BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 010006-WS

In the Matter of

WATER AND WASTEWATER INDUSTRY ANNUAL REESTABLISHMENT OF AUTHORIZED RANGE OF RETURN ON COMMON EQUITY OF WATER AND WASTEWATER UTILITIES PURSUANT TO SECTION 367.081(4)(f), F.S.
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VOLUME 2

Pages 178 through 264

PROCEEDINGS:	HEARING
BEFORE:	CHAIRMAN E. LEON JACOBS, JR. COMMISSIONER J. TERRY DEASON COMMISSIONER LILA A. JABER COMMISSIONER BRAULIO L. BAEZ COMMISSIONER MICHAEL A. PALECKI
DATE:	Monday, November 5, 2001
TIME:	Commenced at 9:35 a.m. Concluded at 12:35 p.m.
PLACE:	Betty Easley Conference Center Room 148 4075 Esplanade Way Tallahassee, Florida
REPORTED BY:	TRICIA DeMARTE Official FPSC Reporter (850) 413-6736

APPEARANCES:

J. STEPHEN MENTON, Rutledge, Ecenia, Underwood, Purnell & Hoffman, P. O. Box 511, 215 South Monroe Street, Suite 420, Tallahassee, Florida 32302-0551, appearing on behalf of Florida Waterworks Association.

STEPHEN C. BURGESS, Associate Public Counsel, Office of Public Counsel, 111 West Madison Street, Room 812, Tallahassee, Florida 32399-1400, appearing on behalf of the Citizens of the State of Florida.

RALPH R. JAEGER, Florida Public Service Commission, Division of Legal Services, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, appearing on behalf of the Commission Staff.

I N D E X

WITNESSES

EXHIBITS

NUMBER:		ID.	ADMTD.
6	PL-1 through PL-22	183	239

PROCEEDINGS

(Transcript continues in sequence from Volume 1.)

CHAIRMAN JACOBS: Staff, you may call your witness.

MR. JAEGER: Okay. Staff calls Pete Lester.

MR. MENTON: Commissioner, Mr. Burgess has pointed out to me, he wasn't sure if we had moved in Exhibits 1 and 2. I think at the beginning they were stipulated in, so I just --

CHAIRMAN JACOBS: Yes, we moved them in.

MR. JAEGER: We did move them.

MR. MENTON: Okay. Thank you.

PETE LESTER

was called as a witness on behalf of the Staff of the Florida Public Service Commission and, having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. JAEGER:

Q Mr. Lester, please state your name and business address for the record.

A My name is Pete Lester. My business address is 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850.

Q By whom are you employed and in what capacity?

A I'm employed by the Florida Public Service Commission as an economic analyst.

Q Have you prefiled direct testimony in this docket consisting of 48 pages?

A Yes.

Q Do you have any changes or corrections to your testimony?

A No.

MR. JAEGER: Chairman, may we have Mr. Lester's testimony inserted into the record as though read?

CHAIRMAN JACOBS: Without objection, show Mr. Lester's testimony as entered in the record as though read.

BY MR. JAEGER:

Q Mr. Lester, did you also file Exhibit Numbers PL-1 through PL-22 to your testimony?

A Yes.

Q Do you have any changes or corrections to any of those exhibits?

A No.

MR. JAEGER: Chairman, may we have those exhibits identified as Exhibit 6?

CHAIRMAN JACOBS: Very well. Show them marked as Composite Exhibit 6.

(Exhibit 6 marked for identification.)

DIRECT TESTIMONY OF PETE LESTER

Q. Please state your name and business address.

A. My name is Pete Lester and my business address is 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850.

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

A. I am employed by the Florida Public Service Commission (FPSC or Commission) as an Economic Analyst in the Finance and Tax Section of the Division of Economic Regulation.

Q. Will you briefly summarize your educational background and experience?

A. I received a Bachelor of Science degree in Finance from Florida State University in March 1978. In June 1980, I received a Masters of Business Administration degree also from Florida State University. In August 1980, I began work as a material price analyst for Avco Aerostructures, a major aerospace subcontractor located in Nashville, Tennessee. My responsibilities included preparing bids for subcontracts, analyzing price variances among vendors, pricing plan changes, and helping customer and government auditors.

In September 1981, I joined the Staff of the Commission as a staff analyst in the Division of Water and Wastewater. As an analyst, I was responsible for rate structure issues on file and suspend rate cases and for all finance, accounting, and rate structure issues for staff-assisted rate cases, overearnings investigations, and certificate cases. In addition, I was responsible for case coordination and scheduling, presenting staff positions to customers at customer meetings, responding to customer complaints, and conducting research projects.

In August 1990, I was promoted to an Economic Analyst position in the

Finance Section in the Division of Auditing and Financial Analysis. I now work in the Division of Economic Regulation. My responsibilities include advising the Commission on the appropriate cost of equity, capital structure, and overall cost of capital for utility companies in rate cases and other proceedings.

Q. Are you a member of any professional associations?

A. Yes. I am a member of the Society of Utility and Regulatory Financial Analysts (SURFA). I have been awarded the professional designation Certified Rate of Return Analyst (CRRA) by SURFA. This designation is awarded based upon education, experience, and the successful completion of a written examination.

In addition, I have been awarded the professional designation Chartered Financial Analyst (CFA) by the Association for Investment Management and Research (AIMR), of which I am a member. A CFA is awarded based on the candidate having qualifying work experience, meeting AIMR's standards, and passing three exams.

Q. Have you previously testified before the Commission?

A. Yes. I testified on behalf of staff in Docket No. 920733-WS, Docket No. 940620-GU and Docket No. 940276-GU regarding General Development Utilities, Florida Public Utilities, and City Gas Company of Florida, respectively. The subject of my testimony was cost of equity and capital structure. In addition, as a Commission staff member, I have participated in many rate and regulatory proceedings.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to recommend a leverage formula that

reflects the appropriate range of returns on common equity for an average water and wastewater utility pursuant to Section 367.081(4)(f), Florida Statutes. I am recommending a specific leverage formula methodology based on cost of equity models.

Q. Do you have exhibits that accompany your testimony?

A. Yes. Attached to my testimony are Exhibits PL-1 through PL-22. Exhibit PL-1 is an index of the exhibits.

Q. Please define some of the technical terms you use in your testimony.

A. The cost of common equity is the minimum rate of return necessary to attract capital to a common equity investment. It is the minimum rate of return that a stockholder considers acceptable, both considering the riskiness of the investment and returns available on other investments. This is also known as the investors' required return on common equity.

The leverage formula is an equation that calculates the return on equity (ROE) for a water and wastewater utility as a general debt cost rate plus an equity risk premium. The only variable is the water and wastewater utility's equity ratio. I have presented the general form of the equation, and defined the equity ratio, on Exhibit PL-2.

