UNITED STATES OF AMERICA

BEFORE THE

FEDERAL ENERGY REGULATORY COMMISSION

Entergy Services, Inc.,	)	
on behalf of the Entergy Operating Companies: Entergy Arkansas, Inc., Entergy Gulf States, Inc., Entergy Louisiana, Inc., Entergy Mississippi, Inc., and Entergy New Orleans, Inc.	)	Docket No. RT01-75 Docket No. ER01-_____ Docket No. ER01-_____ Docket No. ER01-_____

DIRECT TESTIMONY

OF

BRUCE H. FAIRCHILD

ON BEHALF OF

ENTERGY SERVICES, INC.

December 29, 2000

I. Introduction

Q. Please state your name and business address.

A. Bruce H. Fairchild, 3907 Red River, Austin, Texas 78751.

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

A. I am a principal in Financial Concepts and Applications, Inc. ("FINCAP"), a firm engaged in financial, economic, and policy consulting to business and government.

A. Qualifications

Q. Describe your educational, background, professional qualifications, and prior experience.

A. I hold a BBA degree from Southern Methodist University and MBA and PhD degrees from the University of Texas at Austin. I am also a Certified Public Accountant. My previous employment includes working in the Controller's Department at Sears, Roebuck and Company and serving as Assistant Director of Economic Research at the Public Utility Commission of Texas ("PUCT"). I have also been on the business school faculties at the University of Colorado at Boulder and the University of Texas at Austin where I taught undergraduate and graduate courses in finance and accounting.

Q. Briefly describe your experience in utility-related matters.

A. While at the PUCT, I assisted in managing a division comprised of approximately twenty-five professionals responsible for financial analysis, cost allocation and rate design, economic and financial research, and data processing systems. I testified on behalf of the PUCT staff in numerous cases involving most major investor-owned and cooperative electric, telephone, and water/sewer utilities in the state regarding a variety of financial, accounting, and economic issues. Since forming FINCAP in 1979, I have participated in a wide range of analytical assignments involving utility-related matters on behalf of utilities, industrial consumers, municipalities, and regulatory commissions. I have also prepared and presented expert witness testimony before a number of regulatory authorities addressing revenue requirements, cost allocation, and rate design issues in the areas of gas, electric, telephone, and water/sewer. I have been a frequent speaker at regulatory conferences and seminars, and have published research concerning various regulatory issues. A resume which contains the details of my experience and qualifications is attached as Exhibit BHF-1.

B. Overview

Q. What is the purpose of your testimony?

A. My purpose here is to develop a fair rate of return on the common equity of the independent transmission company ("Transco") proposed in this filing.

Q. Please summarize the bases of your knowledge and conclusions concerning the issues on which you are testifying in this case.

A. In preparing my analyses and testimony in this case, I utilized a variety of sources of information that would normally be relied upon by a person in my capacity. I am familiar with Entergy Corporation ("Entergy"), from work performed by FINCAP in 1993 in connection with Entergy's merger with Entergy Gulf States, Inc. (“EGSI”), and from testimony prepared on behalf of the Entergy System filed with this Commission in 1995. I have also worked with four of Entergy's operating companies in rate cases before state and municipal regulators. These include the Entergy New Orleans, Inc. cases in 1991 and 1997 before the Council of the City of New Orleans; the 1994 and 1996 earnings reviews of Entergy Louisiana, Inc. and EGSI, and EGSI's 1996 gas distribution rate case, before the Louisiana Public Service Commission; inquiries by certain Texas cities and the PUCT in 1994 and 1996 into EGSI's rates; and Entergy Arkansas, Inc.'s 1996 rate case before the Arkansas Public Service Commission. I also presented testimony before this Commission in 1995 on behalf of another Entergy subsidiary, System Energy Resources, Inc. In connection with the present filing, I had discussions with management regarding Transco's expected operations and finances, examined the October 16, 2000 application on behalf of Transco filed with this Commission, and reviewed information relating to capital markets

generally and investor perceptions, requirements, and expectations for utilities specifically. These sources, coupled with my experience in the fields of finance, accounting, economics, and utility regulation, enabled me to acquire a working knowledge of Transco that formed the bases for my analyses and conclusions.

Q. What is the role of the rate of return in setting a utility's rates?

A. The rate of return on common equity serves to compensate shareholders for the use of their capital to finance the plant and equipment necessary to provide utility service. Investors only commit money in anticipation of earning a return on their investment commensurate with that from other investment alternatives having comparable risks. Consistent with both sound regulatory economics and the standards specified in the Bluefield (1923) and Hope (1944) cases, the return on common equity allowed a utility should be sufficient to 1) fairly compensate past capital invested in the utility, 2) enable the utility to offer a return adequate to attract new capital on reasonable terms, and 3) maintain the utility's financial integrity.

Q. How did you go about developing a fair rate of return on common equity for Transco?

A. My evaluation began with a brief review of the expected operations and finances of Transco, and general conditions in the electric utility industry and capital markets. With this as a background, I developed the principles

underlying the cost of equity concept, and then conducted various quantitative analyses to estimate the cost of equity for two groups of reference utilities. Specifically, these were the discounted cash flow ("DCF") methodologies currently prescribed by this Commission applied to reference groups of natural gas transmission companies and electric utilities. From the cost of equity ranges indicated by these DCF analyses, a fair rate of return on common equity for Transco was selected taking into account its risks relative to the two reference groups.

C. Summary of Conclusions

Q. What were the results of your DCF analyses?

A. Because the investment community believes that electric transmission companies will resemble natural gas transmission companies, the Commission's two-step DCF model was applied to a reference group of pipelines. As shown on Exhibit BHF-2, this produced a cost of equity range of 12.8 to 13.9 percent. The Commission's one-step DCF model was applied to a second reference group consisting of electric utilities having a size and bond ratings comparable to Transco. As shown on Exhibit BHF-3, this resulted in cost of equity estimates ranging from 6.0 to 22.4 percent, which were then narrowed to a 9.1 to 13.9 percent zone of reasonableness by excluding low and high outliers.

Q. What is your recommended fair rate of return on common equity for Transco?

A. Both of the reference groups consist of existing companies having diversified activities and operating in established markets. Because Transco will be a newly formed company with no track record entering a restructured industry without established business practices, it is at least as risky as the gas pipeline group and more risky than the electric utility group. I recommend that Transco be authorized a 13 percent rate of return on common equity, which is midway between the approximate 13.3 percent midpoint of the 12.8 to 13.9 percent cost of equity range for the reference group of gas transmission companies, and the 12.7 percent midpoint of the 11.5 to 13.9 percent upper half of the cost of equity zone of reasonableness for the reference group of electric utilities. Besides being necessary to compensate fairly shareholders for the greater risks of a restructured electric industry, a rate of return on common equity of this order of magnitude is necessary if Transco and other transmission entities are to raise the hundreds of millions of dollars that will be required to upgrade the existing transmission system to maintain and improve reliability.

