

APPENDIX A

A REVIEW OF ROE METHODOLOGIES

I. Regulatory Framework And Rate Of Return

The rates set by a regulatory commission should be sufficient to cover the utility's operating costs, including taxes and depreciation, plus an adequate dollar return on the capital invested. The required return in dollars is obtained by multiplying the established rate of return set by the regulator by the "rate base". The rate base is essentially the net book value of the utility's plant considered used and useful in dispensing service.

The heart of utility regulation is the setting of just and reasonable rates by way of a fair and reasonable return. There are landmark Supreme Court cases in both Canada and the United States which define the legal principles underlying the regulation of a public utility's rate of return and provide the foundations for the notion of a fair return. These landmark cases provide the foundations for the notion of a fair and reasonable return. In essence, the return on equity allowed by the regulator should be: (1) commensurate with returns on investments in other firms having corresponding risks, (2) sufficient to assure confidence in the financial integrity of the company, and (3) maintains the company's creditworthiness and ability to attract capital on reasonable terms.

The aggregate return required by investors is called "cost of capital". The cost of capital is the opportunity cost, expressed in percentage terms, of the total pool of capital employed by the company. It is the composite weighted cost of the various classes of capital (bonds, preferred stock, common stock) used by the utility, with the weights reflecting the proportions of the total which each class of capital represents.

While utilities enjoy varying degrees of monopoly in the sale of public utility services, they must compete with everyone else in the free, open market for the input factors of production, whether it be labor, materials, machines, or capital. The prices of these inputs are set in the competitive marketplace by supply and demand, and it is these input prices which are incorporated in the cost of service computation. This is just as true for capital as for any other factor of production.

The concept of a fair return is intimately related to the concept of opportunity costs. When investors supply funds to a utility by buying its stocks or bonds, not only are they postponing consumption, giving up the alternative of spending their dollars in some other way, but they are also exposing their funds to risk. Investors are willing to incur this double penalty only if they are adequately compensated. The compensation they require is the price of capital. If there are differences in the risk of the investments, competition among firms for a limited supply of capital will bring different prices. These differences in risk are translated into price differences by the capital markets in much the same way that commodities which differ in characteristics will trade at different prices.

The important point is that the prices of debt capital and equity capital are set by supply and demand, and both are influenced by the relationship between the risk and return expected for those securities and the risks expected from the overall menu of available securities.

A regulated utility's funds are obtained in two general forms, debt capital and equity capital. The cost of debt funds and preferred stock funds can be easily ascertained from an examination of the contractual interest payments and preferred dividends. The cost of common equity funds, that is, equity investors' required rate of return, is more difficult to estimate because the dividend payments received from common stock are not contractual or guaranteed in nature. They are uneven and risky, unlike interest payments. This appendix addresses the issue of a fair and reasonable return on the common equity capital. The return on common equity estimate can then be easily combined

with the embedded costs of debt and preferred stock together with the company's capital structure, in order to arrive at the overall cost of capital.

There are four broad methodologies available to estimate the fair return on equity: DCF, Risk Premium, CAPM, and Comparable Earnings. No one individual method provides the necessary level of precision for determining a fair return, but each method provides useful evidence so as to facilitate the exercise of an informed judgment. Reliance on any single method or preset formula is inappropriate when dealing with investor expectations. Moreover, the advantage of using several different approaches is that the results of each one can be used to check the others.

II. Cost of Equity Capital: DCF Method

The value of any security to an investor is the expected discounted value of the future stream of dividends or other benefits. One widely used method to measure these anticipated benefits in the case of a non-static company is to examine the current dividend plus the increases in future dividend payments expected by investors. This valuation process can be represented by the following formula, which is the traditional DCF model:

$$K_e = D_1/P_0 + g$$

where: K_e = investors' expected return on equity

D_1 = expected dividend during the coming year

P_0 = current stock price

g = expected growth rate of future dividends

The traditional DCF formula states that under certain assumptions, which are described in the next paragraph, the equity investor's expected return, K_e , can be viewed as the sum of an expected dividend yield, D_1/P_0 , plus the

expected growth rate of future dividends and stock price, g . The principal appeal of the DCF approach is its simplicity and its correspondence with the intuitive notion of dividends plus capital appreciation as a measure of investors' expected return. The returns anticipated at a given market price are not directly observable and must be estimated from statistical market information. The idea of the market value approach is to infer ' K_e ' from the observed share price and from an estimate of investors' expected future growth.

The economic basis for the DCF market value test is that new capital will be attracted to a firm only if the return expected by the suppliers of funds is commensurate with the return available from alternatives of comparable risk.

The assumptions underlying this valuation formulation are well known. The assumptions are discussed in detail in Chapter 5 of my book, *Regulatory Finance*. The traditional DCF model requires the following main assumptions: a constant average growth trend for both dividends and earnings, a stable dividend payout policy, a discount rate in excess of the expected growth rate, and a constant price-earnings multiple, which implies that growth in price is synonymous with growth in earnings and dividends. The traditional DCF model also assumes that dividends are paid annually when in fact dividend payments are normally made on a quarterly basis.

The measurement of the investor's required rate of return (K_e) can be broken down into two components: measurement of the expected dividend yield (D_1/P_0) and the measurement of growth (g). Three variables are therefore required for the DCF model:

1. Dividend payments for the next year, D_1
2. Estimated growth in future dividends, g and
3. The current stock price, P_0

The current stock price and the dividend payment for the coming year can easily be obtained from published market data. The expected dividend payment is simply the current dividend, D_0 , multiplied by one year of growth: $D_1 = D_0(1+g)$

To obtain the growth term, growth estimates developed by professional analysts employed by large investment brokerage institutions and historical dividend growth information can be examined.

The DCF model is usually applied to both the utility's own data, if the company is publicly traded, and to groups of comparable risk utilities and industrial companies.

II. 1 Flotation Cost

The DCF results must be adjusted for the costs of issuing securities. Flotation costs are very similar to the closing costs on a home mortgage. In the case of issues of new equity, flotation costs represent the discounts that must be provided to place the new securities. Flotation costs have a direct and an indirect component. The direct component is the compensation to the security underwriter for his marketing/consulting services, for the risks involved in distributing the issue, and for any operating expenses associated with the issue (printing, legal, prospectus, etc.). The indirect component represents the downward pressure on the stock price as a result of the increased supply of stock from the new issue. The latter component is frequently referred to as "market pressure".

Investors must be compensated for flotation costs on an ongoing basis because such costs were not recovered through expenses in the past, when they were incurred. Even if a utility does not contemplate any further common stock offerings, a flotation cost adjustment is still permanently required. This is analogous to the flotation costs associated with past bond issues, which continue to be amortized over the life of the bond, even though no new bond issues are contemplated.

A simple example will illustrate the concept. A stock is sold for \$100, and investors require a 10% return, that is, \$10 of earnings. But if flotation costs are 5%, the company nets \$95 from the issue, and its common equity account is credited by \$95. In order to generate the same \$10 of earnings to the shareholders, from a reduced equity base, it is clear that a return in excess of 10% must be allowed on this reduced equity base, here 10.52%.

According to empirical studies, total flotation costs including market pressure conservatively amount to 5% of gross proceeds. To adjust the DCF results for flotation costs, one simply divides the yield by 95% (100% - 5%) to obtain the fair return on equity capital.

III. Cost of Equity: Risk Premium Method

The Risk Premium method of determining the cost of equity recognizes the fundamental principle that common equity capital is more risky than debt from an investor's standpoint, and that investors require higher returns on stocks than on bonds to compensate for the additional risk. The general approach is relatively straightforward. First, determine the historical spread between the return on debt and the return on equity. Second, this spread must be added to the current debt yield to derive an estimate of current equity return requirements.

One advantage of the risk premium approach over the DCF approach is that the former is a month-by-month study of the cost of equity over the cost of debt, in contrast to the latter which is a point-in-time cross-sectional estimate. In other words, the risk premium approach takes a time-series perspective rather than a snapshot point-in-time view, and is therefore less vulnerable to the vagaries of any one particular capital market environment at a given point in time.

The magnitude of the relative risk premiums is determined by shifts in demand and supply in each capital market segment, which are in turn driven by investors' attitudes towards risk, and by the relative risk differentials perceived by investors between each type of security.

The risk premium approach to estimating the cost of equity derives its merits and its usefulness from the simple fact that while equity returns cannot be readily quantified at a given point in time, the returns on bonds can be assessed on a regular basis. If the magnitude of the risk premium between stocks and bonds is known, then this information can be utilized to determine the cost of common equity.

There are two broad approaches used to estimate the risk premium, one historical and the other prospective. The historical approach examines the historical returns actually earned from investments in common equities and bonds. One danger with such a procedure involves the distinction between expected and realized return. The historical risk premium approach fundamentally assumes that average realized return is an appropriate surrogate for expected return, or in other words that investor expectations are realized. Realized returns can be substantially different from prospective returns anticipated by investors especially over short time periods, and therefore constitute a hazardous benchmark on which to base the risk premium between stocks and bonds. To minimize this difficulty, a very long time period should be selected.

The prospective approach rests on investor expectations, and risk premiums are based on expected returns rather than on realized returns. The usual way to perform a prospective risk premium analysis is to apply the DCF model to a broad utility index each month or each year over a long time period. The risk premium can be obtained by computing the cost of equity capital for each month using the DCF model, and then subtracting the yield on risk-free securities for that month. The risk premiums for each sub-period are averaged to arrive at the overall risk premium for the overall period.

IV. Cost of Equity: CAPM Method

The CAPM is a fundamental paradigm of finance and widely recognized. Professor William Sharpe, the main architect of the CAPM, was awarded the 1990 Economics Nobel prize for his pioneering work on the CAPM.

The fundamental idea underlying the CAPM is that risk-averse investors demand higher returns for assuming additional risk, and higher-risk securities are priced to yield higher expected returns than lower-risk securities. The CAPM quantifies the additional return, or risk premium, required for bearing incremental risk, and provides a formal risk-return relationship anchored on the basic idea that only market risk matters, as measured by beta. According to the CAPM, securities are priced such that:

$$\text{EXPECTED RETURN} = \text{RISK-FREE RATE} + \text{RISK PREMIUM}$$

Denoting the risk-free rate by " R_F " and the return on the market as a whole by " R_M ", the CAPM is stated as follows:

$$K = R_F + \beta(R_M - R_F)$$

The beta coefficient occupies a central role in financial theory, and has been shown to be a sufficient and complete measure of risk for diversified investors. The beta measure aims at assessing the volatility of a security's return relative to that of the market. The beta coefficient compares the volatility and direction of movement of the return on investment with those of the market as a whole. Specifically, the beta coefficient of a particular stock measures the degree to which the return on the stock follows the trend of the market. It indicates that change in the rate of return on a stock associated with a one percentage point change in the rate of return on the market. For example, a beta of 0.75 would indicate that a company is 75% as volatile as the overall

capital market. If the market rises 10%, the stock will rise 7.5%, and conversely. The beta coefficient thus measures the degree to which that stock shares the same risk as the market as a whole. For diversified investors, it is the only relevant risk measure.

To apply the CAPM, we need three quantities: the risk-free rate, beta, and the market risk premium. As a proxy for the risk-free rate, the current yield on long-term government bonds can be used. Beta estimates are widely available from investment information sources, such as Value Line and Standard & Poors. An estimate of the market risk premium can be obtained either from studies of historical stock and bond returns over long time periods or from prospective estimates. In the latter case, a simple annual DCF analysis applied to the market as a whole is performed to obtain the aggregate return on equity, and then the risk-free rate is subtracted from that estimate to arrive at the market risk premium.

IV. 1 Empirical CAPM Estimate

As is well known in the academic finance literature, the CAPM model produces a downward-biased estimate of equity cost for companies with a beta of less than 1.00. Expanded CAPM models have been developed which relax some of the more restrictive assumptions underlying the traditional CAPM responsible for this bias, and which enrich its conceptual validity. These expanded CAPM models typically produce a risk-return relationship that is flatter than the traditional CAPM's prediction, consistent with the empirical findings of the finance literature. This literature is summarized in Morin, Regulatory Finance, Public Utilities Report, Arlington, VA, 1994, Chapter 11.

The following equation provides a viable and conservative approximation of the cost of equity capital estimate suggested by these expanded CAPM's:

$$K = R_F + 0.25 (R_M - R_F) + 0.75 \beta (R_M - R_F)$$

The same input data as in the CAPM are inserted in the above equation to estimate the return on equity.

V. Cost of Equity: Comparable Earnings Approach

The Comparable Earnings standard uses the return earned on book equity investment by enterprises of comparable risks as the measure of fair return. The approach rests on a particular notion of opportunity cost, namely that a utility should be allowed to earn what it would have earned had its capital been invested in other firms of comparable risk. A goal of fairness is said to be achieved by this. Thus, if regulation attempts to duplicate competitive results, the rate of return permitted on a utility's common equity capital should be of the same general order of magnitude as that of a group of unregulated industrials with the same risk characteristics.

The rationale of the method is that regulation is a duplicate for competition. The profitability of unregulated firms is set by the free forces of competition. In the long run, the free entry of competitors would limit the profits earned by these unregulated companies, and, unprofitable ventures and product lines would be abandoned by the unregulated companies. Aggregating book rates of return over a large number of unregulated companies would even out any abnormal short run profit aberrations, while averaging over time would dampen any cyclical aberrations. Thus, by averaging the book profitability of a large number of unregulated companies, an appropriate measure of the fair return on equity for a public utility is obtained.

The Comparable Earnings approach makes use of simple readily available accounting data; return on book equity data is widely available on computerized data bases for most public companies and for a wide variety of market indices. The method is easily understood, and is firmly anchored in regulatory tradition. The method is not influenced by the regulatory process to the same extent as market-based methods such as DCF and CAPM. The base to which the Comparable Earnings standard is applicable is the utility's book

common equity, which is much less vulnerable to regulatory influences than stock price which is the base to which the market-based standards are applied. Stock price can be influenced by the actions of regulators.