Business risk for a firm is the uncertainty inherent in projections of future returns on assets and depends on many factors such as demand variability, sales price variability, the ability to adjust output prices for changes in input prices, and the extent to which costs are fixed.

Financial risk is the additional risk, above business risk, faced by stockholders due to the firm's use of financial leverage.

An investment grade bond is a bond with a rating of BBB or better.

Using Standard & Poor's (S & P's) system as an example, bonds in the top four ratings categories, AAA, AA, A, and BBB, are considered investment grade and are eligible for bank investment under the regulations of the Controller of the Currency. In addition, laws of various states restrict investments by banks, insurance companies, pension funds and fiduciaries generally to investment grade bonds.

Q. What principles provide the legal framework for your determination of the cost of equity as calculated by the leverage formula?

A. I believe my analysis follows the principles established by the United States Supreme Court in Bluefield Waterworks and Improvement Company v. Public Service Commission of West Virginia, 262 U.S. 679 (1923) and Federal Power Commission v. Hope Natural Gas Company, 320 U.S. 591 (1944). In my opinion, the Supreme Court held in both the Hope and Bluefield decisions that the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. Also, the return should be sufficient to assure confidence in the financial integrity of the enterprise so that it can maintain credit and attract capital.

In addition, Section 367.081(4)(f), Florida Statutes, and Rule 25-30.415, Florida Administrative Code, state the legal framework for the leverage formula.

Q. Does your leverage foumula recommendation take into consideration that the return on equity should be commensurate with returns on other investments of corresponding risks, and that the return should be sufficient to assure confidence in the financial integrity of the enterprise?

A. Yes. My recommendation of the appropriate leverage formula is based

upon my analysis of required returns for common equity investments with comparable risk as determined through the direct application of capital market valuation models to current financial data. I believe an analysis based upon current stock prices, interest rates, and investor expectations satisfies the comparable returns, capital attraction, and financial integrity guidelines established in the Hope and Bluefield decisions for determining a fair and reasonable rate of return on common equity. In addition, I have adjusted the leverage formula calculation to compensate for risk not captured by the models.

Q. What do you recommend as the appropriate leverage formula?

A. Based upon the results of my analysis, I recommend a leverage formula that indicates a range of 9.69% to 10.80% as reasonable returns on common equity for an average water and wastewater utility under the Commission's jurisdiction. I have presented the calculation of my recommended leverage formula on Exhibit PL-3.

Q. Does your recommended leverage formula represent a change in the current Commission leverage formula methodology?

A. Yes. I am recommending changes to the status quo methodology. As background, the Commission authorized the current leverage formula by Order No. PSC-00-1162-PAA-WS, effective on July 18, 2000 in Docket No. 000006-WS. In Docket No. 010006-WS, the Commission proposed a leverage formula by Order No. PSC-01-1226-PAA-WS, issued on June 1, 2001, which proposed a range of 9.14% to 10.24% as reasonable returns on common equity. The Florida Waterworks Association protested this Proposed Agency Action (PAA) order. In my testimony, I refer to the leverage formula methodology in the protested PAA

order as the status quo methodology as it is the same methodology behind the current leverage formula with two minor modifications to the capital asset pricing model (CAPM).

Q. Why did you investigate changing the status quo methodology?

A. As shown on Exhibit PL-4, I compared the range of returns on common equity from the current leverage formula and past leverage formulas to returns authorized for water utilities in other states. Since 1997, the Commission's leverage formula has produced returns on common equity generally below the authorized returns on equity for water utilities in other states. In addition, in late 2000 and early 2001, the Commission processed gas rate cases for City Gas Company, Chesapeake Utilities Corporation, and St. Joe Natural Gas. In each of these cases, the Commission authorized an ROE of 11.5%.

I do not believe that ROEs authorized for water utilities in other states are necessarily a guide as to how the Commission should set ROEs for water and wastewater utilities under its jurisdiction. Also, I do not believe ROEs set for utilities in one industry should determine the Commission's ROE decisions in another industry. Still, the higher ROEs for water utilities in other states and for other regulated industries in Florida suggest that review of the leverage formula methodology, and possible change to that methodology, is appropriate.

Q. What are the assumptions behind the leverage formula?

A. A key assumption is that a water and wastewater utility's cost of capital remains constant over a range of different equity ratios. As a utility increases its use of debt, its cost of equity rises due to increased financial risk. The increased cost of equity is offset by a larger proportion

of lower cost debt in the capital structure. The result is that the overall cost of capital remains constant.

A second assumption is that all water and wastewater utilities have similar business risk profiles. I consider this assumption to agree with the statutory notion of an average water and wastewater utility. Also, business risk is assumed to be reduced in a regulatory environment. Further, total risk for the utility is business risk plus financial risk. Financial leverage, as measured by the equity ratio, is the appropriate benchmark for financial risk.

Q. Would you describe the general approach you used to determine the appropriate leverage formula?

A. I analyzed current economic conditions and trends, and national and state industry factors. I believe economic conditions and national industry factors affect the capital markets. I then applied two generally accepted market-based rate of return models to an index of water utilities and an index of natural gas distribution utilities. I used the results of these models, along with specific risk adjustments, to determine the appropriate leverage formula.

Q. What is your analysis of the current economic environment?

A. After approximately 10 years of economic expansion, the economy experienced a downturn during the second quarter of 2001. Growth in real gross domestic product (real GDP), the inflation-adjusted total amount of goods and services produced in the United States, and the unemployment rate are indicators of current economic activity. Real GDP grew at an annual rate of 0.2% in the second quarter of 2001, the slowest pace in over 8 years. This

is down from the 1.3% rate in the first quarter of 2001 and the 1.9% rate in the last quarter of 2000. The civilian unemployment rate stood at 4.5% in the second quarter of 2001, up from the 4.2% rate in the first quarter of 2001 and the 4.0% rate for the last 3 quarters of 2000. The annual inflation rate, as measured by the change in the Consumer Price Index, was 3.0% in the second quarter of 2001, down from the 4.2% rate in the first quarter.

The Blue Chip Economic Indicators and the Blue Chip Financial Forecasts provide consensus estimates of economic and financial activity. The September 10, 2001 issue of the Blue Chip Economic Indicators estimates real GDP growth will increase to a range of 3.1% to 3.5% for 2002. The annual unemployment rate is estimated to increase to a range of 4.8% to 4.9% for 2002. The annual inflation rate is estimated to decrease to a range of 2.5% to 2.6% for 2002.