II. Fundamental Analysis

Q. What is the purpose of this section?

A. As a predicate to subsequent quantitative analyses, this section briefly reviews the expected operations and finances of Transco. In addition, it examines the risks and prospects for the electric industry, along with the outlook for the economy and capital markets.

A. Transco

Q. Briefly describe Transco.

A. As explained by Mr. Frank F. Gallaher in the October 16, 2000 filing, Transco is intended to be a stand-alone company whose sole activities will be the provision of electric transmission service (regulated by this Commission) and the operation, maintenance, and enhancement of its system. Transco will be formed by the contribution of transmission assets by the Entergy operating companies (and possibly third-parties) in exchange for passive ownership interests in Transco. Transco will be managed by a Managing Member governed by an independent Board of Directors. While the ownership interests of those contributing assets will be passive and their rights restricted, they will share in Transco's profits and losses, and the Managing Member will be responsible for maximizing the value of Transco and protecting the integrity of the passive owners' capital investment.

Q. How will Transco be financed?

A. In addition to granting ownership interests for contributed transmission assets, Transco will also repay the debt allocable to these assets. This debt repayment will be financed through new debt issued in the capital markets. Transco will be solely responsible for this new debt, without backing from Entergy or its operating companies. Prospectively, Transco may raise additional capital by selling fixed income securities in the capital markets and issuing additional equity interests (privately or publicly), subject only to the obligation to maintain the financial integrity of shareholders' interests.

Q. Please provide other financial information on Transco.

A. It is estimated that approximately $1.4 billion in transmission assets will initially be contributed to Transco, and these will be financed with approximately 42 percent common equity and 58 percent debt. It is anticipated that Transco's debt will be rated low investment grade (i.e., single-A or triple-B). It is also estimated that over the next approximately three years, Transco will have capital expenditure requirements totalling some $662 million.

B. Electric Power Industry

Q. What are the general conditions in the electric power industry?

A. For almost twenty years, lower fuel costs, inflation, and interest rates provided electric utilities and their customers a respite from the rapidly

escalating electricity prices of the 1970s and early 1980s. More recently, however, these general economic factors have been overshadowed by structural changes in the electric utility industry resulting from market forces, decontrol initiatives, and judicial decisions.

Q. Please summarize the major structural changes.

A. Competition is being increasingly promoted at the federal and state levels. The National Energy Policy Act of 1992, which reformed the Public Utility Holding Company Act of 1935, greatly increased prospective competition for the production and sale of power at the wholesale level. This Commission adopted Order No. 888, which mandated open access to the wholesale transmission facilities of jurisdictional utilities, and it more recently addressed improvements to the nation's transmission system, including the establishment of regional transmission organizations ("RTOs") in Order 2000.

Although wholesale power wheeling provides electric utilities additional supply options, as recognized by Moody's Investors Service, Inc. (“Moody’s”) in an April 1999 "Special Comment", it also introduces new risks to participants in the wholesale power markets:

> Companies throughout the natural gas and electric power sectors face an uncertain future as the utility industry undergoes restructuring and moves toward increased competition. The changes, in large part, stem from the efforts of the Federal Energy Regulatory Commission (FERC) that have

> introduced a greater measure of competition into the natural gas and electric power wholesale markets during the 1990s. Similar efforts underway or anticipated at the state level are already altering the fundamentals of the manner in which energy is bought and sold and moved to the retail customer. (p. 5)

And while policies affecting competition vary widely at the state level, over twenty-five jurisdictions have enacted some form of electric utility industry restructuring. As foreshadowed by Merrill Lynch in its June 24, 1996 "Electric Utilities Industry Report", the transition to a more competitive industry has led to the disaggregation of formerly integrated electric utilities into three primary components -- generation, transmission, and distribution:

> The electric utility industry is in a monumental transition state at the current time. The transition is from a vertically integrated, monopoly industry to one that we expect to be very competitive and significantly restructured. We expect all utility customers to have competitive choices in the next 5-10 years. We expect companies to realign and/or disaggregate their businesses—some may exit the generation business, others may exit the distribution business—as well as well as merge to create larger companies...The risk profile of the electric utility industry is clearly reaching higher levels than it has experienced in the past and will further increase. (p. 3)

Most recently, however, industry restructuring received a setback when electricity prices in California (one of the first states to implement competition) skyrocketed and reliability suffered. Besides causing regulators and legislators to re-evaluate their industry restructuring plans,

the financial implications of the recent California experience has exposed hidden risks affecting all segments of the electric power industry.

Q. What risks are associated with the transmission segment of the industry?

A. As Standard & Poor's Corporation ("S&P") observed in its November 8, 1999 comment entitled "The Growing Vulnerability of the U.S. Power Grid", electric transmission operations are becoming increasingly complex:

> As overall power loading continues to grow with deregulation and as the power quality demands of a digital society increase, managing this system, especially the delivery function, will become more difficult. (p. 2)

Indeed, as S&P more recently noted in its December 11, 2000 comment entitled "Electric Transmission Organizations Are Experiencing Growing Pains", because existing transmission systems were not designed to accommodate competitive markets and large-scale power transfers:

> The principal operational challenges facing RTOs and ISOs will be the advancement of reliable operations and reasonable prices as these organizations manage large volumes of electricity transmission transactions derived from numerous sources. (p. 2)

Even though the transmission segment of the industry is expected to remain largely regulated, government oversight does not entirely shield transmission activities from competitive risks. Transmission operations will face competitive pressures because electricity competes with other fuels (e.g., natural gas) in certain market segments, and as noted in S&P's

November 27, 2000 article "Distributed Generation Creeps Into the T&D World", customers building their own generating capacity typically do not require the transmission grid to any great extent:

> The potential widespread installation of smaller, more efficient generation equipment on customer sites could reduce the value not only of central generation, but also the distribution and transmission assets. This may lead to potential stranded assets for "the wires" business at some future date. (p. 2)

Similarly, ongoing technological advances that increase the economic viability of alternatives to conventional utility service also exacerbate these competitive uncertainties, a concern to investors reflected in S&P's December 4, 2000 article "Nonregulated Investments Continue To Affect Utility Strategies":

> Eventually, alternative energy-related technologies, most notably fuel cells, microturbines, and microgrids, may significantly alter the way energy is procured and transported. Some technologies may be able to provide energy without using at least a portion of the electric system, whether generation, transportation, or distribution, while other technologies will provide a reliable back-up power source. (p. 2)

Of course, the transmission segment continues to face the normal risks and uncertainties associated with operating an immobile utility system. These include economic vagaries within their service areas that cause revenues to fluctuate, inflationary pressures on costs, and the impact of

adverse weather and extraordinary risks, such as legal liabilities and natural disasters.