To implement the method, the historical ROEs for a group of unregulated comparable risk companies are estimated over a full business cycle. In examining the returns achieved by regulated companies there is a clear danger of circularity of analysis. That is, the earnings of other regulated utilities are also subject to regulation and tests of fairness and appropriateness. It is therefore preferable to go beyond the bounds of regulated utilities when comparisons are made of returns to book value.

To implement the method, a group of comparable risk unregulated companies is identified, using standard measures of risk, such as beta, bond rating, and volatility of returns. If regulation is attempting to duplicate competitive results, which I think it should, the rate of return permitted on a utility's common equity capital should be of the same general order of magnitude as on nonregulated companies with corresponding risk characteristics.

One practical difficulty with the method is that the historical returns on industrials have been decimated by corporate restructurings in recent years and are therefore downward-biased estimates of the corporate sector's future earnings. Another difficulty is to identify a set of low-risk industrials with the same investment risk characteristics as regulated utilities. Finally, historical returns on book equity are not necessarily equal to market-based rates of return, based on stock prices.

APPENDIX A TECHNICAL SUPPLEMENT RESERVATIONS ON THE DCF MODEL

I have several reservations concerning the application of the DCF method. My reservations concern: 1) the impact of declining earnings per share and slow growth in dividends per share which have distorted historical data and near-term projected data for several utilities, which in turn renders the application of the DCF model problematic, 2) the realism of the model's underlying assumptions and applicability to utility stocks in general in the current capital market environment, and 3) the estimation of the expected growth component required by the DCF model.

1. DECLINING GROWTH RATES

Under normal circumstances, the DCF required return on common equity is estimated directly from the company's own corporate and market data, or that of its parent as proxy. The return on equity is obtained by combining the appropriate dividend yield with the corresponding dividend growth rate expected by investors. Three procedures can be employed to estimate the growth in dividends expected by investors:

- (1) historical growth of dividends/earnings per share;
- (2) security analysts' growth expectations;
- (3) sustainable growth method, with growth as the product of the expected retention ratio and the expected return on equity.

Historical growth rates can be downward-biased by the impact of diversification and restructuring activities in recent years and by the impact of abnormal weather patterns. Acquisitions, startup expenses and front-end capital investments associated with diversification and restructuring efforts, and unfavorable weather patterns in past years have retarded and diluted historical earnings growth for several utilities, and such growth is not representative of the company's long-term growth potential. Therefore, caution must be exercised when applying any of the growth estimating techniques directly to recent historical utility company data. More fundamentally, the basic assumptions of constant growth, constant ROE, and constant measures of financial performance which underlie the DCF model may be violated in the case of utility company data.

Moreover, the stock price used as input in the dividend yield component may be biased by structural changes and changing investor expectations in the utility industry. Stock prices can also be influenced by mergers and acquisitions possibilities, by speculation concerning asset restructurings and deregulation of certain assets, and by corporate takeover rumors.

2. REALISM OF ASSUMPTIONS

The traditional DCF model is based on a number of assumptions, some of which are unrealistic, particularly in the current capital market environment. For example, the standard DCF model assumes a constant market valuation multiple, that is, a constant price-earnings (P/E) ratio. That is, the model assumes that investors expect the ratio of market price to dividends (or earnings) in any given year to be the same as the current price/dividend (or earnings) ratio. This must be true if the infinite growth assumption is made. This is somewhat unrealistic under current conditions. The DCF model is not equipped to deal with sudden surges in market-to-book (M/B) and P/E ratios, as was experienced by several utility stocks, in recent years. Such ratios for the electric utility industry have behaved very erratically over the last ten years.

The equity market's behavior in the last decade does not comport well with the assumptions of the basic standard DCF model frequently employed by expert witnesses. Several fundamental and structural changes have transformed the utility industry from the times when the standard DCF model and its assumptions were developed. Increased competition triggered by national policy, accounting rule changes, changes in capital recovery rates, changes in customer attitudes regarding utility services, the evolution of alternative energy sources, deregulation, and mergers-acquisitions have all influenced stock prices in ways vastly different from the early assumptions of the DCF model. These changes suggest that some of the raw assumptions underlying the standard DCF model are questionable.

Contrary to the standard DCF assumption of a constant P/E ratio, stock price may not necessarily be expected to grow at the same rate as earnings and dividends by investors. This is especially true in the short run. Investors may very well assume that the price/earnings ratio will in fact continue to increase in the short run, fueling the expected rate of return. The converse is also true. P/E ratios have proved volatile and unstable in recent years. The essential point is that the constancy of the price/earnings ratio required in the standard DCF model may not always be a valid assumption. To the extent that increases (decreases) in relative market valuation are anticipated by investors, especially myopic investors with short-term investment horizons, the standard DCF model will understate (overstate) the cost of equity.

Another way of stating the same point is that the DCF model does not account for the ebb and flow of investor sentiments over the course of the business cycle. The problem is particularly acute in the current capital market environment where investors, faced with very low returns on short-term fixed-income securities and an uncertain market outlook, seek the higher yields offered by utility stocks (a flight to quality), boosting their stock price and lowering their dividend yield.

The following example illustrates the effect of erratic market valuation multiples on the DCF model. Assume that a stock is trading at \$100. Assume

market price. Therefore, the DCF cost rate understates the investor's required return when stock prices are well above book, as is the case presently.

EFFECT OF MARKET-TO-BOOK RATIO ON MARKET RETURN

	<u>Situation 1</u>	<u>Situation 2</u>	<u>Situation 3</u>
Initial purchase price	\$25.00	\$50.00	\$100.00
Initial book value	\$50.00	\$50.00	\$50.00
Initial M/B	0.50	1.00	2.00
DCF Return 10% = 5% + 5%	10.00%	10.00%	10.00%
Dollar Return	\$5.00	\$5.00	\$5.00
Dollar Dividends 5% Yield	\$1.25	\$2.50	\$5.00
Dollar Growth 5% Growth	\$3.75	\$2.50	\$0.00
Market Return	20.00%	10.00%	5.00%

3. GROWTH RATE ESTIMATION

My last concern with the DCF model deals with the realism of the constant growth rate assumption and with difficulty of finding an adequate proxy for that growth rate. The standard DCF model assumes that a single growth rate of dividends is applicable in perpetuity. Not only is the constant growth rate assumption somewhat unrealistic, but it is difficult to proxy. Analysts' growth forecasts are usually made for not more than two to five years in time, or if they are made for more than a few years, they are dominated by the near-term earnings and dividends picture. In short, the perpetual growth term of the DCF model does not square well with the shorter-term focus of institutional investors.

Also, there is an element of logical circularity inherent in the growth component of the DCF model. The cost of equity capital depends on investors' growth expectations, which in turn depends partially on investors' perception of the regulatory process. The net result is that the cost of equity depends in part on anticipated regulatory action, since both components of the cost of equity, dividend yield and growth, are influenced by the regulatory process. Carried to its extreme, this implies that regulation would in effect deliver whatever equity return investors expect.

In summary, extreme caution and judgment are required in interpreting the results of the DCF model for because of (1) the effect of declining earnings and dividends on financial inputs to the DCF model and biases caused by the effect of changes in risk and growth on utilities, (2) the questionable applicability of the DCF model to utility stocks in general in the current capital market

environment, and (3) the conceptual and practical difficulties associated with the growth component of the DCF model. Hence, there is a clear need to go beyond the DCF results and examine the results produced by alternate methodologies.

The DCF method is frequently applied to measure the prospective risk premium during a given time period in conjunction with the Risk Premium approach. The risk premium test relies on a succession of DCF observations over long periods, and is not as vulnerable to a given capital market environment as a spot DCF test. This is because the risk premium approach is a period-by-period study of the cost of equity over the cost of debt, in contrast to the DCF, which is a point-in-time cross-sectional estimate. In other words, the risk premium approach takes a broader time-series perspective rather than a snapshot point-in-time viewpoint, and is therefore less vulnerable to the vagaries of any one particular capital market environment.

Application of the DCF model to a broad aggregate of companies also mitigates the measurement difficulties outlined here. The vagaries of individual company results largely offset one another.

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EDUCATIONAL HISTORY

- Bachelor of Electrical Engineering, McGill University,
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- Master of Business Administration, McGill University,
Montreal, Canada, 1969.
- PhD in Finance & Econometrics, Wharton School of Finance,
University of Pennsylvania, Philadelphia, PA., 1976.

EMPLOYMENT HISTORY

- Lecturer, Wharton School of Finance, Univ. of Pa., 1972-3
- Assistant Professor, University of Montreal School of Business, 1973-1976.
- Associate Professor, University of Montreal School of Business, 1976-1979.
- Professor of Finance, Georgia State University, 1979-2000
- Professor of Finance for Regulated Industry and Director, Center for the Study of Regulated Industry, College of Business, Georgia State University, 1985-2000
- Visiting Professor of Finance, Amos Tuck School of Business, Dartmouth College, Hanover, N.H., 1986

OTHER BUSINESS ASSOCIATIONS

- Communications Engineer, Bell Canada, 1962-1967.
- Member of the Board of Directors, Financial Research Institute of Canada, 1974-1980.
- Co-founder and Director Canadian Finance Research Foundation, 1977.
- Vice-President of Research, Garmaise-Thomson & Associates., Investment Management Consultants, 1980-1981.
- Executive Visions Inc., Board of Directors, Member
- Board of External Advisors, College of Business, Georgia State University, Member 1987-1991

CORPORATE CONSULTING CLIENTS

AT & T Communications
Alagasco - Energen
Alaska Anchorage Municipal Light & Power
Alberta Power Ltd.
American Water Works Company
Ameritech
Baltimore Gas & Electric
B.C. Telephone
B C GAS
Bell Canada
Bellcore
Bell South Corp.
Bruncor (New Brunswick Telephone)
Burlington-Northern
C & S Bank
Cajun Electric
Canadian Radio-Television & Telecomm. Commission
Canadian Utilities
Canadian Western Natural Gas
Centel
Centra Gas
Central Illinois Light & Power Co
Central Telephone
Central South West Corp.
Cincinnati Gas & Electric
Cinergy Corp

CORPORATE CONSULTING CLIENTS (CONT'D)

Citizens Utilities
City Gas of Florida
CN-CP Telecommunications
Commonwealth Telephone Co.
Columbia Gas System
Constellation Energy
Deerpath Group
Edison International
Edmonton Power Company
Engraph Corporation
Entergy Corp.
Entergy Gulf States Utilities, Inc.
Entergy Louisiana, Inc.
Florida Water Association
Garmaise-Thomson & Assoc., Investment Consultants
Gaz Metropolitan
General Public Utilities
Georgia Broadcasting Corp.
Georgia Power Company
GTE California
GTE Northwest Inc
GTE Service Corp.
GTE Southwest Incorporated
Gulf Power Company
Havasu Water Inc.
Hope Gas Inc.

CORPORATE CONSULTING CLIENTS (CONT'D)

Hydro-Quebec
ICG Utilities
Illinois Commerce Commission
Island Telephone
Jersey Central Power & Light
Kansas Power & Light
Manitoba Hydro
Maritime Telephone
Metropolitan Edison Co.
Minister of Natural Resources Province of Quebec
Minnesota Power & Light
Mississippi Power Company
Mountain Bell
Newfoundland Light & Power - Fortis Inc.
NewTel Enterprises Ltd.
New York Telephone Co.
Northern Telephone Ltd.
Northwestern Bell
Northwestern Utilities Ltd.
Nova Scotia Board of Utilities
NUI Corp
NYNEX
Oklahoma G & E
Ontario Telephone Service Commission
Orange & Rockland
Pacific Northwest Bell

CORPORATE CONSULTING CLIENTS (CONT'D)

People's Gas System Inc.
People's Natural Gas
Pennsylvania Electric Co.
Price Waterhouse
PSI Energy
Public Service Elec & Gas
Quebec Telephone
Rochester Telephone
SaskPower
Sierra Pacific Resources
Southern Bell
Southern States Utilities
South Central Bell
Sun City Water Company
The Southern Company
Touche Ross and Company
Trans-Quebec & Maritimes Pipeline
US WEST Communications
Utah Power & Light
Vermont Gas Systems Inc.

MANAGEMENT DEVELOPMENT AND PROFESSIONAL EXECUTIVE EDUCATION

- Canadian Institute of Marketing, Corporate Finance, 1971-73
- Hydro-Quebec, "Capital Budgeting Under Uncertainty, 1974-75
- Institute of Certified Public Accountants, Mergers & Acquisitions, 1975-78

- Investment Dealers Association of Canada, 1977-78
- Financial Research Foundation, bi-annual seminar, 1975-79
- Advanced Management Research (AMR), faculty member, 1977-80
- Financial Analysts Federation, Educational chapter:
"Financial Futures Contracts" seminar
- The Management Exchange Inc., faculty member, 1981-2000.

