3, page 1, the average long-term inflation rate has been near or above 3 percent in all but the most recent 10- and 20- year periods.

Finally, the current economic uncertainty makes it even more important to consider longer-term economic data in the growth rate estimate. For the past several years, near-term forecasts for both real GDP and inflation have been severely depressed. To the extent that even the longer-term outlooks of professional economists are also depressed, their forecasts will be low. Under these circumstances, a longer-term balance is even more important. For all these reasons, while I present other growth rate approaches based on analysts' estimates in this testimony, I believe that long-term GDP growth should also be considered in estimating the DCF model's required very long-term growth rate.

Q47. PLEASE SUMMARIZE THE RESULTS OF YOUR DCF ANALYSES.

A. The DCF results for my comparable company group are presented in Exhibit SCH-4. As shown in the first column of page 1 of that exhibit, the traditional constant growth model indicates a COE of 9.0 percent to 9.1 percent. In the second column of page 1, I recalculate the constant growth results with the growth rate based on long-term forecasted growth in GDP. With the GDP growth rate, the constant growth model indicates a

COE of 9.6 percent. Finally, in the third column of page 1, I present the results from the multistage DCF model which indicate a COE range of 9.5 percent to 9.6 percent. The DCF models, therefore, indicate a COE range of 9.0 percent to 9.6 percent. As discussed previously, I discount these quantitative results because they have been depressed by the government's stimulative monetary policy and they cannot fully reflect the rising interest rate environment that has resulted from the FOMC's more resent policy statements.

Q48. WHAT ARE THE RESULTS OF YOUR EQUITY RISK PREMIUM STUDIES?

A. The details and results of my equity risk premium studies are shown in my Exhibit SCH-5. In these studies, I have added a third risk premium analysis designed to capture the recent FOMC policy shift and the increasing interest rate environment that the FOMC announcement has created. The risk premium models indicate a COE range of 10.0 percent to 10.4 percent.

Q49. HOW ARE YOUR EQUITY RISK PREMIUM STUDIES STRUCTURED?

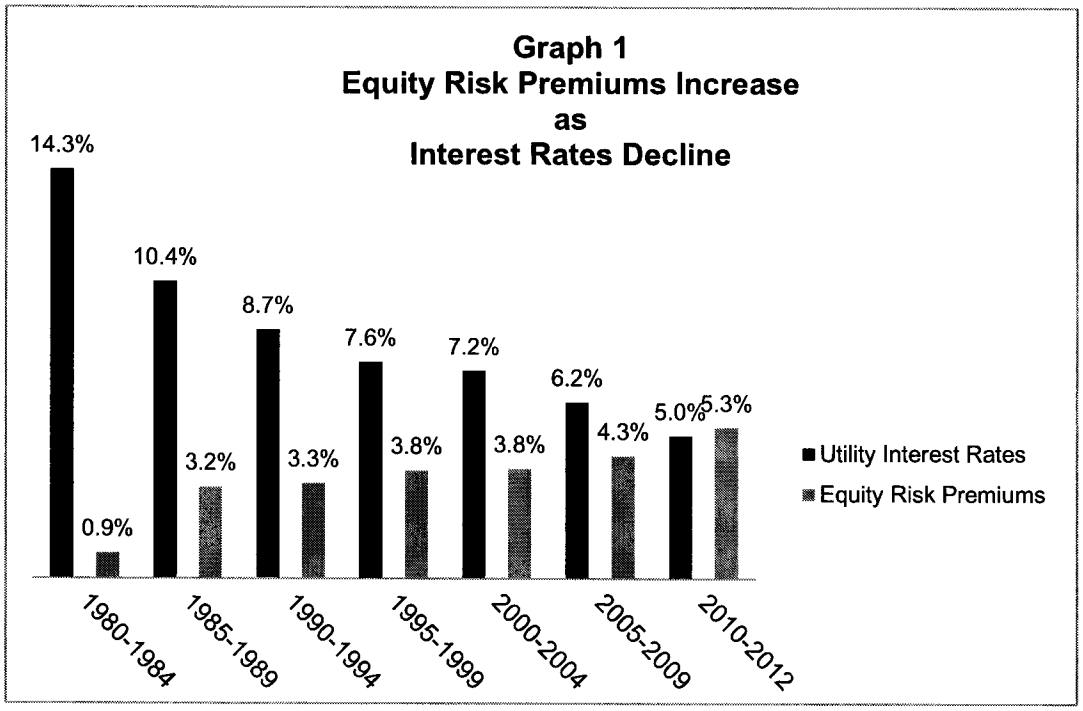
A. My equity risk premium studies are divided into two parts. First, I compare electric utility authorized ROEs for the period 1980-2012 to contemporaneous long-term utility interest rates. I believe this long-term data is most appropriate because it includes both the exceptionally high