Q. Is the transmission segment facing additional risks because of industry restructuring?

A. Yes. As also noted by S&P in its November 8, 1999 comment, transmission capacity has not kept up with load growth:

> Traditionally, utilities would be adding new transmission capacity to handle the expected load increase. However, because of the difficulty in obtaining permits and the uncertainty over obtaining adequate rate of return on investment, the total of transmission circuit miles added yearly is declining while total demand for transmission resources continues to grow. (p. 2)

S&P also observed in its December 11, 2000 article that:

> The formation of independent system operators (ISO) and regional transmission organizations (RTO) that comply with the FERC directive has created capital needs that require debt financing. The credit quality of these debt obligations hinges on the ability of transmission organizations to recoup debt service through charges associated with the grid's management. (p. 2)

Thus, the confluence of past circumstances and a redesign of the transmission infrastructure to accommodate a restructured electric industry is requiring a substantial investment in new transmission facilities, resulting in additional risks due to having to attract adequate capital.

Additionally, beyond the inherent uncertainties associated with operating in an entirely new market structure, the creation of new entities to own and operate the transmission grid entails its own risks. For example, Duff & Phelps Credit Rating Co., in its May 15, 2000 rationale for assigning a triple-B rating to the Midwest Independent Transmission System Operator, Inc.'s (MISO) debt, stated:

> As a new enterprise, the MISO is untested. It may incur costs exceeding its plan, or systems issues may delay the targeted start-up date. Either scenario would extend the cost recovery period to a later date, effectively back- ending the cash flow necessary to service this debt. (p. 2)

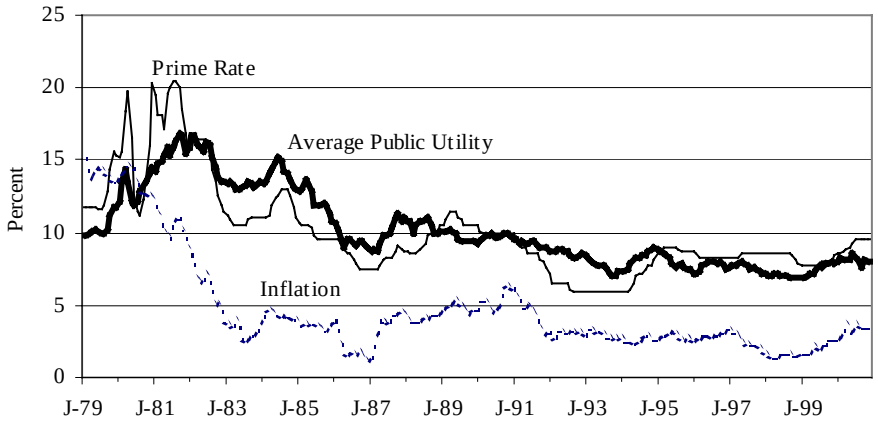
In short, while a restructured electric power industry is expected to provide benefits for both producers and consumers, these benefits come at a cost. Namely, all participants will be exposed to considerably greater risks than they faced under a fully regulated market, many of which cannot even be anticipated at this early juncture.

C. Capital Markets

Q. What has been the pattern of interest rates over the last twenty years?

A. Following a peak at 16.89 percent in September 1981, the average yield on long-term public utility bonds generally fell through 1986, reaching 8.77 percent in January 1987. After climbing during 1988, yields gradually declined to 7 percent in October 1993, and then subsequently rose to 9 percent in November 1994. Interest rates then began a general decline,

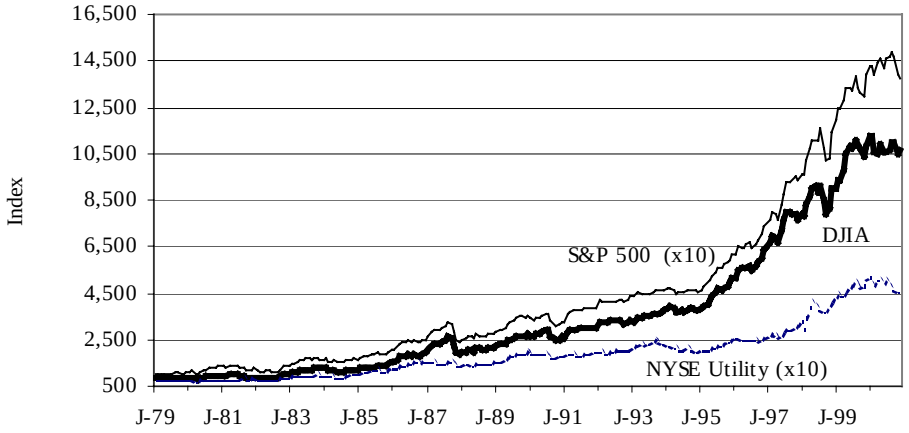
although investors are presently requiring approximately 8 percent from average long-term public utility bonds as a result of efforts by the Federal Reserve Board (Fed) to control inflation and the economy. Average long-term public utility bond rates, the average monthly prime rate, and inflation as measured by the Consumer Price Index (CPI) since 1979 are plotted in the following graph:



Q. How has the market for common equity capital performed over this same period?

A. The last twenty years witnessed the longest bull market in U.S. history, which was generally attributed to low inflation and interest rates, sustained economic growth, a favorable business climate, and widespread merger and acquisition activity. Since 1979, common stocks have, on average, increased over ten times in value, even after accounting for the October 1987 and 1989 stock market crashes and the October 1997 and 1998 "corrections". Although the stock market's climb was interrupted by Iraq's

1990 invasion of Kuwait and the anticipated recession, it subsequently rebounded, with share prices reaching all-time highs. Nevertheless, the stock markets remain volatile, with share prices repeatedly changing in full percentage points during a single day's trading and having fallen considerably during 2000. The following graph plots the performances of the Dow-Jones Industrial Average, S&P 500 Composite Index, and New York Stock Exchange Utility Index since 1979 (the latter two indices were scaled for comparability):



Q. What is the outlook for the U.S. economy and capital markets?

A. There are increasing concerns over how long the current economic expansion, which began in the latter half of 1991, can be sustained, and that a downturn in the U.S. economy is inevitable. In addition, the potential return of inflation and uncertainty over interest rate actions by the Fed persistently loom over the capital markets. While numerous economic indicators suggest that inflation is in check and that the U.S.

economy remains strong, there are increasing signs that the pace of expansion is moderating and that inflation may be on the rise. These factors cause the economic outlook to remain tenuous, with persistent stock and bond price volatility providing tangible evidence of the uncertainties faced by the U.S. economy.