The economic downturn had prompted the Federal Reserve to cut short-term interest rates by reducing the federal-funds target rate. The federal-funds rate is the interest rate charged on overnight loans between banks. The Federal Reserve has cut its federal-funds target 8 times in 2001, from 6.5% to 3.0%. The most recent cut by .50% to 3.0% on September 17, 2001 is the lowest level since 1994. This cut was in response to the financial disruptions caused by the terrorist attacks on the World Trade Center and the Pentagon.

Q. What is your analysis of conditions in the national water industry?

A. Investor-owned water utilities are natural monopolies. Water has no substitute and water utilities do not face competition. Unlike electric utilities, water utilities do not face the issue of restructuring.

Water utilities face federal and state regulation regarding water

quality. Under the 1996 amendments to the Safe Drinking Water Act (SDWA or the Act), the maximum allowable contaminant level is based on cost/benefit and relative risk analyses in contrast to the earlier standards, which were based on available technology. With the amendments, states have the flexibility to adjust testing and monitoring requirements based on local conditions. The SDWA amendments have reduced the level of capital spending necessary for compliance with the Act. However, regulations under the SDWA are evolving and new standards and new contaminants can arise.

Infrastructure replacement has become an issue for investor-owned water utilities. Some utilities' transmission mains and distribution lines are approaching the end of useful life. The size of the issue varies from system to system. Some treatment plants are more than 50 years old and need to be replaced due to age and to meet SDWA regulations. The need for infrastructure replacement could cause financial stress for some utilities, particularly smaller ones.

Consolidation through mergers and acquisitions has become a feature of the industry. In 2000, United Water Resources was acquired by Suez Lyonnais des Eaux S.A., a French firm that manages water systems by contract. Also in 2000, E'town Corporation was acquired by Thames Water, and Consumers Water was acquired by Philadelphia Suburban. Since small systems have difficulty obtaining funding for SDWA compliance and infrastructure replacement, they become candidates for acquisition by larger systems.

Q. What is your analysis of conditions in the Florida water and wastewater utility industry?

A. The Commission has jurisdiction over investor-owned water and wastewater

utilities in 36 of Florida's 67 counties. To get a sense of the size and performance of these utilities, I gathered information from the Commission's annual reports for 2000. The Commission mailed 208 annual reports for 2000. I used 182 of these reports. I could not use 26 reports because some utilities have yet to file their annual reports or are new companies with no revenue. Also, some utilities became non-jurisdictional during 2000.

Some utilities are water and wastewater and some are water-only or wastewater-only. In my analysis, I separated water and wastewater operations since the Commission sets water and wastewater rates separately and measures earnings separately. In my testimony, when I refer to a water system, I mean all the water operations owned by a utility. By wastewater system, I mean all the wastewater operations owned by a utility.

Exhibit PL-5 shows the breakdown of systems by revenue. The majority of the utilities report less than $200,000 in revenue. Most of the 148 water systems and 118 wastewater systems are small.

Exhibits PL-6 and PL-7 show revenue and earnings for Florida's five investor-owned electric utilities and eight investor-owned gas utilities, respectively. Exhibit PL-8 compares average and median 2000 revenue for Florida's investor-owned gas utilities to the average and median revenue for water and wastewater systems. As demonstrated by these exhibits (PL-6 through PL-8), the water and wastewater systems are dramatically smaller by revenue than the electric utilities. The water and wastewater systems are much smaller than Florida gas utilities.

Exhibits PL-9 and PL-10 show the distribution by revenue of the nine water and wastewater systems with revenue over $1 million. Excepting outliers

like Florida Water Services Corporation and United Water - Florida, Inc., the largest water and wastewater systems have less than $4 million in revenue.

Q. What is the earnings performance of the Florida water and wastewater utilities?

A. Exhibits PL-11 and PL-12 show the achieved ROEs of the water and wastewater systems. Since the range of achieved ROEs is wide, I believe the median is a better statistic for comparison purposes. The largest water and wastewater systems, which have revenue greater than $1 million, perform better than Florida gas utilities but not as well as Florida electric utilities (See Exhibits PL-6 and PL-7). The smaller water systems, those with less than $1 million in revenue, are less profitable than both the gas utilities and the larger water systems.

Just looking at the median achieved ROE, one might conclude that wastewater systems with revenue less than $1 million but greater than $200 thousand have similar profitability to gas utilities. However, nearly half these wastewater systems report losses. Of the eight gas utilities, two report losses for 2000 and both these utilities have less than $1 million in revenue.

Q. What conclusions do you reach based on your analysis of the size and performance of Florida water and wastewater utilities?

A. By revenue, Florida water and wastewater utilities are much smaller than the state's other regulated utilities. The largest water and wastewater utilities are profitable and perform comparably well but they are only a small percentage of the total number of utilities. Most of the water and wastewater utilities have less than $1 million in revenue. In the $200 thousand to $1 million revenue category, approximately half the water and wastewater utilities

report losses. The smaller systems are less profitable than the larger systems, with systems in the less than $200 thousand in revenue category being the least profitable and showing the most losses.

Economies of scale matter for utilities and this is particularly true with water and wastewater utilities. Water and wastewater systems are capital intensive and have high fixed costs. Larger systems have more volume over which to spread these costs. Therefore, it is not surprising that the largest systems perform better than the smaller ones.

Based on the annual reports for 2000, I believe an average Florida water and wastewater utility is small, with less than $1 million in revenue. Since the leverage formula is intended for an average water and wastewater utility, I believe it is appropriate to emphasize the systems with less than $1 million in revenue and not focus on the extremes, such as the largest systems or the very small systems.

Q. Are there positive factors for Florida water and wastewater utilities?

A. Yes. Florida Statutes and Commission Rules allow water and wastewater utilities to pass through in rates the increased costs for purchased water, purchased wastewater treatment, property taxes, purchased power, and required testing for environmental compliance. Also, water and wastewater utilities may adjust their rates to keep up with general inflation. These adjustment procedures allow water and wastewater utilities to keep whole with respect to many cost increases.

Other positive factors involve customer growth and revenue mix. Florida utilities overall experience favorable customer growth and I believe this is a positive effect for most water and wastewater utilities. The water and

wastewater utilities primarily serve residential customers. Residential revenue can be less variable than revenue from industrial customers. Regarding water quality, the Drinking Water State Revolving Fund, managed by the Florida Department of Environmental Protection, may provide loans to qualifying investor-owned water systems with less than 1500 connections for SDWA compliance projects.

Q. How would you assess the regulatory risk facing Florida water and wastewater utilities?

A. In assessing regulatory risk, bond rating agencies look at various issues such as whether the regulatory commission is elected or appointed and whether the regulator allows projected test years and adjustment clauses. Standard & Poor's generally views regulation as practiced by the FPSC as supportive. However, for water and wastewater utilities, FPSC regulation is by county option. I believe this causes uncertainty regarding regulation for water and wastewater utilities. For example, four counties have taken back regulation from the Commission since 1996. Therefore, I believe Florida water and wastewater utilities face somewhat higher regulatory risk compared with Florida electric and gas utilities.