NATIONAL SEMINARS:

Risk and Return on Capital Projects
Cost of Capital for Regulated Utilities
Capital Allocation for Utilities
Alternative Regulatory Frameworks
Utility Directors' Workshop
Shareholder Value Creation for Utilities
Real Options in Utility Capital Investments
Fundamentals of Utility Finance

- Georgia State University College of Business, Management Development Program, faculty member, 1981-1994

EXPERT TESTIMONY & UTILITY CONSULTING AREAS OF EXPERTISE

Rate of Return
Capital Structure
Generic Cost of Capital
Phase-in Plans
Costing Methodology
Depreciation
Flow-Through vs Normalization
Revenue Requirements Methodology
Utility Capital Expenditures Analysis
Risk Analysis
Capital Allocation
Divisional Cost of Capital, Unbundling
Publicly-owned Municipals

Telecommunications, CATV, Energy, Pipeline, Water
Incentive Regulation & Alternative Regulatory Plans
Shareholder Value Creation

REGULATORY BODIES:

Federal Communications Commission
Federal Energy Regulatory Commission
Georgia Public Service Commission
South Carolina Public Service Commission
North Carolina Utilities Commission
Pennsylvania Public Service Commission
Ontario Telephone Service Commission
Quebec Telephone Service Commission
Newfoundland Board of Commissioners of Public Utilities
Georgia Senate Committee on Regulated Industries
Alberta Public Service Board
Tennessee Public Service Commission
Oklahoma State Board of Equalization
Mississippi Public Service Commission
Minnesota Public Utilities Commission
Canadian Radio-Television and Telecomm. Commission
New Brunswick Board of Public Commissioners
Alaska Public Utility Commission
National Energy Board of Canada
Florida Public Service Commission
Montana Public Service Commission
Arizona Corporation Commission

Quebec Natural Gas Board
New York Public Service Commission
Washington Utilities & Transportation Commission
Manitoba Board of Public Utilities
New Jersey Board of Public Utilities
Alabama Public Service Commission
Utah Public Service Commission
Nevada Public Service Commission
Louisiana Public Service Commission
Colorado Public Utilities Board
West Virginia Public Service Commission
Ohio Public Utilities Commission
California Public Service Commission
Hawaii Public Service Commission
Illinois Commerce Commission
British Columbia Board of Public Utilities
Indiana Utility Regulatory Commission
Minnesota Public Utilities Commission
Texas Public Service Commission
Michigan Public Service Commission

SERVICE AS EXPERT WITNESS

Southern Bell, So. Carolina PSC, Docket #81-201C
Southern Bell, So. Carolina PSC, Docket #82-294C
Southern Bell, North Carolina PSC, Docket #P-55-816
Metropolitan Edison, Pennsylvania PUC, Docket #R-822249
Pennsylvania Electric, Pennsylvania PUC, Docket #R-822250

Georgia Power, Georgia PSC, Docket # 3270-U, 1981
Georgia Power, Georgia PSC, Docket # 3397-U, 1983
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Northwestern Bell, Minnesota PSC, #P-421/CI-86-354
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Georgia Power, Georgia PSC, Docket # 3840-U, 1989
Rochester Telephone, New York PSC, Docket # 89-C-022
Noverco - Gaz Metro, Quebec Natural Gas PSC, #R-3164-89
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Orange & Rockland, New York PSC, Case 89-E-175
Central Illinois Light Company, ICC, Case 90-0127
Peoples Natural Gas, Pennsylvania PSC, Case
Gulf Power, Florida PSC, Case # 891345-EI
ICG Utilities, Manitoba BPU, Case 1989
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Jersey Central Pwr & Light, N.J. PUB, Case ER 89110912J
Alabama Gas Co., Alabama PSC, Case 890001
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Mountain Bell, Utah PSC,
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Alberta Power Ltd., Alberta PUB
Ohio Utilities Company, Ohio PSC
Georgia Power Company, Georgia PSC

Sun City Water Company

Havasu Water Inc.

Centra Gas (Manitoba) Co.

Central Telephone Co. Nevada

AGT Ltd., CRTC 1992

BC GAS, BCPUB 1992

California Water Association, California PUC 1992

Maritime Telephone 1993

BCE Enterprises, Bell Canada, 1993

Citizens Utilities Arizona gas division 1993

PSI Resources 1993-5

CILCORP gas division 1994

GTE Northwest Oregon 1993

Stentor Group 1994-5

Bell Canada 1994-1995

PSI Energy 1993, 1994, 1995, 1999

Cincinnati Gas & Electric 1994, 1996, 1999

Southern States Utilities, 1995

CILCO 1995, 1999

Commonwealth Telephone 1996

Edison International 1996-8

Citizens Utilities 1997

Stentor Companies 1997

Hydro-Quebec 1998

Entergy Gulf States Louisiana 1998

Detroit Edison, 1999

Entergy Gulf States, Texas, 2000

PROFESSIONAL AND LEARNED SOCIETIES

- Engineering Institute of Canada, 1967-1972
- Canada Council Award, recipient 1971 and 1972
- Canadian Association Administrative Sciences, 1973-80
- American Association of Decision Sciences, 1974-1978
- American Finance Association, 1975-2000
- Financial Management Association, 1978-2000

ACTIVITIES IN PROFESSIONAL ASSOCIATIONS AND MEETINGS

- Chairman of meeting on "New Developments in Utility Cost of Capital", Southern Finance Association, Atlanta, Nov. 1982
- Chairman of meeting on "Public Utility Rate of Return", Southeastern Public Utility Conference, Atlanta, Oct. 1982
- Chairman of meeting on "Current Issues in Regulatory Finance", Financial Management Association, Atlanta, Oct. 1983
- Chairman of meeting on "Utility Cost of Capital", Financial Management Association, Toronto, Canada, Oct. 1984.
- Committee on New Product Development, FMA, 1985
- Discussant, "Tobin's Q Ratio", paper presented at Financial Management Association, New York, N.Y., Oct. 1986
- Guest speaker, "Utility Capital Structure: New Developments", National Society of Rate of Return Analysts 18th Financial Forum, Wash., D.C. Oct. 1986
- Opening address, "Capital Expenditures Analysis: Methodology vs Mythology," Bellcore Economic Analysis Conference, Naples Fla., 1988.

PAPERS PRESENTED:

"An Empirical Study of Multiperiod Asset Pricing," annual meeting of Financial Management Assoc., Las Vegas Nevada, 1987.

"Utility Capital Expenditures Analysis: Net Present Value vs Revenue Requirements", annual meeting of Financial Management Assoc., Denver, Colorado, October 1985.

"Intervention Analysis and the Dynamics of Market Efficiency", annual meeting of Financial Management Assoc., San Francisco, Oct. 1982

"Intertemporal Market-Line Theory: An Empirical Study," annual meeting of Eastern Finance Assoc., Newport, R.I. 1981

"Option Writing for Financial Institutions: A Cost-Benefit Analysis", 1979 annual meeting Financial Research Foundation
"Free-lunch on the Toronto Stock Exchange", annual meeting of Financial Research Foundation of Canada, 1978.

"Simulation System Computer Software SIMFIN", HP International Business Computer Users Group, London, 1975.

"Inflation Accounting: Implications for Financial Analysis." Institute of Certified Public Accountants Symposium, 1979.

OFFICES IN PROFESSIONAL ASSOCIATIONS

- President, International Hewlett-Packard Business Computers Users Group, 1977
- Chairman Program Committee, International HP Business Computers Users Group, London, England, 1975
- Program Coordinator, Canadian Assoc. of Administrative Sciences, 1976

- Member, New Product Development Committee, Financial Management Association, 1985-1986

- Reviewer: Journal of Financial Research

Financial Management

Financial Review

Journal of Finance

PUBLICATIONS

"Risk Aversion Revisited", Journal of Finance, Sept. 1983

"Hedging Regulatory Lag with Financial Futures," Journal of Finance, May 1983. (with G. Gay, R. Kolb)

"The Effect of CWIP on Cost of Capital, " Public Utilities Fortnightly, July 1986.

"The Effect of CWIP on Revenue Requirements" Public Utilities Fortnightly, August 1986.

"Intervention Analysis and the Dynamics of Market Efficiency," Time-Series Applications, (New York: North Holland, 1983. (with K. El-Sheshai)

"Market-Line Theory and the Canadian Equity Market," Journal of Business Administration, Jan. 1982, M. Brennan, editor

"Efficiency of Canadian Equity Markets," International Management Review, Feb. 1978

"Intertemporal Market-Line Theory: An Empirical Test," Financial Review, Proceedings of the Eastern Finance Association, 1981

BOOKS

Utilities' Cost of Capital, Public Utilities Reports Inc.,
Arlington, Va., 1984.

Regulatory Finance, Public Utilities Reports Inc.,
Arlington, Va., 1994

Driving Shareholder Value, McGraw-Hill, forthcoming, July
2000

MONOGRAPHS

Determining Cost of Capital for Regulated Industries, Public
Utilities Reports, Inc., and The Management Exchange Inc.,
1982 - 1993. (with V.L. Andrews)

Alternative Regulatory Frameworks, Public Utilities
Reports, Inc., and The Management Exchange Inc., 1993.
(with V.L. Andrews)

Risk and Return in Capital Projects, The Management Exchange
Inc., 1980, (with B. Deschamps)

Utility Capital Expenditure Analysis, The Management Ex-
change Inc., 1983.

Regulation of Cable Television: An Econometric Planning
Model, Quebec Department of Communications, 1978.

An Economic & Financial Profile of the Canadian Cablevision
Industry. Canadian Radio-Television & Telecomm. Commission
(CRTC), 1978

Computer Users' Manual: Finance and Investment Programs,
University of Montreal Press, 1974, revised 1978.

Fiber Optics Communications: Economic Characteristics,
Quebec Department of Communications, 1978.

"Canadian Equity Market Inefficiencies", Capital Market Research Memorandum, Garmaise & Thomson Investment Consultants, 1979.

MISCELLANEOUS CONSULTING REPORTS

"Operational Risk Analysis: California Water Utilities, Calif. Water Association, 1993.

"Cost of Capital Methodologies for Independent Telephone Systems", Ontario Telephone Service Commission, March 1989.

"The Effect of CWIP on Cost of Capital and Revenue Requirements", Georgia Power Company, 1985.

"Costing Methodology and the Effect of Alternate Depreciation and Costing Methods on Revenue Requirements and Utility Finances", Gaz Metropolitan Inc., 1985.

"Simulated Capital Structure of CN-CP Telecommunications: A Critique", CRTC, 1977.

"Telecommunications Cost Inquiry: Critique", CRTC, 1977.

"Social Rate of Discount in the Public Sector", CRTC Policy Statement 1974.

"Technical Problems in Capital Projects Analysis", CRTC Policy Statement, 1974.

RESEARCH GRANTS

"Econometric Planning Model of the Cablevision Industry", International Institute of Quantitative Economics, CRTC

"Application of the Averch-Johnson Model to Telecommunications Utilities", Canadian Radio-Television Commission (CRTC)

"Economics of the Fiber Optics Industry", Quebec Dept. of Communications

"Intervention Analysis and the Dynamics of Market Efficiency", Georgia State Univ. College of Business, 1981

"Firm Size and Beta Stability", Georgia State University College of Business, 1982

"Risk Aversion and the Demand for Risky Assets", Georgia State University College of Business, 1981.

Chase Econometrics, Interactive Data Corp., Research Grant, \$50,000 per annum, 1986-1989.

UNIVERSITY SERVICE

- University Senate, elected departmental senator 1987-1989, 1998-2000
- Faculty Affairs Committee, elected departmental representative
- Professional Continuing Education Committee member
- Director Master in Science (Finance) Program
- Course Coordinator, Corporate Finance, MBA program
- Chairman, Corporate Finance Curriculum Committee, Finance Department
- Executive Education: Departmental Coordinator 2000
- University Senate Committee on Commencement
- University Senate Committee on Information Technology

**MOODY'S ELECTRIC UTILITIES
RISK PREMIUM ANALYSIS
1985-1999**

<u>MONTH</u>	<u>SPOT DIVIDEND YIELD</u>	<u>EXPECTED DIVIDEND YIELD</u>	<u>ANALYSTS' GROWTH ORECAST</u>	<u>COST OF EQUITY CAPITAL</u>	<u>YIELD ON LT TREAS BONDS</u>	<u>RISK PREMIUM</u>
<u>(1)</u>	<u>(2)</u>	<u>(3)</u>	<u>(4)</u>	<u>(5)</u>	<u>(6)</u>	<u>(7)</u>
Jan-85	10.49%	10.94%	4.25%	15.19%	11.45%	3.74%
Feb-85	10.44%	10.88%	4.17%	15.04%	11.47%	3.57%
Mar-85	10.14%	10.58%	4.33%	14.91%	11.81%	3.10%
Apr-85	9.92%	10.34%	4.25%	14.59%	11.47%	3.12%
May-85	9.64%	10.04%	4.13%	14.16%	11.05%	3.11%
Jun-85	9.33%	9.71%	4.04%	13.75%	10.45%	3.30%
Jul-85	9.93%	10.33%	4.00%	14.33%	10.50%	3.83%
Aug-85	9.68%	10.08%	4.08%	14.16%	10.56%	3.60%
Sep-85	10.40%	10.83%	4.17%	15.00%	10.61%	4.39%
Oct-85	9.86%	10.27%	4.21%	14.48%	10.50%	3.98%
Nov-85	9.62%	10.03%	4.29%	14.32%	10.06%	4.26%
Dec-85	9.17%	9.56%	4.29%	13.86%	9.54%	4.32%
Jan-86	9.03%	9.41%	4.21%	13.62%	9.40%	4.22%
Feb-86	8.29%	8.62%	4.00%	12.62%	8.93%	3.69%
Mar-86	8.07%	8.40%	4.08%	12.48%	7.96%	4.52%
Apr-86	8.65%	9.01%	4.13%	13.13%	7.39%	5.74%
May-86	8.48%	8.85%	4.30%	13.15%	7.52%	5.63%
Jun-86	8.14%	8.49%	4.30%	12.79%	7.57%	5.22%
Jul-86	7.61%	7.92%	4.08%	12.00%	7.27%	4.73%
Aug-86	7.11%	7.40%	4.08%	11.48%	7.33%	4.15%
Sep-86	7.97%	8.29%	4.00%	12.29%	7.62%	4.67%
Oct-86	7.61%	7.92%	4.08%	12.00%	7.70%	4.30%
Nov-86	7.59%	7.89%	3.96%	11.85%	7.52%	4.33%
Dec-86	7.89%	8.20%	3.92%	12.12%	7.37%	4.75%
Jan-87	7.39%	7.66%	3.67%	11.33%	7.39%	3.94%
Feb-87	7.68%	7.96%	3.67%	11.63%	7.54%	4.09%
Mar-87	8.01%	8.30%	3.58%	11.88%	7.55%	4.33%
Apr-87	8.52%	8.81%	3.46%	12.27%	8.25%	4.02%
May-87	8.84%	9.14%	3.38%	12.51%	8.78%	3.73%
Jun-87	8.63%	8.92%	3.38%	12.30%	8.57%	3.73%
Jul-87	8.91%	9.21%	3.38%	12.59%	8.64%	3.95%
Aug-87	8.64%	8.93%	3.38%	12.31%	8.97%	3.34%
Sep-87	8.91%	9.22%	3.46%	12.68%	9.59%	3.09%
Oct-87	9.29%	9.62%	3.54%	13.16%	9.61%	3.55%
Nov-87	9.49%	9.82%	3.50%	13.32%	8.95%	4.37%
Dec-87	9.68%	10.02%	3.54%	13.56%	9.12%	4.44%