Q. How do these economic and capital market uncertainties affect electric transmission companies?

A. For electric transmission companies, higher inflation would place pressure on the adequacy of service rates, while stalled economic growth would undoubtedly affect the level of transmission activity. Although the current economic expansion appears to be continuing, conflicting economic indicators, including higher gas prices that particularly affect new generation, cause considerable uncertainties to persist. Additionally, the volatility of stock and bonds prices and the uncertainty of interest rates creates significant financial risks as electric transmission companies must raise enormous amounts of capital to finance required transmission plant additions.

III. Cost of Equity Estimates

Q. What is the purpose of this section?

A. In this section, the cost of equity for two groups of reference utilities are estimated as the basis for determining a fair rate of return on common

equity for Transco. Initially, the concept of the cost of equity is examined as the basis for this determination. Next, discounted cash flow ("DCF") analyses are conducted to estimate the costs of equity for reference groups of gas transmission companies and electric utilities.

A. Cost of Equity Concept

Q. How is a fair rate of return on common equity customarily determined?

A. Unlike debt capital, there is no contractually guaranteed return on common equity capital since shareholders are the residual owners of the utility. Nonetheless, common equity investors still require a return on their investment, with the "cost of equity" being the minimum rent that must be paid for the use of their money. This cost of equity typically serves as the starting point for determining a fair rate of return on common equity.

Q. What fundamental economic principle underlies this cost of equity concept?

A. The cost of equity concept is predicated on the notion that investors are risk averse, and will willingly accept additional risk only if they expect to be compensated for their risk bearing. In capital markets where relatively risk-free assets are available, such as U.S. Treasury securities, investors can be induced to hold more risky assets only if they are offered a premium, or additional return, above the rate of return on a risk-free asset. Since all assets compete with each other for investors' funds, more risky

assets must yield a higher expected rate of return than less risky assets in order for investors to be willing to hold them.

Given this risk-return tradeoff, the required rate of return (k) from an asset (i) can be generally expressed as:

$$k_i = R_f + RP_i$$

where: R_f = Risk-free rate of return; and
RP_i = Risk premium required to hold more risky asset i.

Thus, the required rate of return for a particular asset at any point in time is a function of 1) the yield on risk-free assets, and 2) its relative risk, with investors demanding correspondingly larger risk premiums for assets bearing greater risk.

Q. Is there evidence that the risk-return tradeoff principle actually operates in the capital markets?

A. Yes. The risk-return tradeoff can be readily documented in certain segments of the capital markets where required rates of return can be directly inferred from market data and generally accepted measures of risk exist. For example, bond yields are reflective of investors' expected rates of return, and bond ratings are indicative of the risk of fixed income securities. The observed yields on government securities and bonds of various rating categories demonstrate that the risk-return tradeoff does, in fact, exist in the capital markets.

To illustrate, average yields during November 2000 on selected U.S. government securities and on public utility bonds of different ratings reported by Moody's are shown in the following table. As evidenced there, as risk increases (measured by progressively lower bond ratings), the required rate of return (measured by yields) rises accordingly. Also shown are the indicated risk premiums over long-term government securities for the additional risk associated with each bond rating category:

Bond and Rating	November 2000 Yield	Risk Premium Over Long-term Treasury
U.S. Treasury		
5-Year	5.68%	--
Long-term	6.00%	--
Public Utility		
Aaa	7.71%	1.71%
Aa	8.03%	2.03%
A	8.11%	2.11%
Baa	8.25%	2.25%

Q. Does the risk-return tradeoff observed with fixed income securities extend to common stocks and other assets?

A. Documenting the risk-return tradeoff for assets other than fixed income securities is complicated by two factors. First, there is no standard measure of risk applicable to all assets. Second, for most assets (e.g., common stock), required rates of return cannot be directly observed. Yet there is every reason to believe that investors exhibit risk aversion in deciding whether to hold common stocks and other assets, just as when choosing among fixed income securities. Accordingly, it is generally

accepted that the risk- return tradeoff evidenced with long-term debt extends to all assets.

Q. What does the above discussion imply with respect to estimating the cost of equity for a utility?

A. Although the cost of equity cannot be observed directly, it is a function of the returns available from other investment alternatives and the risks to which the equity capital is exposed. Because it is unobservable, the cost of equity for a particular utility must be estimated by analyzing information about capital market conditions generally, assessing the relative risks of the utility specifically, and employing various quantitative methods that focus on investors' required rates of return. These various quantitative methods typically attempt to infer investors' required rates of return from stock prices, by extrapolating interest rates, or through an analysis of other financial data.

B. Discounted Cash Flow Analyses

Q. How are DCF models used to estimate the cost of equity?

A. The use of DCF models to estimate the cost of equity is essentially an attempt to replicate the market valuation process which led to the price investors are willing to pay for a share of a company's stock. It is predicated on the assumption that investors evaluate the risks and expected rates of return from all securities in the capital markets. Given

these expected rates of return, the price of each share of stock is adjusted by the market so that investors are adequately compensated for the risks to which they are exposed. Therefore, we can look to the market to determine what investors feel a share of common stock is worth, and by estimating the cash flows they expect to receive from the stock in the way of future dividends and stock price, their required rate of return can be mathematically imputed. In other words, the cash flows that investors expect from a stock are estimated, and given its current market price, we can "back-into" the discount rate, or cost of equity, investors presumably used in arriving at that price.

Q. What market valuation process underlies DCF models?

A. DCF models are derived from a theory of valuation which posits that the price of a share of common stock is equal to the present value of the expected cash flows (i.e., future dividends and stock price) that will be received while holding the stock, discounted at investors' required rate of return, or the cost of equity. Notationally, the general form of the DCF model is as follows:

$$P_0 = \frac{D_1}{(1+k_e)^1} + \frac{D_2}{(1+k_e)^2} + \cdots + \frac{D_t}{(1+k_e)^t} + \frac{P_t}{(1+k_e)^t}$$

where: P_0 = Current price per share;
P_t = Future price per share in period t;
D_t = Expected dividend per share in period t;
k_e = Cost of equity.