Q. Can the cost of equity be estimated precisely?

A. No. Estimating the cost of equity is a subjective procedure. The cost of equity depends on investor expectations, which cannot be known entirely and which change frequently. Therefore, the cost of equity cannot be measured precisely and it is generally estimated within a range. When analyzing cost of equity estimates, it is important to understand the rationale underlying the subjective inputs and how well the models relied upon reflect reality.

Q. What methods did you use to determine the cost of equity inputs for the leverage formula?

A. To determine the cost of equity inputs for the leverage formula, I used a two-stage annually compounded discounted cash flow (DCF) model and a capital asset pricing model (CAPM). I applied these models to an index of water utilities and to an index of natural gas distribution utilities. I developed both indexes from utilities followed by the Value Line Investment Survey.

Relying on an index of comparable companies, instead of a single company, helps reduce forecasting errors and should provide more reliable information for use in measuring the cost of equity. Use of an index of companies avoids abnormal conditions that might be associated with one company.

Q. Please describe your index of water utilities.

A. My water index consists of the four water utilities followed by Value Line. These are large, publicly-traded water utilities that have operations concentrated in the Northeast and in California. Exhibit PL-13 lists the utilities and their investment characteristics.

Q. Why have you chosen to include an index of natural gas distribution utilities in calculating the leverage formula?

A. As recently as the first quarter of 2000, Value Line reported on six water companies. Due to mergers and to acquisitions by foreign companies, the number has shrunk to four. I believe this is a small number of utilities upon which to base an ROE determination.

Value Line reports on 19 natural gas distribution utilities. I have selected an index of 11 companies from this group. These gas utilities are monopolies regulated by state regulatory commissions. As such, I believe this

index, along with the water index, form reasonable proxy groups for determining the general cost of equity for water and wastewater utilities. I believe adjustments to the general cost of equity are necessary for determining the appropriate cost of equity for an average Florida water and wastewater utility.

Q. Are you assuming that an index of water utilities and an index of gas utilities are appropriate proxy groups for wastewater utilities?

A. Yes. This is an assumption behind the leverage formula. No publicly traded companies depend significantly on wastewater revenues. To determine the cost of equity for wastewater utilities, one must use a group of companies with comparable characteristics. I believe that an index of water utilities and an index of gas utilities are an appropriate proxy for determining the appropriate cost of equity for wastewater utilities. Each index represents capital intensive natural monopolies regulated by state commissions.

Q. Please describe your index of gas utilities.

A. My gas index consists of 11 gas utilities. I derived this group from the 20 gas utilities followed by Value Line. I eliminated companies that had substantial non-regulated revenue, i.e., above 22% of total revenue. The 11 gas utilities in my index have sales-to-net-plant ratios less than 1.0. This indicates these utilities are capital intensive. Exhibit PL-14 lists the utilities and their investment characteristics.

Q. What is the theory behind the DCF model?

A. The DCF model is based on two principles. First, investors value an asset based on the future cash flows they expect to receive. Second, investors value a dollar today more than a dollar received in the future, meaning that the time value of money is assumed. Therefore, in a DCF analysis, the cost of

equity is the discount rate that equates the present value of expected cash flows associated with a share of stock to the present market price of the stock.

On Exhibit PL-15, I have provided the basic DCF equation and defined the terms in the equation. The basic model has three simplifying assumptions: 1) dividends are paid annually and grow at a constant rate; 2) the price of the stock is determined on the dividend payment date; and 3) dividends increase once a year starting one year from the dividend payment date.

Q. What DCF model have you used in your analysis?

A. I have used a two-stage annually compounded DCF model. An assumption behind the basic DCF model is that dividends grow at a constant rate. A two-stage DCF model allows for two periods of dividend growth: a near term period during which dividends are specifically forecasted and a subsequent period of sustainable growth. On Exhibit PL-16, I have presented the equation for my two-stage annually compounded DCF model and defined the terms.

Q. What are the inputs for your DCF model?

A. I used current stock prices for the utilities in my indexes, specific dividend forecasts for the initial growth period, and a sustainable or long-term growth rate. For current stock prices, I first calculated the average of the high and low stock prices for August 2001 for each utility in the index. I then calculated an average stock price for the index, which is the input to my model. I used Value Line's forecast of dividends for 2001, 2002 and 2005 and assumed a constant growth rate between these years to estimate dividends for the initial growth period. I calculated the long-term growth rate using the earnings retention method, also know as the "b × r approach." The inputs

for my earnings retention method are Value Line's expected earned return on equity (r) and the expected retention rate (b) for 2005.

Q. What are the results of your DCF analysis?

A. The results of my DCF analysis show that the cost of equity is 9.01% for the water index and 10.71% for the gas index. Exhibit PL-17 shows the inputs and results for my DCF analysis.

Q. What is the theory behind the CAPM model?

A. The CAPM model is based on two general assumptions. First, investors are assumed to be risk averse. They require a higher return for riskier investments. Essentially, there is a risk/return tradeoff. Second, diversification reduces risk. Investors can eliminate unsystematic risk, also known as company specific risk, by holding diversified portfolios. The returns to such a portfolio compensate investors only for systematic risk, that is, general market risk that cannot be diversified away.

A risk statistic, beta, is used to measure systematic risk. A particular stock's beta is a measure of the volatility of that stock's return compared to the return on a broad market index. By definition, the beta of the market index is 1.0. Lower risk stocks, like utilities, generally have betas significantly below 1.0.

The CAPM model is a risk premium model. It defines the cost of equity as a risk-free rate plus a premium. The premium for a specific company is developed as follows: The return on a broad stock market index is calculated and the risk-free rate is subtracted from this. This result is multiplied by the company's beta and added to the risk-free rate. The result is an estimate of the cost of equity for a specific company. I presented the equation for the

CAPM model on Exhibit PL-18.

Q. What are the inputs for your CAPM model?

A. For the risk free rate, I have used the forecasted 30-year Treasury bond yields from the August 1, 2001 Blue Chip Financial Forecast. I used a rate of 5.74%, which is an average of the forecasted Treasury bond yields from the 4th quarter of 2001 to the 4th quarter of 2002. As shown on Exhibits PL-13 and PL-14, the average beta for both the water and gas indexes is .61.

I estimated the market return by applying a simple DCF equation to 652 stocks from Value Line. The stock prices are for July 2001. I eliminated stocks that did not pay dividends and stocks that had earnings or dividend growth rates above 20%. Growth rates above 20% are not sustainable in the long run. I believe this is a large group of stocks that is an appropriate proxy for determining the market return. For the growth rate, I used the average of projected earnings per share growth and projected dividend growth. The resulting market return is 10.79%.