**MOODY'S ELECTRIC UTILITIES
RISK PREMIUM ANALYSIS
1985-1999**

<u>MONTH</u>	<u>SPOT DIVIDEND YIELD</u>	<u>EXPECTED DIVIDEND YIELD</u>	<u>ANALYSTS' GROWTH ORECAST</u>	<u>COST OF EQUITY CAPITAL</u>	<u>YIELD ON LT TREAS BONDS</u>	<u>RISK PREMIUM</u>
<u>(1)</u>	<u>(2)</u>	<u>(3)</u>	<u>(4)</u>	<u>(5)</u>	<u>(6)</u>	<u>(7)</u>
Jan-88	8.92%	9.23%	3.46%	12.69%	8.83%	3.86%
Feb-88	9.14%	9.46%	3.46%	12.91%	8.43%	4.48%
Mar-88	9.40%	9.71%	3.25%	12.96%	8.63%	4.33%
Apr-88	9.80%	10.13%	3.38%	13.51%	8.95%	4.56%
May-88	9.42%	9.75%	3.54%	13.30%	9.23%	4.07%
Jun-88	9.32%	9.65%	3.54%	13.19%	9.00%	4.19%
Jul-88	9.00%	9.30%	3.38%	12.68%	9.14%	3.54%
Aug-88	9.03%	9.34%	3.42%	12.76%	9.32%	3.44%
Sep-88	8.79%	9.09%	3.38%	12.46%	9.06%	3.40%
Oct-88	8.58%	8.87%	3.38%	12.24%	8.89%	3.35%
Nov-88	8.72%	9.02%	3.42%	12.43%	9.02%	3.41%
Dec-88	8.63%	8.92%	3.38%	12.30%	9.01%	3.29%
Jan-89	8.49%	8.79%	3.50%	12.29%	8.93%	3.36%
Feb-89	8.80%	9.10%	3.38%	12.47%	9.01%	3.46%
Mar-89	8.90%	9.21%	3.46%	12.67%	9.17%	3.50%
Apr-89	8.59%	8.89%	3.46%	12.35%	9.03%	3.32%
May-89	8.21%	8.49%	3.46%	11.95%	8.83%	3.12%
Jun-89	7.95%	8.22%	3.46%	11.68%	8.27%	3.41%
Jul-89	7.55%	7.81%	3.42%	11.22%	8.08%	3.14%
Aug-89	7.70%	7.97%	3.46%	11.42%	8.12%	3.30%
Sep-89	7.70%	7.97%	3.50%	11.47%	8.15%	3.32%
Oct-89	7.60%	7.87%	3.50%	11.37%	8.00%	3.37%
Nov-89	7.42%	7.69%	3.58%	11.27%	7.90%	3.37%
Dec-89	7.22%	7.48%	3.58%	11.06%	7.90%	3.16%
Jan-90	7.69%	7.96%	3.50%	11.46%	8.26%	3.20%
Feb-90	7.73%	8.00%	3.50%	11.50%	8.50%	3.00%
Mar-90	7.90%	8.16%	3.29%	11.45%	8.56%	2.89%
Apr-90	8.08%	8.35%	3.29%	11.64%	8.76%	2.88%
May-90	7.79%	8.06%	3.42%	11.47%	8.73%	2.74%
Jun-90	7.75%	8.03%	3.63%	11.66%	8.46%	3.20%
Jul-90	7.69%	7.96%	3.50%	11.46%	8.50%	2.96%
Aug-90	8.31%	8.61%	3.58%	12.19%	8.86%	3.33%
Sep-90	8.35%	8.63%	3.33%	11.96%	9.03%	2.93%
Oct-90	7.61%	7.85%	3.21%	11.06%	8.86%	2.20%
Nov-90	7.49%	7.73%	3.25%	10.98%	8.54%	2.44%
Dec-90	7.44%	7.68%	3.25%	10.93%	8.24%	2.69%

**MOODY'S ELECTRIC UTILITIES
RISK PREMIUM ANALYSIS
1985-1999**

<u>MONTH</u>	<u>SPOT DIVIDEND YIELD</u>	<u>EXPECTED DIVIDEND YIELD</u>	<u>ANALYSTS' GROWTH ORECAST</u>	<u>COST OF EQUITY CAPITAL</u>	<u>YIELD ON LT TREAS BONDS</u>	<u>RISK PREMIUM</u>
<u>(1)</u>	<u>(2)</u>	<u>(3)</u>	<u>(4)</u>	<u>(5)</u>	<u>(6)</u>	<u>(7)</u>
Jan-91	7.60%	7.85%	3.29%	11.14%	8.27%	2.87%
Feb-91	7.36%	7.61%	3.38%	10.98%	8.03%	2.95%
Mar-91	7.23%	7.47%	3.33%	10.80%	8.29%	2.51%
Apr-91	7.30%	7.54%	3.33%	10.88%	8.21%	2.67%
May-91	7.40%	7.66%	3.46%	11.11%	8.27%	2.84%
Jun-91	7.51%	7.78%	3.63%	11.41%	8.47%	2.94%
Jul-91	7.20%	7.46%	3.58%	11.04%	8.45%	2.59%
Aug-91	7.00%	7.25%	3.58%	10.83%	8.14%	2.69%
Sep-91	6.74%	6.98%	3.50%	10.48%	7.95%	2.53%
Oct-91	6.70%	6.94%	3.54%	10.48%	7.93%	2.55%
Nov-91	6.53%	6.76%	3.54%	10.30%	7.92%	2.38%
Dec-91	6.26%	6.48%	3.58%	10.07%	7.70%	2.37%
Jan-92	6.71%	6.95%	3.63%	10.58%	7.58%	3.00%
Feb-92	6.88%	7.13%	3.58%	10.71%	7.85%	2.86%
Mar-92	6.95%	7.20%	3.63%	10.83%	7.97%	2.86%
Apr-92	6.76%	7.00%	3.58%	10.59%	7.96%	2.63%
May-92	6.71%	6.94%	3.50%	10.44%	7.89%	2.55%
Jun-92	6.83%	7.07%	3.54%	10.61%	7.84%	2.77%
Jul-92	6.50%	6.72%	3.42%	10.14%	7.60%	2.54%
Aug-92	6.66%	6.88%	3.33%	10.22%	7.39%	2.83%
Sep-92	6.30%	6.51%	3.33%	9.84%	7.34%	2.50%
Oct-92	6.38%	6.60%	3.50%	10.10%	7.53%	2.57%
Nov-92	6.37%	6.60%	3.63%	10.23%	7.61%	2.62%
Dec-92	6.25%	6.47%	3.54%	10.01%	7.44%	2.57%
Jan-93	6.17%	6.39%	3.58%	9.97%	7.34%	2.63%
Feb-93	5.86%	6.07%	3.50%	9.57%	7.09%	2.48%
Mar-93	5.88%	6.09%	3.54%	9.63%	6.82%	2.81%
Apr-93	5.97%	6.19%	3.67%	9.86%	6.85%	3.01%
May-93	6.02%	6.23%	3.50%	9.73%	6.92%	2.81%
Jun-93	5.95%	6.17%	3.63%	9.79%	6.81%	2.98%
Jul-93	5.80%	5.99%	3.33%	9.33%	6.63%	2.70%
Aug-93	5.67%	5.86%	3.33%	9.19%	6.32%	2.87%
Sep-93	5.78%	5.98%	3.38%	9.36%	6.00%	3.36%
Oct-93	5.87%	6.07%	3.38%	9.45%	5.94%	3.51%
Nov-93	6.27%	6.48%	3.42%	9.90%	6.21%	3.69%
Dec-93	6.16%	6.37%	3.42%	9.79%	6.25%	3.54%

**MOODY'S ELECTRIC UTILITIES
RISK PREMIUM ANALYSIS
1985-1999**

<u>MONTH</u>	<u>SPOT DIVIDEND YIELD</u>	<u>EXPECTED DIVIDEND YIELD</u>	<u>ANALYSTS' GROWTH ORECAST</u>	<u>COST OF EQUITY CAPITAL</u>	<u>YIELD ON LT TREAS BONDS</u>	<u>RISK PREMIUM</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Jan-94	6.27%	6.48%	3.33%	9.81%	6.29%	3.52%
Feb-94	6.71%	6.93%	3.30%	10.24%	6.49%	3.75%
Mar-94	7.04%	7.26%	3.17%	10.44%	6.91%	3.53%
Apr-94	7.02%	7.25%	3.22%	10.46%	7.27%	3.19%
May-94	7.54%	7.78%	3.17%	10.95%	7.41%	3.54%
Jun-94	7.94%	8.21%	3.42%	11.63%	7.40%	4.23%
Jul-94	7.54%	7.78%	3.13%	10.91%	7.58%	3.33%
Aug-94	7.49%	7.72%	3.04%	10.76%	7.49%	3.27%
Sep-94	7.83%	8.07%	3.04%	11.11%	7.71%	3.40%
Oct-94	7.93%	8.16%	2.92%	11.08%	7.94%	3.14%
Nov-94	7.90%	8.12%	2.83%	10.95%	8.08%	2.87%
Dec-94	7.80%	8.02%	2.83%	10.85%	7.87%	2.98%
Jan-95	7.26%	7.47%	2.88%	10.35%	7.85%	2.50%
Feb-95	7.30%	7.51%	2.83%	10.34%	7.61%	2.73%
Mar-95	7.52%	7.73%	2.83%	10.56%	7.45%	3.11%
Apr-95	7.33%	7.54%	2.88%	10.42%	7.36%	3.06%
May-95	6.88%	7.08%	2.96%	10.04%	6.95%	3.09%
Jun-95	6.95%	7.15%	2.88%	10.03%	6.57%	3.46%
Jul-95	6.92%	7.12%	2.88%	10.00%	6.72%	3.28%
Aug-95	6.93%	7.13%	2.92%	10.05%	6.86%	3.19%
Sep-95	6.55%	6.74%	2.88%	9.61%	6.55%	3.06%
Oct-95	6.57%	6.76%	2.92%	9.68%	6.37%	3.31%
Nov-95	6.64%	6.83%	2.79%	9.62%	6.26%	3.36%
Dec-95	6.34%	6.51%	2.75%	9.26%	6.06%	3.20%
Jan-96	6.21%	6.39%	2.96%	9.35%	6.05%	3.30%
Feb-96	6.49%	6.67%	2.83%	9.50%	6.24%	3.26%
Mar-96	6.74%	6.93%	2.88%	9.81%	6.60%	3.21%
Apr-96	7.12%	7.32%	2.75%	10.07%	6.79%	3.28%
May-96	6.81%	7.00%	2.83%	9.83%	6.93%	2.90%
Jun-96	6.75%	6.93%	2.67%	9.60%	7.06%	2.54%
Jul-96	7.33%	7.53%	2.67%	10.20%	7.03%	3.17%
Aug-96	7.15%	7.34%	2.67%	10.01%	6.84%	3.17%
Sep-96	7.11%	7.31%	2.79%	10.10%	7.03%	3.07%
Oct-96	6.81%	7.00%	2.83%	9.83%	6.81%	3.02%
Nov-96	6.56%	6.75%	2.92%	9.67%	6.48%	3.19%
Dec-96	6.67%	6.86%	2.91%	9.77%	6.55%	3.22%