Q. Has this general form of the DCF model customarily been used to estimate the cost of equity in rate cases?

A. No. In an effort to reduce the number of required estimates and computational difficulties, the general form of the DCF model has been reduced to the more manageable formula of:

$$P_0 = \frac{D_1}{k_e - g}$$

where: g = Investors' long-term growth expectations.

The cost of equity (k_e) can be isolated by rearranging terms:

$$k_e = \frac{D_1}{P_0 + g}$$

This simplified form of the DCF model recognizes that the rate of return to stockholders consists of two parts 1) dividend yield (D_1/P_0), and 2) growth (g). In other words, investors expect to receive a portion of their total return in the form of current dividends and the remainder through price appreciation.

C. Reference Groups

Q. Can the DCF model be applied directly to estimate the cost of equity for Transco?

A. No, not at the present time. As described above, application of the DCF model to estimate the cost of equity requires an observable stock price. Because Transco currently has no publicly traded stock, its cost of equity

cannot be estimated directly using the DCF model. As an alternative, the cost of equity for an untraded firm is often estimated by applying the DCF model to publicly traded companies engaged in the same business activity. However, because there are presently no other "pure play" publicly traded independent electric transmission companies, neither can the DCF model be applied in this way to estimate the cost of equity for Transco.

Q. Without stock prices for Transco or other independent electric transmission companies, how can the DCF model be used to estimate the cost of equity for Transco?

A. Because there are no publicly traded independent electric transmission companies, it is necessary to identify other groups of publicly traded firms that are regarded by investors as having similar risks. The DCF model can be applied to these companies to estimate their cost of equity, which can then be adjusted upward or downward to reflect the relatively greater or lesser risk, respectively, of Transco as an independent electric transmission company.

Q. What groups of publicly traded firms does the investment community regard as having business risks similar to those of independent electric transmission companies?

A. In a May 31, 2000 CreditWeek article entitled "A New Breed of Utility: The ISO", S&P stated that it believes electric transmission companies will have investment risks similar to those of large gas pipelines:

> A transmission company will closely resemble a large interstate natural gas transportation company. (p. 10)

Meanwhile, much of the other investment literature discusses independent electric transmission companies in the context of the electric utility industry, but recognizes that the generation, transmission, and distribution segments will face differing risks as the industry is restructured. Thus, two groups of publicly traded firms that serve as benchmarks for estimating the cost of equity for Transco are natural gas transmission companies and electric utilities.

D. Gas Transmission Companies

Q. How did you go about estimating the cost of equity for natural gas transmission companies?

A. I applied this Commission's current two-step DCF methodology that has been adopted to estimate the cost of equity for gas pipelines (e.g., Transcontinental Gas Pipeline Corporation, 90 FERC 61,279 (2000)).

Q. What companies did you included in your gas pipeline reference group?

A. The industry group used to estimate the cost of equity for gas transmission companies has typically consisted of Coastal Corporation

("Coastal"), El Paso Energy Corporation ("El Paso"), Enron Corporation ("Enron"), PanEnergy Corp. ("PanEnergy"), Sonat, Inc. ("Sonat") and The Williams Companies ("Williams"). However, PanEnergy has been acquired by Duke Energy, and Coastal and Sonat have been acquired by El Paso. Therefore, only three publicly traded pipeline companies remain -- El Paso, Enron, and Williams -- and these served as my reference gas transmission group.

Q. How did you calculate the dividend yield component of the two-step DCF model for the gas transmission industry group?

A. Consistent with Commission policy, the dividend yield for each of the gas pipeline companies was calculated based on the average indicated dividend yield for the six months May through October 2000 (Column (a) of Exhibit BHF-2). This six-month average historical dividend yield (D_0/P_0) was then increased by one-half of the growth rate to convert it an adjusted dividend yield corresponding to the expected dividend yield (D_1/P_0) of the DCF model (Columns (b) and (c) of Exhibit BHF-2).

Q. How did you calculate the growth component of the two-step DCF model for the gas transmission reference group?

A. Under the Commission's two-step DCF model, the growth component of the DCF model (g) is calculated as a weighted average of investment analysts' short-term projected growth in earnings per share and long-term

projected growth in U.S. Gross Domestic Product ("GDP"). Specifically, investment analysts' projected growth, which is weighted two-thirds, is the 5-year earnings growth forecast for each firm published by I/B/E/S International, Inc. ("I/B/E/S"). Meanwhile, growth in GDP, which is weighted one-third, is the simple average of the 25-year plus projections by the Energy Information Administration ("EIA"), DRI/McGraw Hill ("DRI), and Wharton Economic Forecasting Associates ("WEFA"). These various growth rates are shown in columns (d) through (k) of Exhibit BHF-2, with the weighted average growth rate for each gas pipeline company being shown in column (i).

Q. What cost of equity range does the Commission's two-step DCF model produce for this reference group of gas pipelines?

A. As shown in column (j) of Exhibit BHF-2, combining the adjusted dividend yields and two-step growth rates produces a cost of equity range for the reference group of natural gas transmission companies of 12.8 to 13.9 percent.

E. Electric Utility Companies

Q. How did you go about estimating the cost of equity for a reference group of electric utility companies?

A. I applied this Commission's current one-step DCF methodology that has been adopted to estimate the cost of equity for electric utilities (e.g., Southern California Edison Company, 92 FERC 61,070 (2000).

Q. What companies did you include in your electric utility reference group?

A. Size and bond ratings were used as objective measures to select an electric utility reference group. Because Transco is expected to be an approximately $2 billion company rated single-A or triple-B, I initially selected from the 72 publicly traded electric utilities followed by The Value Line Investment Survey ("Value Line") those that have net plant of between $1 and $3 billion, and are rated either single-A or triple-B by Moody's and S&P. From the resulting group of thirteen firms, those currently involved in a merger or acquisition (which tends to distort certain financial data, such as stock prices), and those not paying cash dividends (which complicates use of the DCF model), were excluded. Also excluded were Hawaiian Electric Industries, Inc. and ALLETE because both are heavily involved in activities unrelated to energy (i.e., banking and auto auctioning, respectively). This resulted in the reference group of eight electric utilities listed in Exhibit BHF-3.

Q. How did you calculate the dividend yield component of the DCF model for the electric utility reference group?

A. Again following Commission policy, an average low and average high indicated dividend yield was calculated for each electric utility during the six months May through October 2000 (Columns (a) and (b) of Exhibit BHF-3). These six-month average low and high historical dividend yields were also increased by one-half of the low and high growth rates (discussed subsequently) to convert them to adjusted dividend yields (Columns (e) and (f) of Exhibit BHF-3).