As explained on Exhibit PL-18, I added 10 basis points to the calculated market return to approximate quarterly compounding of dividends. While I believe the annual DCF model is appropriate for utilities, the companies I used to estimate the market return are in competitive industries and do not necessarily receive regular monthly revenue like utilities. Therefore, a quarterly compounding adjustment is appropriate. With this adjustment, the market return is 10.89%.

Q. What are the results of your CAPM analysis?

A. The results of my CAPM analysis show that the cost of equity is 8.98% for both the water and gas indexes. Exhibit PL-18 shows the inputs and results for

my CAPM analysis.

Q. Did you include an allowance for issuance costs in your DCF and CAPM analysis?

A. Yes. The DCF model includes an allowance for issuance costs, calculated as 3% of the stock price. An allowance for issuance costs, also known as flotation costs, enables the utility to recover the costs incurred when issuing common stock. Issuance costs includes registration fees, legal fees, underwriter fees, printing and mailing. Investors could not earn the required return on their investment without an issuance cost adjustment because the sales price of the stock will exceed the net proceeds to the company because the company incurs issuance costs. A company can incur these costs whether the stock is publicly traded or privately held. Historically, utility underwriting expenses associated with issuing common stock have averaged 3 to 4 percent of gross proceeds.

As shown on Exhibit PL-18, I added 10 basis points to the CAPM results as a flotation cost allowance. This is essentially the effect of allowing flotation costs for the DCF model and results.

Q. Are the four results indicated by your two models and two indexes appropriate for an average Florida water and wastewater utility?

A. No. While the range of ROEs I calculated for the index is an appropriate starting place, an average Florida water and wastewater utility is riskier than the utilities in my water index and gas index.

Q. Why is an average Florida water and wastewater utility riskier than the utilities in the indexes?

A. A comparison of revenues from Exhibits PL-13 and PL-14 with revenues from

Exhibit PL-8 demonstrates that an average Florida water and wastewater utility is considerably smaller than the utilities in the indexes. The smallest utility in my water and gas indexes is American States Water, with approximately $184 million in revenue for 2000. The entire FPSC-regulated water and wastewater industry had approximately $152 million in revenue for 2000. The two largest Florida water and wastewater utilities account for approximately half the industry revenue.

A comparison of Exhibits PL-11 and PL-12 with Exhibits PL-13 and PL-14 shows the utilities in the indexes have significantly higher achieved ROEs compared with the achieved ROEs of Florida water and wastewater utilities. None of the index utilities report losses for 2000. In contrast, a significant number of Florida water and wastewater utilities report losses for 2000.

According to the S & P Report "New Ripples in U.S. Water Industry," September 8, 2000, by Dimitri Nikas, regarding small water systems, an Environmental Protection Agency report to Congress in 1995 stated the following:

> Small systems are, on average, not financially healthy, lack economies of scale, and have higher costs per unit of water than do large or mid-size water purveyors.

Noting this, Standard & Poor's made the following statement:

> *On the other hand, large water utilities have superior technological resources and adequate access to capital. (See S & P Report "U.S. Water Utility Industry Still Fragmented, Opportunities Abound," June 11, 2001, Dimitri Nikas.)*

Value Line states the following regarding small water utilities:

The costs of meeting safe drinking water guidelines are especially burdensome for smaller utilities because they generally lack the funds needed for long-term structural improvements. (See The Value Line Investment Survey, Ed. 9, August 3, 2001, p. 1419.)

I believe the concern that small utilities lack funds for water quality and structural improvements, such as infrastructure replacement, is valid.

Q. What risk adjustment do you recommend for the leverage formula?

A. I recommend three adjustments. First, the Commission should adjust the results of the models for the yield difference between the bond rating for the utilities in the indexes and a Baa rated bond. Second, the Commission should adjust the results of the models to reflect a private placement premium. These two adjustments are consistent with the status quo methodology. Third, the Commission should adjust the results of the models to allow a small-utility risk premium. I do not believe that status quo methodology adequately reflects the risk faced by an average water and wastewater utility in Florida.

These adjustments are based on the assumption that the difference between debt costs for utilities in the indexes and for an average water and wastewater utility is the appropriate risk adjustment to the ROE results of the models. Differences in the cost of debt are a proxy for differences in the cost of equity.

Q. Please describe the adjustment for the bond yield differential.

A. This adjustment, part of the status quo methodology, is made to the results of the models to compensate for the fact that Florida water and wastewater utilities are smaller than the companies in the indexes. The adjustment is based on the historical difference between the yields on bonds

that could be issued by the companies in the indexes, according to bond rating, and the yield on BBB rated bonds, the lowest investment grade. The assumption is that a small utility, given efficient management and a sound regulatory environment, should be considered at least in the lowest investment grade category. As I explain later, I believe this assumption should be relaxed.

According to Exhibits PL-13 and PL-14, the median S & P bond rating for the water index is A+ and it is A- for the gas index. I have treated S & P bond ratings and Moody's bond ratings as equivalents; for example, a BBB rating by S & P is the same as a Baa rating by Moody's. The water index has a median bond rating of A1 and the gas index has a median bond rating of A3. For the water index, I used the historical spread between the yields on A1 and Baa2 public utility bonds as calculated over the past 120 months. For the gas index, I used the historical spread between yields on A3 and Baa2 public utility bonds. The average of these two spreads is .25% or 25 basis points. Exhibit PL-19 presents the bond yield differentials.

By adding 25 basis points to the results of the models, the resulting returns on equity are appropriate for water utilities that can issue BBB rated bonds. However, an average Florida water and wastewater utility is too small to issue publicly traded bonds. This is the basis for the private placement adjustment.

Q. Please describe the private placement premium adjustment.

A. The private placement premium recognizes that investors require a liquidity premium for holding privately placed bonds. These bonds do not have a public market, meaning that investors must hold them to maturity. All other things being equal, privately placed bonds require a higher return than

publicly traded bonds.

The Commission included this adjustment in the leverage formula methodology in 1995, with the original premium being 25 basis points. The Commission increased the premium to 50 basis points in 1999. I believe this adjustment of 50 basis points for the private placement premium is appropriate because investors require a liquidity premium for holding privately placed bonds.