interest rates that existed in the early 1980s as well as the recent, historically low interest rate levels. The differences between the average authorized ROEs and the average interest rate for the year is the indicated equity risk premium. I then add the indicated equity risk premium to the forecasted and current triple-B utility bond interest rate to estimate COE. Because there is a strong inverse relationship between equity risk premiums and interest rates (when interest rates are high, risk premiums are low and vice versa), further analysis is required to estimate the current equity risk premium level.

The inverse relationship between equity risk premiums and interest rate levels is well documented in numerous, well-respected academic studies. These studies typically use regression analysis or other statistical methods to predict or measure the equity risk premium relationship under varying interest rate conditions. On page 4 of Exhibit SCH-5, I provide regression analyses of the allowed annual equity risk premiums relative to interest rate levels. The negative and statistically significant regression coefficients confirm the inverse relationship between equity risk premiums and interest rates. This means that when interest rates rise by one percentage point, the cost of equity increases, but by a smaller amount. Similarly, when interest rates decline by one percentage point, the cost of equity declines by less than one percentage point. I use this negative interest rate change coefficient in conjunction with current and forecasted interest rates to establish the appropriate COE.

Q50. CAN YOU ILLUSTRATE THE INVERSE RELATIONSHIP BETWEEN EQUITY RISK PREMIUMS AND INTEREST RATES WITHOUT USING THE STATISTICAL ANALYSIS DESCRIBED ABOVE?

A. Yes. Statistical analysis is often used, especially in academic research, to substantiate certain economic and financial relationships. For equity risk premium analysis, however, the fundamental issue can be observed by simply averaging the data for various time periods without further statistical analysis. In Graph 1 below, I show average utility bond yields and equity risk premiums for each non-overlapping, five-year period between 1980 and 2010 and for 2011-2012.



These data show that equity risk premiums have consistently increased as interest rates have declined, and that they were lower when interest rates were high. This result is a market-based reflection, which shows that required rates of return in the stock market do not move in lockstep with changes in interest rates. Because utilities must compete with other types of equity investments for capital, the ROE for utilities does not change by as much as the observed changes in interest rates. Arguments that unadjusted, long-term average risk premiums can be used with current, historically low interest rates to estimate COE are mistaken. That approach to equity risk premium analysis will consistently understate the required rate of return.

Q51. PLEASE SUMMARIZE THE RESULTS OF YOUR RISK PREMIUM ANALYSIS.

A. My risk premium models indicate a COE range of 10.0 percent to 10.4 percent. The low end of the range is based on the average Baa Utility interest rate for the three months ended July 2013. The upper end of the range is based on the Bloomberg Forward Curve projected rate for December 31, 2014. The intermediate result based on the average month-to-date Baa Utility yield for August 2013, is 10.1 percent. The projected and August rates reflect the Fed's more recent policy position and, therefore, are more reasonable estimates of the cost of equity.

Q52. PLEASE SUMMARIZE THE RESULTS OF YOUR COST OF EQUITY ANALYSIS.

A. The following table summarizes my results:

Table 5

Summary of Cost of Equity Estimates

DCF Analysis	Indicated Cost
Constant Growth (Analysts' Growth)	9.0%-9.1%
Constant Growth (GDP Growth)	9.6%
Multistage Growth Model	9.5%-9.6%
Indicated DCF Range	9.0%-9.6%

Equity Risk Premium Analysis	Indicated Cost
Forecast Utility Yield + Equity Risk Premium Equity Risk Premium ROE (5.78%+4.65%)	10.4%
3-Month Average Utility Yield + Equity Risk Premium Equity Risk Premium ROE (4.98%+5.00%)	10.0%
Aug. 5, 2013 Spot Utility Yield +Equity Risk Premium Equity Risk Premium ROE (5.26%+4.88%)	10.1%

ETI Requested ROE	10.4%

Q53. HOW SHOULD THESE RESULTS BE INTERPRETED TO DETERMINE THE FAIR COST OF EQUITY FOR ETI?