**MOODY'S ELECTRIC UTILITIES
RISK PREMIUM ANALYSIS
1985-1999**

MONTH	SPOT DIVIDEND YIELD	EXPECTED DIVIDEND YIELD	ANALYSTS' GROWTH ORECAST	COST OF EQUITY CAPITAL	YIELD ON LT TREAS BONDS	RISK PREMIUM
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Jan-97	6.70%	6.93%	3.36%	10.29%	6.83%	3.46%
Feb-97	6.73%	6.96%	3.38%	10.34%	6.69%	3.65%
Mar-97	6.93%	7.15%	3.19%	10.34%	6.93%	3.41%
Apr-97	7.16%	7.40%	3.29%	10.68%	7.09%	3.59%
May-97	6.99%	7.22%	3.28%	10.50%	6.94%	3.56%
Jun-97	6.76%	6.98%	3.26%	10.24%	6.77%	3.47%
Jul-97	6.62%	6.84%	3.39%	10.23%	6.51%	3.72%
Aug-97	6.87%	7.11%	3.48%	10.59%	6.58%	4.01%
Sep-97	6.64%	6.87%	3.45%	10.31%	6.50%	3.81%
Oct-97	6.53%	6.75%	3.42%	10.18%	6.33%	3.85%
Nov-97	6.21%	6.42%	3.43%	9.85%	6.11%	3.74%
Dec-97	5.92%	6.12%	3.36%	9.47%	5.99%	3.48%
Jan-98	6.10%	6.31%	3.40%	9.70%	5.81%	3.89%
Feb-98	5.17%	5.35%	3.45%	8.80%	5.89%	2.91%
Mar-98	4.75%	4.92%	3.53%	8.45%	5.95%	2.50%
Apr-98	5.00%	5.18%	3.57%	8.75%	5.92%	2.83%
May-98	4.95%	5.13%	3.59%	8.72%	5.93%	2.79%
Jun-98	4.81%	4.99%	3.80%	8.80%	5.70%	3.10%
Jul-98	5.07%	5.27%	3.91%	9.18%	5.68%	3.50%
Aug-98	4.74%	4.94%	4.16%	9.09%	5.54%	3.55%
Sep-98	4.57%	4.76%	4.19%	8.96%	5.20%	3.76%
Oct-98	4.60%	4.80%	4.26%	9.05%	5.01%	4.04%
Nov-98	4.51%	4.70%	4.28%	8.98%	5.25%	3.73%
Dec-98	4.40%	4.59%	4.41%	9.00%	5.06%	3.94%
Jan-99	4.66%	4.87%	4.44%	9.30%	5.16%	4.14%
Feb-99	5.03%	5.24%	4.27%	9.52%	5.37%	4.15%
Mar-99	5.24%	5.47%	4.33%	9.80%	5.58%	4.22%
Apr-99	4.89%	5.10%	4.37%	9.48%	5.55%	3.93%
May-99	4.54%	4.75%	4.59%	9.34%	5.81%	3.53%
Jun-99	4.70%	4.92%	4.60%	9.52%	6.04%	3.48%
Jul-99	4.83%	5.06%	4.69%	9.75%	5.98%	3.77%
Aug-99	4.97%	5.21%	4.86%	10.07%	6.07%	4.00%
					MEAN	3.40%

**MOODY'S ELECTRIC UTILITIES
RISK PREMIUM ANALYSIS
1985-1999**

<u>MONTH</u>	<u>SPOT DIVIDEND YIELD</u>	<u>EXPECTED DIVIDEND YIELD</u>	<u>ANALYSTS' GROWTH ORECAST</u>	<u>COST OF EQUITY CAPITAL</u>	<u>YIELD ON LT TREAS BONDS</u>	<u>RISK PREMIUM</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)

Source:

Column 1: Month

Column 2: Moody's Electric Utility Common Stocks Monthly

Dividend Yields from Moody's Public Utility Manual and News Reports

Column 3: Column (2) x (1 + g) where 'g' is the growth rate from Column (4)

Column 4: Avg. of IBES average long-term growth forecast for each company in th

Column 5: Annual DCF model; Column (3) + Column (4)

Column 6: U.S. 30-Year Treasury Bond Yield, Fed. Res. Board of Governors Rele

Column 7: Risk premium = Column 6 - Column 7

**MOODY'S ELECTRIC UTILITY COMMON STOCKS
OVER LONG-TERM TREASURY BONDS
ANNUAL LONG-TERM RISK PREMIUM ANALYSIS**

Year	Long-Term	20 year			Moody's				Stock	Equity	
	Government	Maturity	Gain/Loss	Interest	Bond	Utility	Capital	Yield	Total	Risk	
	Bond	Bond			Total	Stock	Gain/(Loss)		Return	Premium	
	Yield	Value			Return	Index	% Growth	Yield	Return	Premium	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1931	4.07%	1,000.00				43.23					
1932	3.15%	1,135.75	135.75	40.70	17.64%	39.42	2.63	-8.81%	6.08%	-2.73%	-20.37%
1933	3.36%	969.60	(30.40)	31.50	0.11%	28.73	1.95	-27.12%	4.95%	-22.17%	-22.28%
1934	2.93%	1,064.73	64.73	33.60	9.83%	21.06	1.60	-26.70%	5.57%	-21.13%	-30.96%
1935	2.76%	1,025.99	25.99	29.30	5.53%	36.06	1.32	71.23%	6.27%	77.49%	71.96%
1936	2.55%	1,032.74	32.74	27.60	6.03%	41.60	1.48	15.36%	4.10%	19.47%	13.43%
1937	2.73%	972.40	(27.60)	25.50	-0.21%	24.24	1.74	-41.73%	4.18%	-37.55%	-37.34%
1938	2.52%	1,032.83	32.83	27.30	6.01%	27.55	1.50	13.66%	6.19%	19.84%	13.83%
1939	2.26%	1,041.65	41.65	25.20	6.68%	28.85	1.48	4.72%	5.37%	10.09%	3.41%
1940	1.94%	1,052.84	52.84	22.60	7.54%	22.22	1.54	-22.98%	5.34%	-17.64%	-25.19%
1941	2.04%	983.64	(16.36)	19.40	0.30%	13.45	1.44	-39.47%	6.48%	-32.99%	-33.29%
1942	2.46%	933.97	(66.03)	20.40	-4.56%	14.29	1.26	6.25%	9.37%	15.61%	20.18%
1943	2.48%	996.86	(3.14)	24.60	2.15%	21.01	1.28	47.03%	8.96%	55.98%	53.84%
1944	2.46%	1,003.14	3.14	24.80	2.79%	21.09	1.31	0.38%	6.24%	6.62%	3.82%
1945	1.99%	1,077.23	77.23	24.60	10.18%	31.14	1.30	47.65%	6.16%	53.82%	43.63%
1946	2.12%	978.90	(21.10)	19.90	-0.12%	32.71	1.43	5.04%	4.59%	9.63%	9.75%
1947	2.43%	951.13	(48.87)	21.20	-2.77%	25.60	1.56	-21.74%	4.77%	-16.97%	-14.20%
1948	2.37%	1,009.51	9.51	24.30	3.38%	26.20	1.60	2.34%	6.25%	8.59%	5.21%
1949	2.09%	1,045.58	45.58	23.70	6.93%	30.57	1.66	16.68%	6.34%	23.02%	16.09%
1950	2.24%	975.93	(24.07)	20.90	-0.32%	30.81	1.76	0.79%	5.76%	6.54%	6.86%
1951	2.69%	930.75	(69.25)	22.40	-4.69%	33.85	1.88	9.87%	6.10%	15.97%	20.65%
1952	2.79%	984.75	(15.25)	26.90	1.17%	37.85	1.91	11.82%	5.64%	17.46%	16.29%
1953	2.74%	1,007.66	7.66	27.90	3.56%	39.61	2.01	4.65%	5.31%	9.96%	6.40%
1954	2.72%	1,003.07	3.07	27.40	3.05%	47.56	2.13	20.07%	5.38%	25.45%	22.40%
1955	2.95%	965.44	(34.56)	27.20	-0.74%	49.35	2.21	3.76%	4.65%	8.41%	9.15%
1956	3.45%	928.19	(71.81)	29.50	-4.23%	48.96	2.32	-0.79%	4.70%	3.91%	8.14%
1957	3.23%	1,032.23	32.23	34.50	6.67%	50.30	2.43	2.74%	4.96%	7.70%	1.03%
1958	3.82%	918.01	(81.99)	32.30	-4.97%	66.37	2.50	31.95%	4.97%	36.92%	41.89%
1959	4.47%	914.65	(85.35)	38.20	-4.71%	65.77	2.61	-0.90%	3.93%	3.03%	7.74%
1960	3.80%	1,093.27	93.27	44.70	13.80%	76.82	2.68	16.80%	4.07%	20.88%	7.08%
1961	4.15%	952.75	(47.25)	38.00	-0.92%	99.32	2.81	29.29%	3.66%	32.95%	33.87%
1962	3.95%	1,027.48	27.48	41.50	6.90%	96.49	2.97	-2.85%	2.99%	0.14%	-6.76%
1963	4.17%	970.35	(29.65)	39.50	0.99%	102.31	3.21	6.03%	3.33%	9.36%	8.37%
1964	4.23%	991.96	(8.04)	41.70	3.37%	115.54	3.43	12.93%	3.35%	16.28%	12.92%
1965	4.50%	964.64	(35.36)	42.30	0.69%	114.86	3.86	-0.59%	3.34%	2.75%	2.06%

**MOODY'S ELECTRIC UTILITY COMMON STOCKS
OVER LONG-TERM TREASURY BONDS
ANNUAL LONG-TERM RISK PREMIUM ANALYSIS**

Year	Long-Term	20 year			Moody's		Capital		Stock	Equity	
	Government	Maturity	Bond	Interest	Bond	Utility	Gain/(Loss)	Yield	Total	Risk	
	Bond	Bond	Gain/Loss		Total	Stock	% Growth		Return	Premium	
	Yield	Value	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1966	4.55%	993.48	(6.52)	45.00	3.85%	105.99	4.11	-7.72%	3.58%	-4.14%	-7.99%
1967	5.56%	879.01	(120.99)	45.50	-7.55%	98.19	4.34	-7.36%	4.09%	-3.26%	4.29%
1968	5.98%	951.38	(48.62)	55.60	0.70%	104.04	4.50	5.96%	4.58%	10.54%	9.84%
1969	6.87%	904.00	(96.00)	59.80	-3.62%	84.62	4.61	-18.67%	4.43%	-14.23%	-10.62%
1970	6.48%	1,043.38	43.38	68.70	11.21%	88.59	4.70	4.69%	5.55%	10.25%	-0.96%
1971	5.97%	1,059.09	59.09	64.80	12.39%	85.56	4.77	-3.42%	5.38%	1.96%	-10.42%
1972	5.99%	997.69	(2.31)	59.70	5.74%	83.61	4.87	-2.28%	5.69%	3.41%	-2.33%
1973	7.26%	867.09	(132.91)	59.90	-7.30%	60.87	5.01	-27.20%	5.99%	-21.21%	-13.90%
1974	7.60%	965.33	(34.67)	72.60	3.79%	41.17	4.83	-32.36%	7.93%	-24.43%	-28.22%
1975	8.05%	955.63	(44.37)	76.00	3.16%	55.66	4.97	35.20%	12.07%	47.27%	44.10%
1976	7.21%	1,088.25	88.25	80.50	16.87%	66.29	5.18	19.10%	9.31%	28.40%	11.53%
1977	8.03%	919.03	(80.97)	72.10	-0.89%	68.19	5.54	2.87%	8.36%	11.22%	12.11%
1978	8.98%	912.47	(87.53)	80.30	-0.72%	59.75	5.81	-12.38%	8.52%	-3.86%	-3.13%
1979	10.12%	902.99	(97.01)	89.80	-0.72%	56.41	6.22	-5.59%	10.41%	4.82%	5.54%
1980	11.99%	859.23	(140.77)	101.20	-3.96%	54.42	6.58	-3.53%	11.66%	8.14%	12.09%
1981	13.34%	906.45	(93.55)	119.90	2.63%	57.20	6.99	5.11%	12.84%	17.95%	15.32%
1982	10.95%	1,192.38	192.38	133.40	32.58%	70.26	7.43	22.83%	12.99%	35.82%	3.24%
1983	11.97%	923.12	(76.88)	109.50	3.26%	72.03	7.87	2.52%	11.20%	13.72%	10.46%
1984	11.70%	1,020.70	20.70	119.70	14.04%	80.16	8.26	11.29%	11.47%	22.75%	8.71%
1985	9.56%	1,189.27	189.27	117.00	30.63%	94.98	8.61	18.49%	10.74%	29.23%	-1.40%
1986	7.89%	1,166.63	166.63	95.60	26.22%	113.66	8.89	19.67%	9.36%	29.03%	2.80%
1987	9.20%	881.17	(118.83)	78.90	-3.99%	94.24	9.12	-17.09%	8.02%	-9.06%	-5.07%
1988	9.18%	1,001.82	1.82	92.00	9.38%	100.94	8.87	7.11%	9.41%	16.52%	7.14%
1989	8.16%	1,099.75	99.75	91.80	19.16%	122.52	8.82	21.38%	8.74%	30.12%	10.96%
1990	8.44%	973.17	(26.83)	81.60	5.48%	117.77	8.79	-3.88%	7.17%	3.30%	-2.18%
1991	7.30%	1,118.94	118.94	84.40	20.33%	144.02	8.95	22.29%	7.60%	29.89%	9.55%
1992	7.26%	1,004.19	4.19	73.00	7.72%	141.06	9.05	-2.06%	6.28%	4.23%	-3.49%
1993	6.54%	1,079.70	79.70	72.60	15.23%	146.70	8.99	4.00%	6.37%	10.37%	-4.86%
1994	7.99%	856.40	(143.60)	65.40	-7.82%	115.50	8.96	-21.27%	6.11%	-15.16%	-7.34%
1995	6.03%	1,225.98	225.98	79.90	30.59%	142.90	9.06	23.72%	7.84%	31.57%	0.98%
1996	6.73%	923.67	(76.33)	60.30	-1.60%	136.00	9.06	-4.83%	6.34%	1.51%	3.11%
1997	6.02%	1,081.92	81.92	67.30	14.92%	155.73	9.06	14.51%	6.66%	21.17%	6.25%
1998	5.42%	1,072.71	72.71	60.20	13.29%	181.44	8.01	16.51%	5.14%	21.65%	8.36%
1999	6.00%	932.97	(67.03)	54.20	-1.28%	170.00	8.01	-6.31%	4.41%	-1.89%	-0.61%

**MOODY'S ELECTRIC UTILITY COMMON STOCKS
OVER LONG-TERM TREASURY BONDS
ANNUAL LONG-TERM RISK PREMIUM ANALYSIS**

Year	Long-Term	20 year			Moody's				Stock	Equity	
	Government	Maturity	Bond	Utility	Bond	Electric	Capital	Yield	Total	Risk	
	Bond	Bond	Gain/Loss	Interest	Total	Stock	Gain/(Loss)		Return	Premium	
	Yield	Value			Return	Index	% Growth	Yield	Return	Premium	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Mean					5.31%				10.50%	5.20%	

Source Moody's Public Utility Manual 1999, December stock prices and dividends
Bond yields from Ibbotson Associates Table A-9 Long-Term Government Bonds Yields
December each year.