Q. Please describe the small-utility risk premium.

A. In the status quo methodology, the bond yield differential is assumed to compensate appropriately for the small size of water and wastewater utilities. I believe this adjustment, by itself, is too conservative. It basically adjusts the cost of equity to the level of a company that can issue BBB rated bonds. Yet an average Florida water and wastewater utility is not in a position to issue rated bonds or even privately placed bonds. Bond expert and finance scholar Frank Fabozzi, in his book Bond Markets, Analysis and Strategies, 3rd edition, 1996, states the following:

> *Borrowers in the publicly issued bond market are typically large corporations. Issuers of privately placed bonds tend to be medium -sized corporations. Those corporations that borrow from banks tend to be small corporations. (See page 149.)*

For rated bonds, S & P's Bond Guide reports new bond issues. For May 2001, the size of bond issues ranged from $90 million to over $4 billion. Ratings ranged from a very speculative B rating to an investment grade AA rating. The size of these issues is in stark contrast to the size of Florida water and wastewater utilities, most of which have revenue less than $1

million.

Water and wastewater utilities are public utilities that have an obligation to serve. This, along with water quality and infrastructure replacement issues, means these utilities have to raise capital at various times, even times of adverse financial conditions. In addition, many Florida water and wastewater utilities have relied on contributions-in-aid-of-construction (CIAC) to finance a portion of the original cost of the plant and lines. CIAC reduces rate base, which can make raising capital more expensive. I believe that a small- utility risk premium should be added to the return on equity to recognize the financial stress, and hence risk, that small water and wastewater systems can experience.

I have chosen 50 basis points as the appropriate small-utility risk premium. Exhibit PL-20 shows the difference between yields on BBB rated and BB+ rated industrial bonds over the 5-year period beginning in 1996 and ending in 2000. The yield difference has ranged from 55 basis points to 135 basis points, with an average of 83 basis points. Bonds rated BB+ are below investment grade and may face uncertainties during adverse economic conditions. Bonds in this category are somewhat speculative and are known as high-yield or junk bonds. While the issuers of these bonds are still very large compared with Florida water and wastewater utilities, the additional yield is an indicator of the additional risk beyond the BBB rating. Since the spread between BBB yields and BB+ yields can widen considerably during times of a credit crunch, I believe using the actual BB+ yield is inappropriate. Therefore I chose 50 basis points as a risk allowance that is beyond what BBB bonds yield yet allows recognition that well managed water and wastewater

utilities with supportive regulation should not be considered speculative investments.

Q. How have you implemented these risk adjustments?

A. I have included a bond yield differential, a private placement premium, and a small-utility risk premium in the calculation of my recommended leverage formula, which is presented on Exhibits PL-3 and PL-21.

Q. Why have you chosen a 40% limit on the equity ratio input to the leverage formula?

A. The 40% limit is part of the status quo methodology. The intent of this limit is to discourage imprudent capital structures for water and wastewater utilities. I note that my water and gas indexes have average equity ratios close to 40%. Therefore, I believe 40% is the appropriate standard.

Q. Please summarize your testimony.

A. I recommend that the leverage formula methodology include an index of gas utilities and include a small-utility risk premium of 50 basis points. With this methodology, the leverage formula produces a range of 9.69% to 10.80% for ROEs for water and wastewater utilities. My recommended leverage formula is presented on Exhibit PL-3. I also presented the leverage formula using the status quo methodology on Exhibit PL-22.

Q. Does this conclude your testimony?

A. Yes. It does.

MR. JAEGER: I tender the witness for cross.

CHAIRMAN JACOBS: Mr. Menton.

MR. JAEGER: I'm sorry.

BY MR. JAEGER:

Q Mr. Lester, do you have a -- would you like to make a brief summary of your testimony?

A Yes. Commissioners, an average Florida water and wastewater utility is small, and small water and wastewater utilities face higher risk. To compensate for this, I've recommended that a small utility risk premium be included in the leverage formula calculation, and I've also included an index of gas companies in the methodology. And with these modifications, my recommended range for the cost of equity for the leverage formula is 9.69 percent at 100 percent equity ratio up to 10.8 percent at a 40 percent equity ratio. And that concludes my summary.

CHAIRMAN JACOBS: Very well.

MR. JAEGER: Okay. Mr. Chairman, now I tender this witness for cross.

CHAIRMAN JACOBS: Mr. Menton.

MR. MENTON: Thank you, Mr. Chairman.

CROSS EXAMINATION

BY MR. MENTON:

Q Good morning, Mr. Lester.

A Good morning.

Q You would agree that the analysis of the appropriate leverage formula should be based on required returns for common equity investments with comparable risk; correct?

A Yes.

Q And the way to get to the appropriate return on equity is through application of capital market evaluation models?

A Yes.

Q And you would agree that there is no single methodology or model that provides a conclusive answer in terms of an accurate measure of the cost of equity?

A Yes.

Q The testimony -- well, the process of applying the various models for estimating the return on equity is a subjective procedure?

A Yes, for the most part. Yes.

Q And one of the key components of making a determination of the appropriate return on equity is to gauge what investor expectations are; correct?

A Yes.

Q And there are a number of different ways of measuring investor expectations?

A Yes.

Q Okay. And a number of different companies that attempt to measure investor expectations; correct?

A Yes, there are a number of companies that provide forecasts for investors.

Q Okay. Each of the approaches for determining a return on equity requires considerable professional judgment on the reasonableness of the assumptions and the reasonableness of the proxies used to validate the theory; correct?

A Yes.

Q And do you agree that more than one methodology should be employed in arriving at a judgement on the cost of equity?

A Yes.

Q And do you agree that those methodologies should be applied across a series of comparable risk companies?

A Yes.

Q I'd like to refer you to Exhibit 4 of your testimony, PL-4.

A I have it.

Q And that exhibit summarizes the returns on equities allowed for water companies around the country and compares them to the allowed returns under the leverage formula that's essentially been followed by the Commission for the last several years; correct?

A Yes.

Q And you would agree that the methodology has basically been the same for the last several years?

A Yes. We did make two -- yes, I would agree with that.

Q Okay. And to make sure I understand your exhibit, at the bottom there you say, "FPSC leverage formula range," and that is, if I understand correctly, the range of returns that was calculated using the methodology adopted by the Commission in each of those identified years; correct?

A That's the range for the leverage formula that was authorized for those years, yes.

Q Okay. And if you look at the top portion of your exhibit, what you have identified is the allowed returns on equity for other water companies around the country; correct?

A Yes.

Q Now, you have order dates for some of those companies, but not all of them; right?

A Yes.

Q And some of the order dates predate the leverage formula range that you have for the Commission-approved range; right?

A Yes.

Q But if you look at the four companies that are identified on your exhibit that have order dates that correspond to the time frame that you have calculated the range under the PSC formula, I think the four companies would be American States, Artesian, Southwest, and York; is that right?

A I don't understand your question.

Q I'm not sure I do either. Let me see if I can come at it again. If you look at American States Water Company, the first company on your list of allowed returns --

A Yes.