Q. What growth rates are used in the Commission's one-step DCF method for electric utilities?

A. Whereas the Commission's two-step DCF method calculates a single growth rate for each gas pipeline, the Commission's one-step DCF method for electric utilities calculates two growth rates for each firm. The first growth rate is a "sustainable" growth rate calculated by the following formula:

$$g = br + sv$$

where: b = expected retention ratio;
r = expected earned rate of return;
s = percent of common equity expected to be issued annually as new common stock;
v = equity accretion ratio.

The second growth rate is investment analysts' 5-year earnings growth forecast published by I/B/E/S. These two growth rates are combined with the adjusted dividend yields to develop a cost of equity range for each company.

Q. How did you calculate the sustainable growth rate of the one-step DCF model for the electric utility reference group?

A. For each electric utility, the expected retention ratio (b) was calculated based on Value Line's projected 2003-2005 dividends and earnings per share. Likewise, each firm's expected earned rate of return (r) was computed by dividing projected earnings per share by projected 2003-2005 net book value. The percent of common equity expected to be issued annually as new common stock (v) was calculated using Value Line's projected changes in common shares outstanding between 2000 and 2003-2005, with the equity accretion ratio (v) being based on each firm's projected 2003-2005 market-to-book ratio. The sustainable growth rate calculated in this way for each electric utility is shown in column (c) of Exhibit BHF-3.

Q. What are investment analysts' projected growth for the electric utility reference group?

A. The 5-year earnings growth forecasts published by I/B/E/S for each electric utility in the reference group is shown in column (d) of Exhibit BHF-3.

Q. What cost of equity range does the Commission's one-step DCF model produce for this group of electric utilities?

A. As shown in columns (g) and (h) of Exhibit BHF-3, application of the Commission's one-step DCF model to the reference group of electric utilities produces cost of equity estimates ranging from 6.0 percent to 22.4 percent.

Q. Should any adjustments be made to this cost of equity range?

A. Yes. As the Commission noted in the Southern California Edison Company case:

> Because investors generally cannot be expected to purchase stock if debt, which has less risk than stock, yields essentially the same return, this low-end return cannot be considered reliable in this case.

With the average yield on public utility bonds during November 2000 being approximately 8 percent, the 6.0 percent cost of equity estimate shown in column (g) of Exhibit BHF-3 is not plausible, and is properly discarded. Likewise, the 22.4 percent cost of equity estimate in column (h) is equally implausible on the high end, and should also be discarded.

Q. What then is the cost of equity zone of reasonableness for this reference group of electric utilities?

A. After excluding the outlying low and high cost of equity estimates, the zone of reasonableness for the reference group of electric utilities extends from 9.1 to 13.9 percent.

IV. Recommendation

Q. What is the purpose of this section?

A. Having determined cost of equity ranges for the reference groups of gas transmission companies and electric utilities, the next step is to judge where in these zones Transco's cost of equity falls. This is accomplished by evaluating the business and financial risks faced by Transco relative to those of the two reference groups.

Q. How does Transco's risk compare with that of the reference group of gas pipelines?

A. As noted earlier, the investment community regards the risks of electric transmission companies as being analogous to those of natural gas pipelines. Although there are certainly differences between the interstate transmission of natural gas and electricity, there are also many similarities. Both are open access common carriers regulated by this Commission, and neither is involved in the merchant function.

The bonds of the companies included in the gas pipeline reference group are all rated triple-B, potentially below the single-A/triple-B rating expected for Transco. On the other hand, all of the pipelines have assets in excess of $10 billion, versus Transco's approximately $2 billion, and for a variety of reasons (e.g., greater diversification and more resources), larger firms are typically regarded as less risky than smaller firms. There

is not an appreciable difference in the average common equity ratio of the pipeline reference group and Transco, but whereas Transco is expected to have significant external capital requirements in the near future, two of the three pipelines are projected to have adequate internal cash flow to meet capital expenditures.

Finally, pipelines have almost a decade of experience in a restructured industry, while electric transmission companies are nascent. The fact that Transco will be a newly formed company with no track record entering a restructured industry without established business practices indicates that its cost of equity is at least equal to the midpoint of the 12.8 to 13.9 percent range determined earlier for the reference group of natural gas transmission companies.

Q. How does Transco's risk compare with that of the reference group of electric utilities?

A. Because Transco's approximate plant size and expected bond ratings were used as the basis to select the reference group of electric utilities, these factors are fairly comparable. Moreover, Transco's expected common equity ratio is generally consistent with that of the reference group. However, whereas Transco's business will be limited solely to electric transmission, most of the companies in the reference group enjoy some degree of diversification either as vertically integrated electric utilities or because of involvement in other business activities. Also, while

all but one of the eight firms in the reference group are projected to have sufficient internally generated funds to meet capital expenditures, Transco is expected to have to raise substantial amounts of external capital to meet its capital expenditure requirements.

These considerations, combined with the fact that Transco will be an untested company entering an only recently established industry, indicate that it is more risky than the reference group of electric utilities, and that Transco's cost of equity is at least in the upper half of the 9.1 to 13.9 percent cost of equity zone of reasonableness determined earlier.

Q. What rate of return on common equity do you recommend Transco be authorized?

A. I recommend that Transco be allowed a 13 percent rate of return on common equity. This recommendation is midway between the approximate 13.3 percent midpoint of the 12.8 to 13.9 percent cost of equity range for the reference group of gas transmission companies, and the 12.7 percent midpoint of the 11.5 to 13.9 percent upper half of the zone of reasonableness for the reference group of electric utilities.

Q. Why is it important to allow Transco an adequate rate of return?

A. As discussed earlier, the U.S. transmission grid was not designed to accommodate a restructured, competitive electric power industry. It is for this reason that Transco, and other transmission entities, will spend

hundreds of millions of dollars to upgrade the existing transmission system to maintain and improve reliability. In order to attract the capital required to finance these construction expenditures, it is necessary that authorized rate of returns reflect current capital market conditions and the greater risks of a restructured electric industry. Indeed, S&P expressed the investment community's view on this issue in a June 26, 2000 article entitled "Breaches in U.S. Electric Transmission System are Likely for Summer 2000":

> The FERC can provide economic incentives to stimulate transmission investment and improve electric reliability. Clearly, recent decisions to award single-digit returns on transmission assets will not induce the deployment of capital that competes in the dot-com marketplace. In addition, uncertainty over return on capital has impeded technological advance designed to increase transportability using the existing infrastructure, such as thyristors. A firm resolve by the FERC with allowed returns more in line with market expectations could provide the needed catalyst to spur investment. (p. 2)

Q. Does that conclude your direct testimony?

A. Yes, it does.

AFFIDAVIT

STATE OF TEXAS)
)
COUNTY OF TRAVIS)

BRUCE H. FAIRCHILD, being duly sworn, deposes and states: that the attached are his sworn direct testimony and exhibits and that the statements contained therein are true and correct to the best of his knowledge, information and belief.