**MOODY'S NATURAL GAS DISTRIBUTION UTILITIES
MONTHLY RISK PREMIUM ANALYSIS
1984 to 1999**

MONTH	SPOT DIVID YIELD	EXPECT DIVID YIELD	ANALYSTS' GROWTH FORECASTS	COST OF EQUITY	YIELD ON U.S. 30 YR BONDS	RISK PREMIUM
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Jan-84	9.50%	10.25%	7.88%	18.12%	11.75%	6.37%
Feb-84	10.06%	10.81%	7.50%	18.31%	11.95%	6.36%
Mar-84	10.00%	10.75%	7.50%	18.25%	12.38%	5.87%
Apr-84	9.72%	10.46%	7.63%	18.09%	12.65%	5.44%
May-84	9.76%	10.50%	7.63%	18.13%	13.43%	4.70%
Jun-84	9.97%	10.71%	7.38%	18.08%	13.44%	4.64%
Jul-84	10.07%	10.85%	7.75%	18.60%	13.21%	5.39%
Aug-84	9.30%	10.04%	8.00%	18.04%	12.54%	5.50%
Sep-84	9.17%	9.90%	8.00%	17.90%	12.29%	5.61%
Oct-84	8.76%	9.46%	8.00%	17.46%	11.98%	5.48%
Nov-84	8.78%	9.53%	8.50%	18.03%	11.56%	6.47%
Dec-84	8.44%	9.16%	8.50%	17.66%	11.52%	6.14%
Jan-85	8.30%	9.01%	8.50%	17.51%	11.45%	6.06%
Feb-85	8.32%	9.00%	8.13%	17.12%	11.47%	5.65%
Mar-85	7.95%	8.57%	7.75%	16.32%	11.81%	4.51%
Apr-85	7.99%	8.61%	7.75%	16.36%	11.47%	4.89%
May-85	7.64%	8.20%	7.38%	15.58%	11.05%	4.53%
Jun-85	7.39%	7.93%	7.25%	15.18%	10.45%	4.73%
Jul-85	7.81%	8.43%	7.88%	16.30%	10.50%	5.80%
Aug-85	8.02%	8.63%	7.63%	16.26%	10.56%	5.70%
Sep-85	8.19%	8.82%	7.75%	16.57%	10.61%	5.96%
Oct-85	8.17%	8.81%	7.88%	16.69%	10.50%	6.19%
Nov-85	7.91%	8.53%	7.88%	16.41%	10.06%	6.35%
Dec-85	8.12%	8.76%	7.88%	16.63%	9.54%	7.09%
Jan-86	7.98%	8.54%	7.00%	15.54%	9.40%	6.14%
Feb-86	7.75%	8.27%	6.75%	15.02%	8.93%	6.09%
Mar-86	6.35%	6.75%	6.25%	13.00%	7.96%	5.04%
Apr-86	6.08%	6.45%	6.13%	12.58%	7.39%	5.19%
May-86	6.02%	6.39%	6.13%	12.51%	7.52%	4.99%
Jun-86	5.84%	6.22%	6.50%	12.72%	7.57%	5.15%
Jul-86	5.86%	6.20%	5.75%	11.95%	7.27%	4.68%
Aug-86	5.65%	5.97%	5.75%	11.72%	7.33%	4.39%
Sep-86	6.46%	6.80%	5.25%	12.05%	7.62%	4.43%
Oct-86	5.99%	6.30%	5.13%	11.42%	7.70%	3.72%
Nov-86	6.09%	6.42%	5.38%	11.79%	7.52%	4.27%

**MOODY'S NATURAL GAS DISTRIBUTION UTILITIES
MONTHLY RISK PREMIUM ANALYSIS
1984 to 1999**

MONTH	SPOT DIVID YIELD	EXPECT DIVID YIELD	ANALYSTS' GROWTH FORECASTS	COST OF EQUITY	YIELD ON U.S. 30 YR BONDS	RISK PREMIUM
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dec-86	6.28%	6.63%	5.50%	12.13%	7.37%	4.76%
Jan-87	5.97%	6.29%	5.38%	11.67%	7.39%	4.28%
Feb-87	6.04%	6.35%	5.13%	11.47%	7.54%	3.93%
Mar-87	6.05%	6.36%	5.13%	11.49%	7.55%	3.94%
Apr-87	6.63%	6.94%	4.63%	11.56%	8.25%	3.31%
May-87	6.90%	7.22%	4.63%	11.84%	8.78%	3.06%
Jun-87	6.47%	6.77%	4.63%	11.39%	8.57%	2.82%
Jul-87	6.71%	7.11%	6.00%	13.11%	8.64%	4.47%
Aug-87	6.48%	6.87%	6.00%	12.87%	8.97%	3.90%
Sep-87	6.80%	7.19%	5.67%	12.85%	9.59%	3.26%
Oct-87	7.49%	7.90%	5.50%	13.40%	9.61%	3.79%
Nov-87	7.60%	8.02%	5.50%	13.52%	8.95%	4.57%
Dec-87	7.79%	8.22%	5.50%	13.72%	9.12%	4.60%
Jan-88	7.15%	7.51%	5.00%	12.51%	8.83%	3.68%
Feb-88	7.02%	7.39%	5.33%	12.73%	8.43%	4.30%
Mar-88	7.28%	7.67%	5.33%	13.00%	8.63%	4.37%
Apr-88	7.23%	7.62%	5.33%	12.95%	8.95%	4.00%
May-88	7.14%	7.56%	5.83%	13.39%	9.23%	4.16%
Jun-88	6.84%	7.24%	5.86%	13.10%	9.00%	4.10%
Jul-88	6.88%	7.27%	5.71%	12.99%	9.14%	3.85%
Aug-88	7.30%	7.74%	6.00%	13.74%	9.32%	4.42%
Sep-88	6.99%	7.43%	6.29%	13.72%	9.06%	4.66%
Oct-88	7.09%	7.52%	6.13%	13.65%	8.89%	4.76%
Nov-88	7.07%	7.50%	6.13%	13.63%	9.02%	4.61%
Dec-88	7.22%	7.66%	6.13%	13.79%	9.01%	4.78%
Jan-89	7.12%	7.56%	6.13%	13.68%	8.93%	4.75%
Feb-89	7.31%	7.76%	6.13%	13.88%	9.01%	4.87%
Mar-89	7.09%	7.51%	5.88%	13.38%	9.17%	4.21%
Apr-89	6.74%	7.14%	5.88%	13.01%	9.03%	3.98%
May-89	6.65%	7.00%	5.29%	12.29%	8.83%	3.46%
Jun-89	6.44%	6.78%	5.29%	12.07%	8.27%	3.80%
Jul-89	6.19%	6.46%	4.43%	10.89%	8.08%	2.81%
Aug-89	6.17%	6.47%	4.86%	11.33%	8.12%	3.21%
Sep-89	6.07%	6.36%	4.86%	11.22%	8.15%	3.07%
Oct-89	6.10%	6.41%	5.14%	11.56%	8.00%	3.56%

**MOODY'S NATURAL GAS DISTRIBUTION UTILITIES
MONTHLY RISK PREMIUM ANALYSIS
1984 to 1999**

MONTH	SPOT DIVID YIELD	EXPECT DIVID YIELD	ANALYSTS' GROWTH FORECASTS	COST OF EQUITY	YIELD ON U.S. 30 YR BONDS	RISK PREMIUM
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Nov-89	5.85%	6.14%	4.88%	11.01%	7.90%	3.11%
Dec-89	5.63%	5.92%	5.13%	11.04%	7.90%	3.14%
Jan-90	6.06%	6.37%	5.13%	11.50%	8.26%	3.24%
Feb-90	6.11%	6.43%	5.29%	11.72%	8.50%	3.22%
Mar-90	6.21%	6.54%	5.29%	11.82%	8.56%	3.26%
Apr-90	6.41%	6.79%	5.86%	12.64%	8.76%	3.88%
May-90	6.29%	6.62%	5.29%	11.91%	8.73%	3.18%
Jun-90	6.24%	6.57%	5.29%	11.86%	8.46%	3.40%
Jul-90	6.49%	6.84%	5.43%	12.27%	8.50%	3.77%
Aug-90	6.66%	7.01%	5.29%	12.30%	8.86%	3.44%
Sep-90	6.36%	6.73%	5.75%	12.48%	9.03%	3.45%
Oct-90	6.23%	6.59%	5.75%	12.34%	8.86%	3.48%
Nov-90	6.22%	6.58%	5.71%	12.29%	8.54%	3.75%
Dec-90	6.28%	6.58%	4.83%	11.42%	8.24%	3.18%
Jan-91	6.40%	6.72%	5.00%	11.72%	8.27%	3.45%
Feb-91	6.37%	6.69%	5.00%	11.69%	8.03%	3.66%
Mar-91	6.30%	6.62%	5.00%	11.62%	8.29%	3.33%
Apr-91	6.19%	6.51%	5.17%	11.68%	8.21%	3.47%
May-91	6.04%	6.36%	5.33%	11.70%	8.27%	3.43%
Jun-91	6.25%	6.56%	5.00%	11.56%	8.47%	3.09%
Jul-91	5.97%	6.27%	5.00%	11.27%	8.45%	2.82%
Aug-91	5.92%	6.22%	5.00%	11.22%	8.14%	3.08%
Sep-91	5.70%	5.99%	5.00%	10.99%	7.95%	3.04%
Oct-91	5.63%	5.92%	5.17%	11.09%	7.93%	3.16%
Nov-91	5.58%	5.87%	5.17%	11.04%	7.92%	3.12%
Dec-91	5.62%	5.91%	5.17%	11.08%	7.70%	3.38%
Jan-92	5.60%	5.89%	5.17%	11.06%	7.58%	3.48%
Feb-92	5.71%	6.00%	5.00%	11.00%	7.85%	3.15%
Mar-92	5.93%	6.23%	5.00%	11.23%	7.97%	3.26%
Apr-92	5.93%	6.23%	5.00%	11.23%	7.96%	3.27%
May-92	5.66%	5.94%	5.00%	10.94%	7.89%	3.05%
Jun-92	5.48%	5.75%	5.00%	10.75%	7.84%	2.91%
Jul-92	5.17%	5.44%	5.17%	10.61%	7.60%	3.01%
Aug-92	5.10%	5.36%	5.17%	10.53%	7.39%	3.14%
Sep-92	5.02%	5.28%	5.17%	10.45%	7.34%	3.11%

**MOODY'S NATURAL GAS DISTRIBUTION UTILITIES
MONTHLY RISK PREMIUM ANALYSIS
1984 to 1999**

<u>MONTH</u>	<u>SPOT DIVID YIELD</u>	<u>EXPECT DMD YIELD</u>	<u>ANALYSTS' GROWTH FORECASTS</u>	<u>COST OF EQUITY</u>	<u>YIELD ON U.S. 30 YR BONDS</u>	<u>RISK PREMIUM</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Oct-92	5.19%	5.46%	5.17%	10.63%	7.53%	3.10%
Nov-92	5.23%	5.52%	5.50%	11.02%	7.61%	3.41%
Dec-92	5.14%	5.42%	5.50%	10.92%	7.44%	3.48%
Jan-93	5.05%	5.34%	5.83%	11.17%	7.34%	3.83%
Feb-93	4.78%	5.05%	5.67%	10.72%	7.09%	3.63%
Mar-93	4.64%	4.91%	5.83%	10.74%	6.82%	3.92%
Apr-93	4.83%	5.11%	5.83%	10.94%	6.85%	4.09%
May-93	4.80%	5.07%	5.67%	10.74%	6.92%	3.82%
Jun-93	4.66%	4.92%	5.67%	10.59%	6.81%	3.78%
Jul-93	4.52%	4.77%	5.50%	10.27%	6.63%	3.64%
Aug-93	4.54%	4.79%	5.50%	10.29%	6.32%	3.97%
Sep-93	4.62%	4.87%	5.50%	10.37%	6.00%	4.37%
Oct-93	4.64%	4.89%	5.33%	10.22%	5.94%	4.28%
Nov-93	4.85%	5.11%	5.33%	10.44%	6.21%	4.23%
Dec-93	4.74%	4.95%	4.50%	9.45%	6.25%	3.20%
Jan-94	4.74%	4.95%	4.50%	9.45%	6.29%	3.16%
Feb-94	4.97%	5.19%	4.50%	9.69%	6.49%	3.20%
Mar-94	5.03%	5.26%	4.67%	9.93%	6.91%	3.02%
Apr-94	5.14%	5.37%	4.50%	9.87%	7.27%	2.60%
May-94	5.36%	5.63%	5.00%	10.63%	7.41%	3.22%
Jun-94	5.50%	5.78%	5.00%	10.78%	7.40%	3.38%
Jul-94	5.42%	5.68%	4.83%	10.51%	7.58%	2.93%
Aug-94	5.50%	5.75%	4.50%	10.25%	7.49%	2.76%
Sep-94	5.61%	5.86%	4.50%	10.36%	7.71%	2.65%
Oct-94	5.48%	5.73%	4.50%	10.23%	7.94%	2.29%
Nov-94	5.64%	5.89%	4.50%	10.39%	8.08%	2.31%
Dec-94	5.86%	6.12%	4.50%	10.62%	7.87%	2.75%
Jan-95	5.75%	5.99%	4.17%	10.16%	7.85%	2.31%
Feb-95	5.59%	5.82%	4.17%	9.99%	7.61%	2.38%
Mar-95	5.53%	5.76%	4.17%	9.93%	7.45%	2.48%
Apr-95	5.45%	5.68%	4.17%	9.85%	7.36%	2.49%
May-95	5.61%	5.84%	4.17%	10.01%	6.95%	3.06%
Jun-95	5.43%	5.66%	4.17%	9.83%	6.57%	3.26%
Jul-95	5.53%	5.75%	4.00%	9.75%	6.72%	3.03%
Aug-95	5.41%	5.63%	4.13%	9.76%	6.86%	2.90%