A. The Company's requested ROE of 10.4 percent is reasonable. Although the requested ROE is at the top of my quantitative model results, as explained previously, under current market conditions, the DCF results are out of sync. The data required for estimates of ROE from that model do not yet reflect the rising interest rate environment that has resulted from the tapering down of the Fed's stimulative monetary policy. The continuing effects of that policy on capital market conditions make it

problematic to strictly interpret quantitative model estimates for the cost of equity. Under these conditions, use of a lower DCF range or equity risk premium estimates based strictly on historical risk premium relationships understates the cost of equity Based on all these factors, the Company's requested 10.4 percent ROE is a reasonable required rate of return to be used for setting rates in this case.

Q54. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

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SUMMARY OF QUALIFICATIONS

- Principal, Financial Analysis Consultants (FINANCO, Inc.).
- Ph.D. in Finance and Economics.
- Extensive expert witness testimony in court and before regulatory agencies.
- Management of professional research staff in academic and regulatory organizations.
- Professional presentations before executive development groups, the National Rate of Return Analysts' Forum, and the New York Society of Security Analysts.
- Financial Management Association, previously Vice President for Practitioner Services.

EDUCATION

The University of Texas at Austin **Ph.D., Finance and Econometrics** **January 1975**	Dissertation: *An Evaluation of the Original and Recent Variants of the Capital Asset Pricing Model.*
The University of Texas at Austin **MBA, Finance** **June 1973**	Thesis: *The Pricing of Risk on the New York Stock Exchange.*
Southern Methodist University **BA, Economics** **June 1969**	Honors program. Departmental distinction.

OTHER EXPERIENCE

University of Texas at Austin **Adjunct Associate Professor** **1985-1988, 2004-Present**	Corporate Financial Management, Investments, and Integrative Finance Cases.
Texas State University San Marcos **Associate Professor of Finance** **1983-1984, 2003-2004**	Graduate and undergraduate courses in Financial Management, Managerial Economics, and Investment Analysis.
Public Utility Commission of Texas **Chief Economist and Director of Economic Research Division** **August 1980-August 1983**	Lead financial witness. Supervised Commission staff in research and testimony on rate of return, financial condition, and economic analysis.
Assistant Professor of Finance **Texas Tech University** **July 1978-July 1980** **University of Alabama** **January 1975-June 1978**	Member of graduate faculty. Conducted Ph.D. seminars and directed doctoral dissertations in capital market theory. Served as consultant to industry, church and governmental organizations.

FINANCIAL AND ECONOMIC TESTIMONY IN REGULATORY PROCEEDINGS (Client in parenthesis)

Cost of Money Testimony

- New Hampshire Public Utilities Commission, Docket No. 2013-086, April 15, 2013 (Northern Utilities, Inc.)
- Maine Public Utilities Commission, Docket No. 2013-00133, April 1, 2013 (Northern Utilities, Inc.)
- Arkansas Public Service Commission, Docket No. 13-028-U, March 1, 2013, (Entergy-Arkansas)
- Louisiana Public Service Commission, Docket No. U-32707, February 15, 2013 (Entergy Gulf States Louisiana).
- Louisiana Public Service Commission, Docket No. U-32708, February 15, 2013 (Entergy Louisiana).
- Washington Utilities and Transportation Commission, Docket UE-130043, January 11, 2013 (PacifiCorp).
- Louisiana Public Service Commission, Docket No. U-32425, October 5, 2012 (Entergy Gulf States Louisiana).
- Maryland Public Service Commission, Case No. 9299, July 27, 2012 (Baltimore Gas and Electric Company).
- Kansas Corporation Commission, Docket No. 12-KCPE-764-RTS, April 20, 2012 (Kansas City Power & Light Company).
- Oregon Public Utility Commission, Docket No. UE 246, March 1, 2012 (PacifiCorp).
- Missouri Public Service Commission, Case No. ER-2012-0174, February 27, 2012 (Kansas City Power & Light Company).
- Missouri Public Service Commission, Case No. ER-2012-0175, February 27, 2012 (KCP&L Greater Missouri Operations Company).
- Utah Public Service Commission, Docket No. 11-035-200, February 15, 2012 (Rocky Mountain Power/PacifiCorp).
- Texas Public Utility Commission, Docket No. 40094, February 1, 2012, (El Paso Electric Company).
- Oregon Public Utility Commission, Docket No. UG 221, December 30, 2011 (NW Natural Gas Company).
- Wyoming Public Service Commission, Docket No. 20000-405-ER-11, December 9, 2011 (Rocky Mountain Power dba/PacifiCorp).
- Texas Public Utility Commission, Docket No. 39896, November 28, 2011, (Entergy Texas, Inc.)
- Idaho Public Utilities Commission, Case No. PAC-E-111-12, May 27, 2011 (Rocky Mountain Power/PacifiCorp).
- Maine Public Utilities Commission, Docket No. 2011-92, May 5, 2011 (Northern Utilities, Inc.)
- New Hampshire Public Utilities Commission, Docket No. DG 11-069, May 4, 2011(Northern Utilities, Inc.)
- Arizona Corporation Commission, Docket No. G-04204A-11-0158, April 8, 2011 (UNS Gas, Inc.)
- Utah Public Service Commission, Docket No. 10-035-124, January 24, 2011 (Rocky Mountain Power/PacifiCorp).
- Massachusetts Department of Public Utilities, D.P.U. 11.01 (Electric) and D.P.U. 11.02 (Gas), January 14, 2011, (Fitchburg Gas and Electric Light Company d/b/a/ Unitil)
- Wyoming Public Service Commission, Docket No. 20000-384-ER-10, November 22, 2010 (Rocky Mountain Power dba/PacifiCorp).
- Illinois Commerce Commission, Docket No. 10-0467, July 28, 2010 (Commonwealth Edison Company).