Bruce H. Fairchild

SWORN AND SUBSCRIBED BEFORE ME,
this 27th day of December, 2000.

Notary Public

My Commission Expires: 12/31/2002

ADRIEN MCKENZIE
MY COMMISSION EXPIRES
December.31, 2002
BONDED BY
NOTARY ASSOC. OF TEXAS, INC.

BRUCE H. FAIRCHILD

FINCAP, INC.
Financial Concepts and Applications
Economic and Financial Counsel

3907 Red River
Austin, Texas 78751
(512) 458–4644
FAX (512) 458–4768
fincap@texas.net

Summary of Qualifications

M.B.A. and Ph.D. in finance, accounting, and economics; Certified Public Accountant. Extensive consulting experience involving regulated industries, valuation of closely-held businesses, and other economic analyses. Previously held managerial and technical positions in government, academia, and business, and taught at the undergraduate, graduate, and executive education levels. Broad experience in technical research, computer modeling, and expert witness testimony.

Employment

Principal, FINCAP, Inc. (Sep. 1979 to present)	Economic consulting firm specializing in regulated industries and valuation of closely-held businesses. Assignments have involved electric, gas, telecommunication, and water/sewer utilities, with clients including utilities, consumer groups, municipalities, regulatory agencies, and cogenerators. Areas of participation have included revenue requirements, rate of return, rate design, tariff analysis, avoided cost, forecasting, and negotiations. Other assignments have involved some seventy valuations as well as various economic (e.g., damage) analyses, typically in connection with litigation. Presented expert witness testimony before courts and regulatory agencies on over one hundred occasions.
Adjunct Assistant Professor, University of Texas at Austin (Sep. 1979 to May. 1981)	Taught undergraduate courses in finance: Fin. 370 – Integrative Finance and Fin. 357 – Managerial Finance.
Assistant Director, Economic Research Division, Public Utility Commission of Texas (Sep. 1976 to Aug. 1979)	Division consisted of approximately twenty-five financial analysts, economists, and systems analysts responsible for rate of return, rate design, special projects, and computer systems. Directed Staff participation in rate cases, presented testimony on approximately thirty-five occasions, and was involved in some forty other cases ultimately settled. Instrumental in the initial development of rate of return and financial policy for newly-created agency. Performed independent research and managed State and Federal funded projects. Assisted in preparing appeals to the Texas Supreme Court and testimony presented before the Interstate Commerce Commission and Department of Energy. Maintained communications with financial community, industry representatives, media, and consumer groups. Appointed by Commissioners as Acting Director.

Assistant Professor, College of Business Administration, University of Colorado at Boulder (Jan. 1977 to Dec. 1978)	Taught graduate and undergraduate courses in finance: Fin. 305 – Introductory Finance, Fin. 401 – Managerial Finance, Fin. 402 – Case Problems in Finance, and Fin. 602 – Graduate Corporate Finance.
Teaching Assistant, University of Texas at Austin (Jan. 1973 to Dec. 1976)	Taught undergraduate courses in finance and accounting: Acc. 311 – Financial Accounting, Acc. 312 – Managerial Accounting, and Fin. 357 – Managerial Finance. Elected to College of Business Administration Teaching Assistants' Committee.
Internal Auditor, Sears, Roebuck and Company, Dallas, Texas (Nov. 1970 to Aug 1972)	Performed audits on internal operations involving cash, accounts receivable, merchandise, accounting, and operational controls, purchasing, payroll, etc. Developed operating and administrative policy and instruction. Performed special assignments on inventory irregularities and Justice Department Civil Investigative Demands.
Accounts Payable Clerk, Transcontinental Gas Pipeline Corp., Houston, Texas (May. 1969 to Aug. 1969)	Processed documentation and authorized payments to suppliers and creditors.

Education

Ph.D., Finance, Accounting, and Economics, University of Texas at Austin (Sep. 1974 to May 1980)	Doctoral program included coursework in corporate finance, investment theory, accounting, and economics. Elected to honor society of Phi Kappa Phi. Received University outstanding doctoral dissertation award Dissertation: *Estimating the Cost of Equity to Texas Public Utility Companies*
M.B.A., Finance and Accounting, University of Texas at Austin, (Sep. 1972 to Aug. 1974)	Awarded Wright Patman Scholarship by World and Texas Credit Union Leagues. Professional Report: *Planning a Small Business Enterprise in Austin, Texas*
B.B.A., Accounting and Finance, Southern Methodist University, Dallas, Texas (Sep. 1967 to Dec. 1971)	Dean's List 1967-1971 and member of Phi Gamma Delta Fraternity.

Other Professional Activities

Certified Public Accountant, Texas Certificate No. 13,710 (October 1974); entire exam passed in May 1972. Member of the American Institute of Certified Public Accountants and Texas Society of Certified Public Accountants.

Member of Advisory Council, Center for Public Utilities, College of Business Administration and Economics, New Mexico State University.

Member of Financial Management Association, Southwestern Finance Association, and American Finance Association. Participated as session chairman, moderator, and paper discussant at annual meetings of these and other professional associations.

Visiting lecturer in Executive M.B.A program at the University of Stellenbosch Graduate Business School, Belleville, South Africa (1983 and 1984).

Associate Editor of *Austin Financial Digest*, 1974-1975. Wrote and edited a series of investment and economic articles published in a local investment advisory service.

Military

Texas Army National Guard, Feb. 1970 to Sep. 1976. Specialist 5th Class with duty assignments including recovery vehicle operator for armor unit and company clerk for finance unit.

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Monographs

"On the Use of Security Analysts' Growth Projections in the DCF Model," with William E. Avera, *Earnings Regulation Under Inflation*, J. R. Foster and S. R. Holmberg, eds., Institute for Study of Regulation (1982).

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"Energy Conservation in Existing Residences, Project Director for development of instruction manual and workshops promoting retrofitting of existing homes, *Governor's Office of Energy Resources* and *Department of Energy* (1977-1978).

"Linear Algebra," "Calculus," "Sets and Functions," and "Simulation Techniques," contributed to and edited four mathematics programmed learning texts for MBA students, *Texas Bureau of Business Research* (1975).