**MOODY'S NATURAL GAS DISTRIBUTION UTILITIES
MONTHLY RISK PREMIUM ANALYSIS
1984 to 1999**

MONTH	SPOT DVID YIELD	EXPECT DVID YIELD	ANALYSTS' GROWTH FORECASTS	COST OF EQUITY	YIELD ON U.S. 30 YR BONDS	RISK PREMIUM
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sep-95	5.28%	5.50%	4.25%	9.75%	6.55%	3.20%
Oct-95	5.22%	5.44%	4.25%	9.69%	6.37%	3.32%
Nov-95	4.96%	5.17%	4.25%	9.42%	6.26%	3.16%
Dec-95	4.85%	5.06%	4.25%	9.31%	6.06%	3.25%
Jan-96	4.83%	5.04%	4.38%	9.42%	6.05%	3.37%
Feb-96	4.86%	5.07%	4.38%	9.45%	6.24%	3.21%
Mar-96	4.96%	5.18%	4.38%	9.56%	6.60%	2.96%
Apr-96	5.03%	5.26%	4.50%	9.76%	6.79%	2.97%
May-96	5.85%	6.11%	4.50%	10.61%	6.93%	3.68%
Jun-96	5.54%	5.79%	4.50%	10.29%	7.06%	3.23%
Jul-96	5.85%	6.11%	4.50%	10.61%	7.03%	3.58%
Aug-96	4.78%	5.00%	4.50%	9.50%	6.84%	2.66%
Sep-96	5.12%	5.35%	4.50%	9.85%	7.03%	2.82%
Oct-96	4.84%	5.05%	4.39%	9.44%	6.81%	2.63%
Nov-96	4.64%	4.84%	4.39%	9.23%	6.48%	2.75%
Dec-96	4.75%	4.96%	4.39%	9.35%	6.55%	2.80%
Jan-97	4.88%	5.09%	4.39%	9.48%	6.83%	2.65%
Feb-97	4.97%	5.16%	3.79%	8.95%	6.69%	2.26%
Mar-97	5.00%	5.19%	3.79%	8.98%	6.93%	2.05%
Apr-97	5.19%	5.39%	3.79%	9.18%	7.09%	2.09%
May-97	5.00%	5.20%	4.09%	9.29%	6.94%	2.35%
Jun-97	4.82%	5.01%	4.04%	9.05%	6.77%	2.28%
Jul-97	4.76%	4.95%	4.04%	8.99%	6.51%	2.48%
Aug-97	4.76%	4.95%	4.04%	8.99%	6.58%	2.41%
Sep-97	4.60%	4.81%	4.52%	9.33%	6.50%	2.83%
Oct-97	4.75%	4.97%	4.63%	9.60%	6.33%	3.27%
Nov-97	4.52%	4.74%	4.87%	9.61%	6.11%	3.50%
Dec-97	4.20%	4.41%	5.09%	9.50%	5.99%	3.51%
Jan-98	4.42%	4.65%	5.10%	9.75%	5.81%	3.94%
Feb-98	4.38%	4.60%	4.96%	9.56%	5.89%	3.67%
Mar-98	4.37%	4.60%	5.25%	9.85%	5.95%	3.90%
Apr-98	4.50%	4.73%	5.13%	9.86%	5.92%	3.94%
May-98	4.48%	4.70%	4.96%	9.66%	5.93%	3.73%
Jun-98	4.61%	4.84%	4.91%	9.75%	5.70%	4.05%
Jul-98	4.96%	5.20%	4.92%	10.12%	5.68%	4.44%

**MOODY'S NATURAL GAS DISTRIBUTION UTILITIES
MONTHLY RISK PREMIUM ANALYSIS
1984 to 1999**

MONTH	SPOT DIVID YIELD	EXPECT DIVID YIELD	ANALYSTS' GROWTH FORECASTS	COST OF EQUITY	YIELD ON U.S. 30 YR BONDS	RISK PREMIUM
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Aug-98	4.96%	5.20%	4.93%	10.13%	5.54%	4.59%
Sep-98	4.69%	4.92%	4.94%	9.86%	5.20%	4.66%
Oct-98	4.45%	4.66%	4.72%	9.38%	5.01%	4.37%
Nov-98	4.57%	4.78%	4.62%	9.40%	5.25%	4.15%
Dec-98	4.56%	4.77%	4.56%	9.33%	5.06%	4.27%
Jan-99	5.01%	5.24%	4.54%	9.78%	5.16%	4.62%
Feb-99	5.46%	5.70%	4.31%	10.01%	5.37%	4.64%
Mar-99	5.74%	6.01%	4.75%	10.76%	5.58%	5.18%
Apr-99	5.46%	5.72%	4.75%	10.47%	5.55%	4.92%
May-99	5.27%	5.52%	4.75%	10.27%	5.81%	4.46%
Jun-99	5.20%	5.44%	4.52%	9.96%	6.04%	3.92%
Jul-99	5.11%	5.34%	4.55%	9.89%	5.98%	3.91%
Aug-99	4.24%	4.43%	4.56%	8.99%	6.07%	2.92%
MEAN =						3.85%

Source:

Column 1: Month

Column 2: Moody's Natural Gas Utility Common Stocks Monthly

Dividend Yields from Moody's Public Utility Manual and News Reports

Column 3: Col. (2) x (1 + g) where 'g' is the growth rate from Col. (4)

Column 4: Avg. of IBES average long-term growth forecast for each company in the

Column 5: Column 3 + Column 4

Column 6: U.S. 30-Year Treasury Bond Yield, Fed. Res. Board of Governors Releas

Column 7: Risk premium = Column 6 - Column 7

MOODY'S NATURAL GAS DISTRIBUTION COMMON STOCKS
OVER LONG-TERM TREASURY BONDS
ANNUAL LONG-TERM RISK PREMIUM ANALYSIS

Year	Long-Term	20 year	Moody's					Capital		Stock	Equity
	Government	Maturity	Bond	Interest	Bond	Natural Gas	Gain/Loss	Yield	Total	Risk	
	Bond	Bond	Gain/Loss	Return	Total	Distribution	% Growth	Yield	Return	Premium	
	Yield	Value	(3)	(4)	(5)	Stock	(8)	(9)	(10)	(11)	
	(1)	(2)				Index	Dividend				
1954	2.72%	1,000.00				28.47					
1955	2.85%	965.44	(34.56)	27.20	-0.74%	28.10	1.38	6.16%	5.21%	11.37%	12.11%
1956	3.45%	928.19	(71.81)	29.50	-4.23%	28.23	1.48	0.46%	5.27%	5.73%	9.98%
1957	3.23%	1,032.23	32.23	34.50	6.67%	25.78	1.49	-8.68%	5.28%	-3.40%	-10.07%
1958	3.82%	918.01	(81.89)	32.30	-4.97%	38.71	1.57	50.16%	6.09%	56.25%	81.21%
1959	4.47%	914.85	(85.35)	38.20	-4.71%	39.59	1.88	2.27%	4.29%	6.56%	11.28%
1960	3.80%	1,083.27	83.27	44.70	13.80%	48.21	1.84	21.77%	4.65%	26.42%	12.62%
1961	4.15%	952.75	(47.25)	38.00	-0.92%	64.96	1.94	34.74%	4.02%	38.77%	39.69%
1962	3.95%	1,027.48	27.48	41.50	6.90%	59.73	2.02	-8.05%	3.11%	-4.94%	-11.84%
1963	4.17%	970.35	(29.65)	38.50	0.99%	64.62	2.18	8.19%	3.65%	11.84%	10.85%
1964	4.23%	991.96	(8.04)	41.70	3.37%	68.24	2.30	5.60%	3.56%	9.16%	5.80%
1965	4.50%	964.84	(35.36)	42.30	0.69%	64.31	2.48	-5.76%	3.63%	-2.12%	-2.82%
1966	4.55%	993.48	(6.52)	45.00	3.85%	53.50	2.61	-16.81%	4.06%	-12.75%	-16.60%
1967	5.56%	879.01	(120.99)	45.50	-7.55%	50.49	2.74	-5.63%	5.12%	-0.50%	7.04%
1968	5.96%	951.38	(48.82)	55.60	0.70%	53.80	2.81	6.56%	5.57%	12.12%	11.42%
1969	6.87%	904.00	(96.00)	58.80	-3.62%	43.88	2.93	-18.44%	5.45%	-12.99%	-9.37%
1970	8.48%	1,043.38	43.38	68.70	11.21%	52.33	3.01	19.26%	6.86%	26.12%	14.91%
1971	5.97%	1,059.09	59.09	64.80	12.39%	47.86	3.07	-8.54%	5.87%	-2.68%	-15.06%
1972	5.99%	997.89	(2.31)	59.70	5.74%	53.54	3.12	11.87%	6.52%	18.39%	12.65%
1973	7.26%	867.09	(132.91)	59.90	-7.30%	43.43	3.28	-18.88%	6.13%	-12.76%	-5.46%
1974	7.60%	965.33	(34.87)	72.60	3.79%	29.71	3.34	-31.59%	7.69%	-23.90%	-27.89%
1975	8.05%	955.63	(44.37)	78.00	3.16%	38.29	3.48	28.88%	11.71%	40.59%	37.43%
1976	7.21%	1,088.25	68.25	80.50	16.87%	51.80	3.70	35.28%	9.66%	44.95%	28.07%
1977	8.03%	919.03	(80.97)	72.10	-0.89%	50.88	3.93	-1.78%	7.59%	5.81%	6.70%
1978	8.98%	912.47	(87.53)	80.30	-0.72%	45.97	4.18	-9.65%	8.22%	-1.43%	-0.71%
1979	10.12%	902.89	(97.01)	89.80	-0.72%	53.50	4.44	16.38%	9.86%	26.04%	26.76%
1980	11.99%	859.23	(140.77)	101.20	-3.96%	56.61	4.68	5.81%	8.75%	14.56%	18.52%
1981	13.34%	906.45	(93.55)	119.90	2.63%	53.50	5.12	-5.49%	9.04%	3.55%	0.92%
1982	10.95%	1,192.38	192.38	133.40	32.58%	50.62	5.39	-5.38%	10.07%	4.69%	-27.89%
1983	11.97%	923.12	(78.88)	109.50	3.26%	55.79	5.55	10.21%	10.96%	21.18%	17.92%
1984	11.70%	1,020.70	20.70	118.70	14.04%	69.70	5.88	24.93%	10.54%	35.47%	21.43%
1985	9.56%	1,189.27	189.27	117.00	30.63%	76.58	6.22	9.87%	8.92%	18.79%	-11.83%
1986	7.89%	1,186.63	186.63	95.80	26.22%	90.89	5.71	18.69%	7.46%	28.14%	-0.08%
1987	9.20%	881.17	(118.83)	78.90	-3.99%	77.25	6.02	-15.01%	6.62%	-8.38%	-4.39%
1988	9.18%	1,001.82	1.82	92.00	9.38%	86.78	6.30	12.31%	8.16%	20.47%	11.06%
1989	8.16%	1,099.75	99.75	91.80	19.16%	117.05	6.58	34.91%	7.58%	42.50%	23.34%
1990	8.44%	973.17	(26.83)	81.80	5.48%	108.86	6.84	-7.00%	5.84%	-1.15%	-6.63%
1991	7.30%	1,118.94	118.94	84.40	20.33%	124.32	6.99	14.20%	6.42%	20.62%	0.29%
1992	7.26%	1,004.19	4.19	73.00	7.72%	138.79	7.14	11.64%	5.74%	17.38%	9.66%
1993	6.54%	1,079.70	79.70	72.60	15.23%	154.06	7.30	11.00%	5.26%	16.26%	1.03%
1994	7.99%	856.40	(143.60)	65.40	-7.82%	126.96	7.44	-17.58%	4.83%	-12.76%	-4.94%
1995	6.03%	1,225.98	225.98	79.90	30.59%	155.94	7.56	22.83%	5.95%	28.78%	-1.81%
1996	6.73%	923.67	(76.33)	60.30	-1.60%	166.64	7.91	6.86%	5.07%	11.93%	13.54%
1997	6.02%	1,081.82	81.82	67.30	14.92%	191.04	8.02	14.64%	4.81%	19.46%	4.53%
1998	5.42%	1,072.71	72.71	60.20	13.29%	177.24	8.13	-7.22%	4.26%	-2.97%	-16.26%
1999	6.00%	932.97	(87.03)	54.20	-1.28%	160.00	8.18	-9.73%	4.60%	-5.12%	-3.84%
MEAN				6.23%					11.97%	5.63%	

Source: Moody's Public Utility Manual 1999 December stock prices and dividends
Bond yields from Ibbotson Associates Table A-9 Long-Term Government Bonds Yields
December each year.