Q -- they have a 10 percent allowed return on equity for the fourth -- and the order date was in the fourth quarter of '99; correct?

A That's correct.

Q And in 1999 the top end of the allowed range of returns in Florida would have been 10.12 percent; correct?

A Yes.

Q So that allowed return would have been at the very top end of the authorized range in Florida; correct?

A It would have been towards the top, yes.

Q Towards the top.

A Yeah.

Q Okay. And then for the other three companies that have order dates within the time frame that you have set forth the Commission-determined range, which would be Artesian, Southwest, and York, each of the allowed returns for those companies would exceed the maximum range that would have been allowed in Florida at that time; correct?

A Let's see. Yes.

Q Okay.

COMMISSIONER DEASON: What about SJW Corporation?

THE WITNESS: Let's see. SJW would have been within the range.

COMMISSIONER DEASON: But near the bottom of the range.

THE WITNESS: That's correct.

BY MR. MENTON:

Q Now, on Page 6 of your prefiled testimony, you discuss this exhibit. And if I understand what you're saying here is that from the review and analysis that you have conducted, the leverage formula in Florida at least in the last -- since 1997, which is the time frame that you have identified here, the Commission formula has produced returns on equity that are generally below the authorized returns for other states; is that right?

A That's right, yes.

Q And is that one of the reasons why you believe there needs to be a modification to the existing approach that the Commission has followed?

A I think it's a reason to look into it. That's why I'm telling you why did I investigate looking into changing the methodology, and I used that as a -- sort of a reality check.

Q And from your analysis, unless there is a change in methodology, you would agree that Florida water utilities -- water and wastewater utilities would be at a disadvantage in

terms of competing in the capital markets compared to the companies that you've looked at from other states; correct?

A Well, I'm recommending that the leverage formula should be changed, so I guess I agree with you.

Q You are familiar with Dr. Morin?

A I've met him before, yes.

Q Would you agree that he's one of the country's leading experts in determining the appropriate range -- or the appropriate returns on equity for a regulated utility?

A Yes.

Q I spoke with Mr. Cicchetti earlier about some of the models that he utilized in his testimony, and I'll try not to repeat, but I want to ask you a few questions about the modeling that you did as well. Now, you used a DCF model like Mr. Cicchetti; correct?

A Yes.

Q And used a two-stage two growth -- or retention growth model; correct?

A Yes.

Q And there are other variations of the DCF model; correct?

A Yes.

Q And one other such model would be a single stage constant growth rate model?

A Yes.

Q You would agree that according to the theory behind the DCF model, the growth rate for dividends and earnings will be the same over the long term?

A Yes.

Q Now, you used the DCF model to -- the same four water companies that were utilized by Mr. Cicchetti?

A Yes.

Q And those are the four large investor -- publicly traded out-of-state companies; correct?

A Yes. They are out of state, and they are four large companies that Value Line provides information on.

Q And those are the ones identified in your Exhibit 4?

A Exhibit 4?

Q Thirteen, I'm sorry. Thirteen, I think; right?

A Thirteen, yes, you're correct. Yes.

Q Okay. And then you also did a separate DCF analysis based upon an index of gas companies; correct?

A Yes.

Q And why did you do that?

A I believe just using the four water companies is a small number of water companies upon which to base a DCF analysis.

Q Okay. And is that because the number of companies was small or the types of companies were not consistent with the average Florida water company or both?

A Four is a small number to use.

Q So you would agree that with a small number of comparable water companies available -- or a small number of water companies available on which to do a DCF analysis, that you need to look to other industries in order to evaluate the returns that you would come up with through this model; correct?

A Yes. You look at regulated utility companies. You need to look at regulated utility companies that are similar to -- as similar as possible that would make a good proxy for water companies, and I chose gas utilities.

Q Okay. So in addition to making professional judgments about what models to use, you would agree that the proper application of those models to determine a range of returns requires professional judgment in order to evaluate what adjustments you might have to make to those models; correct?

A Would you -- yes -- would you repeat that, please. I want to make sure.

Q I'm not sure I can. That -- you've already testified that professional judgment is necessary in order to determine what models to utilize when you're trying to determine the appropriate range of returns; correct?

A Yes.

Q And after you've made a determination of what models,

then even utilizing those models there are additional subjective judgments that have to be made in order to adjust those models to fit the circumstances that you're trying to look at; correct?

A Yes.

Q And the adjustments could be prompted because of the sample size, as you've already said; correct?

A Yes.

Q And adjustments could also be necessitated because of the difference in the size of the companies that you used in the model versus the companies that you're attempting the model for; correct?

A Yes.

Q And because of all these adjustments, you would agree that the Commission should be careful in its analysis of any one particular approach; isn't that right?

A I don't know if I'd put it that way. I found that you have to look at the -- what the witness's judgment is. I'm the one who needs to be careful looking at it and then make a recommendation to them. So that's the way I look at it.

Q Okay. I spoke with Mr. Cicchetti about the retention growth component for his risk premium analysis. And your DCF model also included a retention growth component; correct?

A That's correct.

Q And your retention growth analysis used the same b

times r approach that Mr. Cicchetti used?

A Yes.

Q And the r in the b times r approach is the estimate of the return on equity projected into perpetuity; correct?

A It's a forecasted earned return. And in my model, and I believe in Mr. Cicchetti's, it was for 2005.

Q And it's on your Exhibit 17 in Column 7, I believe?

A Yes.

Q And the expected returns for the water utilities that you utilized when you ran your analysis was 12.4 percent?

A Yes. The average, I think, is 12.37.

Q Okay. And the average for the gas index that you utilized was 12.6 percent?

A Yes.

Q You would agree that the -- you've reviewed Dr. Morin's prefiled direct testimony?

A Yes.

Q And in his prefiled direct testimony, Dr. Morin utilized investor consensus expectations for purposes of his analysis; isn't that correct?

A Well, I read his testimony once briefly when it was initially filed, and then I read it recently. I don't recall that particular term. If you could, maybe describe it a little better. I'm not --

Q Do you recall on Page 23 of Dr. Morin's rebuttal

testimony -- do you have that?

A Rebuttal?

Q Yes.

A Okay. I have it.

Q And on Page 23, Dr. Morin contends that the averages of analysts' growth forecasts such as those contained in IBES or Zacks are more reliable estimates of investors' consensus expectations likely to be impounded in stock prices.

A I see where he says that.

Q Do you disagree with his conclusion?

A Yes.

Q Okay. You do not believe that -- do you believe it's better to rely upon one source of growth forecasts rather than looking at other sources that might be available?