Articles and Notes

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"Legislative Changes Affecting Texas Utilities," Texas Committee of Utility and Railroad Tax Representatives, Fall Meeting, Austin, Texas (September 1995).

"Rate of Return," "Origins of Information," Economics," and "Deferred Taxes and ITC's," New Mexico State University and National Association of Regulatory Utility Commissioners Public Utility Conferences on Regulation and the Rate-Making Process, Albuquerque, New Mexico (October 1983, 1984, 1985, 1986, 1987, 1988, 1990, 1991, 1992, 1994, and 1995, and September 1989); Pittsburgh, Pennsylvania (April 1993); and Baltimore, Maryland (May 1994 and 1995).

"Developing a Cost-of-Service Study," 1994 Texas Section American Water Works Association Annual Conference, Amarillo, Texas (March 1994).

"Financial Aspects of Cost of Capital and Common Cost Considerations," Kidder, Peabody & Co. Two-Day Rate Case Workshop for Regulated Utility Companies, New York, New York (June 1993).

"Cost-of-Service Studies and Rate Design," General Management of Electric Utilities (A Training Program for Electric Utility Managers from Developing Countries), Austin, Texas (October 1989 and November 1990 and 1991).

"Rate Base and Revenue Requirements," The University of Texas Regulatory Institute Fundamentals of Utility Regulation, Austin, Texas (June 1989 and 1990).

"Determining the Cost of Capital in Today's Diversified Companies," New Mexico State University Public Utilities Course Part II, Advanced Analysis of Pricing and Utility Revenues, San Francisco, California (June 1990).

"Estimating the Cost of Equity," Oklahoma Association of Tax Representatives, Tulsa, Oklahoma (May 1990).

"Impact of Regulations," Business and the Economy, Leadership Dallas, Dallas, Texas (November 1989).

"Accounting and Finance Workshop" and "Divisional Cost of Capital," New Mexico State University Current Issues Challenging the Regulatory Process, Albuquerque, New Mexico (April 1985 and 1986) and Santa Fe, New Mexico (March 1989).

"Divisional Cost of Equity by Risk Comparability and DCF Analyses," NARUC Advanced Regulatory Studies Program, Williamsburg, Virginia (February 1988) and USTA Rate of Return Task Force, Chicago, Illinois (June 1988).

"Revenue Requirements," Revenue, Pricing, and Regulation in Texas Water Utilities, Texas Water Utilities Conference, Austin, Texas (August 1987 and May 1988).

"Rate Filing – Basic Ratemaking," Texas Gas Association Accounting Workshop, Austin, Texas (March 1988).

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"Valuation of Closely-Held Businesses," Concho Valley Estate Planning Council, San Angelo, Texas (September 1982).

"Rating Regulatory Performance and Its Impact on the Cost of Capital," New Mexico State University Seminar on Regulation and the Cost of Capital, El Paso, Texas (May 1982).

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GAS TRANSMISSION REFERENCE GROUP

EXHIBIT BHF-2

FERC TWO-STEP DCF MODEL

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	6-Month Dividend		**Adjusted Dividend**	**I/B/E/S Near-Term**	**GDP Growth**				**Two-Step**	**Implied Cost of**
Company	**Yield**	**Adjustment Factor**	**Yield**	**Growth**	**DRI**	**WEFA**	**EIA**	**Avg.**	**Growth**	**Equity**
El Paso Energy	1.5%	1.056	1.6%	14%	6.5%	4.7%	5.2%	5.5%	11.2%	12.8%
Enron	0.7%	1.066	0.7%	17%	6.5%	4.7%	5.2%	5.5%	13.2%	13.9%
Williams Cos.	1.4%	1.059	1.5%	15%	6.5%	4.7%	5.2%	5.5%	11.8%	13.3%

(a) Average dividend yield May-October 2000 based on data from Standard & Poor's Stock Guide (June-November 2000).
(b) One plus one-half of (i).
(c) Six-month dividend yield adjusted for one-half years' growth based on growth rate from (g).
(d) S&P's Earnings Guide (November 2000).
(e) The U.S. Economy -- The 25-Year Focus, Standard & Poor's DRI (Summer Issue, 2000).
(f) U.S. Long-Term Economic Outlook -- Volume 1, Trend/Moderate Growth Scenario, WEFA (Fourth Quarter 1999).
(g) Annual Forecast 2001, Energy Information Administration (Table 20, Macroeconomic Indicators).
(h) Arithmetic average of (d), (e), (f), and (g).
(i) \Weighted average calculated as 2/3 of (c) and 1/3 of (g).
(j) Sum of (b) and (h).

ELECTRIC UTILITY REFERENCE GROUP

EXHIBIT BHF-3

FERC ONE-STEP DCF METHOD

		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
		6 Mo. Div. Yield		**Growth Rates**		**Adjusted Div. Yield**		**Cost of Equity Range**	
	Company	**Low**	**High**	**br + sv**	**I/B/E/S**	**Low**	**High**	**Low**	**High**
1	Avista Corp.	2.0%	2.7%	6.7%	4%	2.0%	2.8%	6.0% --	9.5%
2	Cleco	4.2%	4.7%	6.3%	9%	4.3%	4.9%	10.7% --	13.9%
3	DPL, Inc.	3.5%	4.0%	18.1%	8%	3.7%	4.3%	11.7% --	22.4%
4	DQE, Inc.	3.8%	4.3%	8.2%	7%	3.9%	4.5%	10.9% --	12.6%
5	Kansas City P&L	6.1%	8.0%	4.3%	4%	6.2%	8.2%	10.2% --	12.5%
6	MDU Resources	3.4%	3.8%	9.1%	8%	3.5%	3.9%	11.5% --	13.1%
7	NSTAR	4.6%	5.1%	4.4%	6%	4.7%	5.2%	9.1% --	11.2%
8	RGS Energy	7.0%	7.8%	3.5%	3%	7.1%	8.0%	10.1% --	11.5%

(a) Dividend yield May-October 2000 based on data from Standard & Poor's Stock Guide (June-November 2000).
(b) Dividend yield May-October 2000 based on data from Standard & Poor's Stock Guide (June-November 2000).
(c) Calculated based on data from The Value Line Investment Survey (October 6, November 17, & December 8, 2000).
(d) S&P's Earnings Guide (November 2000).
(e) Six-month low dividend yield adjusted for one-half years' growth.
(f) Six-month high dividend yield adjusted for one-half years' growth.
(e) Sum of low growth rate and corresponding adjusted dividend yield.
(g) Sum of high growth rate and corresponding adjusted dividend yield.