**GENERATION DIVESTITURE ELECTRIC UTILITIES
DCF ANALYSIS**

Company	% Current Divid Yield (1)	Analysts' Gth Fcst (2)	% Expected Divid Yield (3)	Cost of Equity (4)	ROE (5)
1 CMP Group	3,1	9,0	3,4	12,4	12,6
2 Conectiv	5,0	5,1	5,3	10,4	10,7
3 Consol. Edison	7,3	3,3	7,6	10,9	11,3
4 DQE	3,7	6,0	3,9	9,9	10,1
5 Edison Int'l	6,7	8,9	7,3	16,2	16,6
6 Energy East Corp.	4,4	7,9	4,7	12,6	12,9
7 GPU Inc.	7,8	3,3	8,0	11,3	11,7
8 NSTAR	4,8	4,8	5,1	9,9	10,1
9 PG&E Corp.	5,5	6,6	5,9	12,5	12,8
10 Potomac Elec. Power	7,5	4,0	7,8	11,8	12,2
11 Sempra Energy	5,9	6,2	6,2	12,4	12,8
12 Sierra Pacific Res.	7,9	5,0	8,3	13,3	13,7
13 United Illuminating	7,3	4,0	7,6	11,6	12,0
AVERAGE	5,9	5,7	6,2	11,9	12,3

Notes:

Column 1: Value Line Investment Survey for Windows 95, 4/2000

Column 2: Zacks Investment Research long-term earnings growth forecast;

shaded cell: Zacks growth unavailable, Value Line projected earnings growth

Column 3 = Column 1 times (1 + Column 2/100)

Column 4 = Column 3 + Column 2

Column 5 = (Column 3 / 0.95) + Column 2

**Capital Structures adopted by Regulatory Boards
Canadian Energy Utilities**

	Year of Award	Common Equity Ratio
Electric		
ATCO Electric (Alberta Power)	1998	33.3%
Newfoundland Power	1999	45.0%
Nova Scotia Power	1999	35.0%
TransAlta Utilities (generation)	1999	40.0%
TransAlta Utilities (transmission)	1999	35.0%
TransAlta Utilities (distribution)	1999	54.5%
West Kootenay Power	1997	40.0%
Ontario Hydro Service Co.	1999	36.0%
EPCOR Transmission Inc.	1999	35.0%
EPCOR Generation Inc.	1999	44.0%
Average		39.8%
Gas Distribution		
BC Gas	1997	41.3%
Canadian Western Natural Gas	1998	33.8%
Centra Gas (Manitoba)	1998	40.0%
Centra Gas (Ontario)	1997	36.0%
Centra Gas (BC)	1999	35.0%
Endbridge Consumer Gas	1999	35.0%
Gazifère	1999	39.9%
Gaz Métropolitain	1998	38.5%
NorthWestern Utilities	1998	34.5%
Pacific Northern Gas	1999	36.0%
Union Gas	1999	35.0%
Average		36.8%
Gas Pipelines		
Alberta Natural Gas	1996	30.0%
Foothills Pipelines	1996	25.3%
NOVA Corp. of Alberta	1996	32.7%
TransCanada Pipelines	1997	30.0%
TransQuébec & Maritimes	1999	30.0%
WestCoast Energy	1999	35.0%
Average		30.5%
Grand Average		36.5%

Source: Board Decisions

**Actual Common Equity Ratios
Canadian Energy Utilities**

	Common Equity Ratio 1998	Common Equity Ratio 1999
Electric		
Canadian utilities	34%	35%
EPCOR (City of Edmonton)	44%	42%
Maritime Electric (Note 1)		
Newfoundland Power (Note 2)	43%	
Nova Scotia Power	36%	37%
TransAlta Utilities	48%	41%
West Kootenay Power	39%	
Fortis	39%	
Gas Distribution		
BC Gas	29%	31%
Centra Gas (Manitoba) (Note 3)		
Centra Gas (Ontario) (Note 4)		
Centra Gas (BC) (Note 5)		
Enbridge	25%	27%
Endbridge Consumer Gas (Note 6)		
Gaz Métropolitain	41%	42%
Pacific Northern Gas	33%	33%
Union Gas	36%	
Gas Pipelines		
TransCanada Pipelines	25%	24%
TransQuébec & Maritimes	31%	
WestCoast Energy	26%	
AVERAGE	35%	35%

Note 1: Consolidated with Fortis

Note 2: Consolidated with Fortis in 1999

Note 3: Consolidated with Manitoba Hydro

Note 4: Consolidated with Union Gas

Note 5: Consolidated with WestCoast Energy

Note 6: Consolidated with Enbridge

**Canadian Electric Utilities
% Equity In the Capital Structure**

	1992	1993	1994	1995	1996	1998
Publicly-Owned						
B.C. Hydro	14.2%	12.9%	12.5%	13.0%	13.9%	14.8%
Edmonton Hydro	27.6%	25.4%	28.5%	32.5%	36.2%	42.7%
Saskatchewan Power	31.4%	31.1%	32.2%	32.8%	35.7%	41.1%
Manitoba Hydro	3.1%	4.1%	5.3%	6.4%	7.8%	11.0%
Ontario Hydro	16.3%	8.6%	10.1%	12.1%	7.4%	
Hydro-Québec	23.7%	23.9%	23.5%	23.4%	24.4%	24.8%
New Brunswick Power	11.7%	11.6%	12.0%	12.0%	11.7%	
Nfld. & Labrador	28.8%	30.3%	29.6%	29.7%	30.5%	34.7%
Churchill Falls	41.3%	42.9%	44.5%	41.9%	43.6%	46.0%
Average	22.0%	21.2%	22.0%	22.6%	23.5%	30.7%
Average w/o Ontario Hydro	22.7%	22.8%	23.5%	24.0%	25.5%	
Investor-Owned						
West Kootenay	50.9%	48.4%	41.6%	43.0%	41.1%	38.7%
Canadian Utilities	37.5%	37.3%	33.2%	36.2%	39.2%	44.8%
TransAlta	55.3%	49.7%	50.0%	47.1%	52.1%	51.9%
Great Lakes Power	58.9%	37.5%	38.4%	38.5%	67.6%	65.4%
Maritime Electric						
Nfld. Light & Power						
Nova Scotia Power	31.8%	30.5%	30.8%	31.3%	31.0%	31.8%
Average	46.9%	40.7%	38.8%	39.2%	46.2%	46.5%
Industry Average	30.9%	28.2%	28.0%	28.6%	31.6%	37.3%
Ind.ave. w/o Ontario Hydro	32.0%	29.7%	29.4%	29.8%	33.4%	

Source : DBRS; The Canadian Electric Utility Industry; January 2000.

**U.S. NATURAL GAS DISTRIBUTORS
RISK STATISTICS**

Company Name	% Common Equity
1 AGL Resources	0.49
2 Alberta Energy Co. Ltd.	0.55
3 AmeriGas Partners	0.24
4 Atmos Energy	0.50
5 BC Gas Inc.	0.39
6 Berkshire Energy Res	0.48
7 CTG Resources	0.37
8 Canadian Utilities 'B'	0.34
9 Cascade Natural Gas	0.47
10 Chesapeake Utilities Corp.	0.60
11 El Paso Energy Partners	0.91
12 Energen Corp.	0.49
13 Energy Search Inc TN	0.64
14 Energy West Inc.	0.45
15 EnergyNorth	0.53
16 EnergySouth Inc	0.52
17 FFP Marketing	0.53
18 Fall River Gas Co	0.47
19 Ferrelgas Partners L P	-0.02
20 KeySpan Corp.	0.59
21 Laclede Gas	0.58
22 MCN Energy Group	0.31
23 Markwest Hydrocarbon	0.56
24 Midcoast Energy	0.46
25 NATURAL GAS DISTRIB	0.46
26 NICOR Inc.	0.57
27 NUI Corp.	0.47
28 New Jersey Resources	0.51
29 Northern Border Partners L	0.37
30 Northwest Nat. Gas	0.51
31 ONEOK Inc.	0.30
32 Pacific Northern Gas Ltd.	0.38
33 Penn Octane Corp	0.73
34 Peoples Energy	0.60
35 Piedmont Natural Gas	0.54
36 Providence Energy	0.50
37 RGC Resources Inc	0.55
38 SEMCO Energy	0.43
39 South Jersey Inds.	0.46
40 Southern Union	0.44
41 Southwest Gas	0.35
42 Streicher Mobile Fueling	0.44
43 UGI Corp.	0.20
44 Valley Resources Inc.	0.52
45 WICOR Inc.	0.68
46 Washington Gas Light	0.56
47 Western Gas Res	0.24
AVERAGE	0.47

Source: Value Line Investment Survey for Windows
April 2000

**U.S. NATURAL GAS PIPELINES
RISK STATISTICS**

Company Name	% Common Equity
1 ATCO Ltd.	0.21
2 Cabot Oil & Gas 'A'	0.25
3 Callon Pete Co	0.33
4 Coastal Corp.	0.44
5 Columbia Energy	0.50
6 Cross Timbers Oil	0.14
7 Delta Natural Gas	0.37
8 Devon Energy	0.48
9 Dorchester Hugoton	0.99
10 Dynegy Inc. 'A' Hldg.	0.48
11 EOG Resources Inc	0.53
12 Eastern Amem Nat Gas Tr	1.00
13 Eastern Enterprises	0.59
14 El Paso Energy	0.35
15 Enron Corp.	0.48
16 Equitable Resources	0.64
17 Kinder Morgan	0.25
18 Louis Dreyfus NatGas	0.47
19 Mitchell Energy 'A'	0.47
20 NATURAL GAS DIVER.	0.41
21 National Fuel Gas	0.53
22 Ocean Energy	0.49
23 Penn Virginia Corp.	0.82
24 Petroleum Development Corp.	1.00
25 Plains Resources	0.09
26 Questar Corp.	0.59
27 San Juan Basin Rlty.	1.00
28 Southwestern Energy	0.40
29 Summit Resources Ltd	0.52
30 TransTexas Gas	1.00
31 Ulster Petroleums	0.60
32 Union Pacific Res.	0.16
33 Vintage Petroleum	0.29
34 Williams Coal Sm Gs	1.00
35 Williams Cos.	0.39
36 York Research Corp.	0.30

AVERAGE

0.52

Source: Value Line Investment Survey for Windows
April 2000

**U.S. ELECTRIC UTILITIES
COMMON EQUITY RATIOS**

Company Name	% Common Equity	Company Name	% Common Equity
1 Allegheny Energy	0.46	42 MDU Resources	0.56
2 Alliant Energy	0.49	43 Madison Gas & Elec.	0.56
3 Amer. Elec. Power	0.41	44 Maine Public Service	0.43
4 Ameren Corp.	0.55	45 Minnesota Power	0.50
5 Avista Corp.	0.29	46 Montana Power	0.57
6 Bangor Hydro Elec.	0.30	47 NSTAR	0.50
7 Black Hills	0.56	48 New Century Energies	0.51
8 CH Energy Group	0.53	49 NiSource Inc.	0.36
9 CMP Group	0.56	50 Niagara Mohawk	0.35
10 CMS Energy Corp.	0.29	51 NorthWestern Corp.	0.45
11 Carolina Power & Lt.	0.52	52 Northeast Utilities	0.35
12 Cen. Vermont Pub. Serv.	0.57	53 Northern States Power	0.40
13 Cen. and South West	0.46	54 OGE Energy	0.47
14 Cinergy Corp.	0.46	55 Otter Tail Power	0.51
15 Cleco Corp.	0.41	56 PECO Energy	0.46
16 Conectiv	0.32	57 PG&E Corp.	0.50
17 Consol. Edison	0.58	58 PPL Corp.	0.34
18 Constellation Energy	0.47	59 Pinnacle West Capital	0.50
19 DPL Inc.	0.52	60 Potomac Elec. Power	0.45
20 DQE	0.47	61 Public Serv. (N.Mex.)	0.47
21 DTE Energy	0.49	62 Public Serv. Enterprise	0.46
22 Dominion Resources	0.46	63 Puget Sound Energy	0.44
23 Duke Energy	0.52	64 RGS Energy Group	0.46
24 Eastern Util. Assoc.	0.52	65 Reliant Energy	0.38
25 Edison Int'l	0.37	66 SCANA Corp.	0.49
26 El Paso Electric	0.34	67 Sempra Energy	0.49
27 Empire Dist. Elec.	0.45	68 Sierra Pacific Res.	0.44
28 Energy East Corp.	0.54	69 Southern Co.	0.43
29 Entergy Corp.	0.51	70 St. Joseph Lt. & Power	0.57
30 FPL Group	0.67	71 TECO Energy	0.54
31 FirstEnergy Corp.	0.40	72 TNP Enterprises	0.40
32 Florida Progress	0.45	73 Texas Utilities	0.33
33 Florida Public Utilities	0.52	74 UNITIL Corp.	0.48
34 Fortis Inc.	0.41	75 UniSource Energy	0.14
35 GPU Inc.	0.45	76 Unicom Corp.	0.38
36 Green Mountain Pwr.	0.49	77 United Illuminating	0.38
37 Hawaiian Elec.	0.43	78 UtiliCorp United	0.37
38 IDACORP Inc.	0.45	79 WPS Resources	0.44
39 IPALCO Enterprises	0.42	80 Western Resources	0.37
40 Kansas City Power & Lt.	0.50	81 Wisconsin Energy	0.52
41 LG&E Energy Corp.	0.43		
		AVERAGE	0.45

Source: Value Line Investment Survey for Windows
April 2000

**BUSINESS RISK BETAS
CANADIAN ENERGY UTILITIES**

Company Name	Beta	Equity Ratio	Unlevered Beta
BC Gas Inc.	0.55	0.39	0.21
Canadian Natural Resource	0.80	0.47	0.38
Canadian Utilities 'B'	0.50	0.34	0.17
Fortis Inc.	0.50	0.41	0.21
Great Lakes Power Inc.	0.45	0.61	0.27
N S Power Holdings Inc	0.65	0.42	0.27
Pacific Northern Gas Ltd.	0.50	0.38	0.19
TransAlta Corp.	0.75	0.48	0.36
TransCanada Pipe.	0.70	0.25	0.18
Westcoast Energy	0.60	0.28	0.17
AVERAGE	0.60	0.40	0.24
STANDARD DEV.'N	0.11	0.10	0.07

Source: Value Line Investment Survey for Windows
4/2000