- Missouri Public Service Commission, Case No. ER-2010-0355, June 4, 2010 (Kansas City Power & Light Company).
- Missouri Public Service Commission, Case No. ER-2010-0356, June 4, 2010 (KCP&L Greater Missouri Operations Company).
- Idaho Public Utilities Commission, Case No. PAC-E-10-07, May 28, 2010 (Rocky Mountain Power/PacifiCorp).
- Washington Utilities and Transportation Commission, Docket UE-100749, May 4, 2010 (PacifiCorp).
- New Hampshire Public Utilities Commission, Docket No. DE 10-055, April 15, 2010 (Unitil Energy Systems)
- Oregon Public Utility Commission, Docket No. UE-217, March 1, 2010 (PacifiCorp).
- Texas Public Utility Commission, Docket No. 37744, December 30, 2009,(Entergy Texas, Inc.)
- Kansas Corporation Commission, Docket No. 10-KCPE-415-RTS, December 17, 2009 (Kansas City Power & Light Company).
- Texas Public Utility Commission, Docket No. 37690, December 9, 2009,(El Paso Electric Company).
- California Public Utilities Commission, Application No. 09-11-015, November 20, 2009 (PacifiCorp).
- Federal Energy Regulatory Commission, Docket No. ER10-230-000, November 6, 2009 (Kansas City Power & Light Company and KCP&L Greater Missouri Operations Company).
- Wyoming Public Service Commission, Docket No. 20000-352-ER-09, October 2, 2009 (Rocky Mountain Power dba/PacifiCorp).
- Arkansas Public Service Commission, Docket No. 09-084-U, September 4, 2009, (Entergy-Arkansas)
- Texas Public Utility Commission, Docket No. 37364, August 28, 2009,(American Electric Power-SWEPCO)
- Utah Public Service Commission, Docket No. 09-035-23, June 23, 2009 (Rocky Mountain Power/PacifiCorp).
- New Mexico Public Regulation Commission, Case No. 09-00171-UT, May 2009, (El Paso Electric Company).
- Oregon Public Utility Commission, Docket No. UE-207, April 2, 2009 (PacifiCorp).
- Arkansas Public Service Commission, Docket No. 09-008-U, February 19, 2009 (American Electric Power-SWEPCO).
- Washington Utilities and Transportation Commission, Docket UE-090205, February 9, 2009 (PacifiCorp).
- Idaho Public Utilities Commission, Case No. PAC-E-08-07, September 19, 2008 (Rocky Mountain Power/PacifiCorp).
- Missouri Public Service Commission, Case No. ER-2009-089, September 5, 2008 (Kansas City Power & Light Company).
- Kansas Corporation Commission, Docket No. 09-KCPE-246-RTS, September 5, 2008 (Kansas City Power & Light Company).
- Missouri Public Service Commission, Case No. ER-2009-090, September 5, 2008 (Aquila, Inc. dba/KCP&L Greater Missouri Operations Company).
- Utah Public Service Commission, Docket No. 08-035-38, July 17, 2008 (Rocky Mountain Power/PacifiCorp).
- Wyoming Public Service Commission, Docket No. 20000-333-ER-08, July 2008 (Rocky Mountain Power dba/PacifiCorp).
- Texas Public Utility Commission, Docket No. 35717, June 27, 2008, (Oncor Electric Delivery Company LLC).
- Washington Utilities and Transportation Commission, Docket UG-080546, March 28, 2008 (NW Natural).