A One could always look at other sources. I chose to look at Value Line because Value Line provides projected dividends, and that's what I used in my model. When Dr. Morin is making some comparisons here, he tends to talk about growth rate, but then he doesn't specify if it's earnings or dividend. And Zacks and IBES only come up with earnings growth rates, and I used dividend growth rates.

Q Right. You used dividend growth rates. But over the long term, you would agree that under DCF theory earnings and dividends, the growth rates will be equal?

A In theory they're supposed to be equal, but they are

going to vary. The forecasts do vary, and so there's a judgment call on what to use.

Q Right, there is a judgment call. And then it depends also on the variation of the DCF model that you're utilizing; correct?

A It could, yes.

Q And if you're using one approach, you don't have to worry about differences between dividends and earnings because they are expected to be equal in the long run?

A Well, I think you would worry if there was a difference in the growth rate. For example, my growth rates for dividends are different from what Value Line projects as earnings growth. So, I mean, there's a difference there, and I use the dividend growth rate.

Q And when you use the dividend growth rate only, then you're limited to only one source for your forecast which is Value Line; correct?

A Yes.

Q And Value Line like any source has its own inherent biases and its own inherent assumptions; correct?

A They may, but they're a widely-used source of information, and it's frequently quoted, widely used. I think it's a good sound source for information that can be used in a cost of capital analysis.

Q I'm not disagreeing that it's a widely-used source,

but there are other sources of growth forecasts that are described by Dr. Morin; correct?

A Yes.

Q And if you use an approach where earnings and dividends over the long term are equal, then you could use earnings projections in that context; correct?

A You could. I choose to go with Value Line and with dividend growth. I'm not --

COMMISSIONER JABER: Mr. Lester, the analysis you did, the comparison of the other states and the other companies with allowed ROEs, do you know if those state commissions have relied on dividend growth or earnings growth?

THE WITNESS: I don't, no. I would expect you would see a variety of models and witnesses and opinions on that.

COMMISSIONER JABER: And Value Line is the only source that analyzes dividend growth?

THE WITNESS: They're the only ones I know about that provide a projected dividend, then therefore we can use it in our discounted cash flow model.

BY MR. MENTON:

Q Mr. Lester, could you refer to Exhibit 18?

A Yes, I have it.

Q Now, as part of Exhibit 18, you have included a market risk premium of approximately 5.2 percent; correct?

A Yes.

Q On Page 24 of his rebuttal testimony, Dr. Morin points out that the widely-used Ibbotson compilation of historical returns over the past 75 years reflects that the observed historical market risk premium over this long period of time is between 7 to 8 percent, and closer to 8 percent. Do you recall that?

A I see it, yes.

Q And if a market risk premium consistent with long-term historical average was utilized, you would agree that your CAPM estimate of the cost of equity would increase by at least 50 basis points; correct?

A Well, I don't agree with using -- yes, I mean, if you want to go through the arithmetic, but, I mean, I don't agree with the Ibbotson number. That's an earned return. It's not a required return. There are negative risk premiums in there, and it's calculated over a long period of time that includes, you know, World War II, the Depression, things like that. I think it's an unrealistic number, and I don't use it. I don't recommend using it.

Q Okay. But the reason for using a long-term approach is to average out the fluctuations that might occur in a short term; correct?

A You could do that, but he's looking at earned returns and not required returns, so it's -- I don't think that's a good proxy.

Q Now, on Page 17 of your direct testimony, you discuss the theory behind the CAPM model.

A Yes.

Q Do you recall that?

And in addition to the DCF analysis that you did, you also utilized CAPM models for the two indexes, one of water and one for gas companies; right?

A Yes.

Q And as part of the CAPM approach, you use a risk statistic or a beta; is that right?

A Yes.

Q And as part of -- well, you would agree that utilities typically have betas that are below one; correct?

A Yes.

Q Now, on Pages 24 and 25 of his rebuttal testimony, Dr. Morin cites to the academic research which indicates that a low beta security, in other words, one with a beta below one, earns returns higher than a plain CAPM model would predict, whereas high beta securities earn less than predicted. Do you recall that?

A I see it, yes.

Q If Dr. Morin is correct, a CAPM-based estimate of the cost of capital would underestimate the return required for water utilities; isn't that correct?

A If he's correct, that would be, yes.

Q In fact, the differential from this item could result in a 50 to 60 basis point increase in the recommended range of returns; correct?

A If you want to use that model, which I don't use, yeah.

Q Mr. Lester, do you know whether investor-owned water utilities in this State face competition from municipals in terms of growth?

A I don't know anything about that.

Q Okay. So in your testimony where you talk about the lack of competition facing the water and wastewater industry, you haven't analyzed it in terms of projected or possible growth for those investor-owned utilities and what competition they may be facing; is that correct?

A That's correct. Just as a general rule, they don't face competition. Companies don't try to provide water in other water areas. They don't face bypass issues.

Q Okay. Do you know whether -- are you familiar with Chapter 180.02, Florida Statutes?

A No.

Q Do you know whether investor-owned utilities face competition from other investor-owned utilities for new market areas?

A I've always thought there's a service territory -- the Commission can decide territorial disputes there between

the companies.

Q You are familiar with the concept of regulatory lag?

A Yes.

Q And what is regulatory lag?

A I would say it's when a company incurs a cost and there's a lag in time before they get recovery of that cost through rates granted by a regulator.

Q I'm sorry, I didn't hear.

A If the company incurs a cost and then they need to have that reflected in their rates, there's a time lag before they can get that cost reflected in their rates.

Q And are you aware that investor-owned electric utilities are authorized to pass-through and recover environmental and compliance costs under Section 366.8255, Florida Statutes?

A I'm aware that there's an environmental cost recovery clause.

Q Now, for electric utilities it's an automatic pass-through?

A The cost has to be prudent. I wouldn't say --

Q If it's prudent --

A Yes.

Q -- then it's a pass-through?

Is that the same approach that's used for water and wastewater utilities?

A I believe it's probably very similar. I think if a water company incurs mandatory testing costs, they can apply for a pass-through rate adjustment.

Q Okay. For mandatory testing costs, there's a pass-through, but what about just overall environmental compliance costs?

A For capital additions or something?

Q (Nodding head affirmatively.)

A No, I don't believe that qualifies.

Q So they would have to file a rate case in order to recover that?

A That or a limited proceeding.

Q Okay. Do electric companies face the same used and useful adjustments to rate base that are made to water utilities in this State?

A I don't believe they do.

Q Would you agree that the used and useful adjustments increases the risk for a water utility in this State?

A That's really hard to say. There is an allowance for funds prudently invested that could offset. And the reason I say it's hard to say is, every utility -- I've modeled the cost of equity using an index of water companies and gas companies in various jurisdictions. They all face business risks, certain regulatory risk. I don't know everything they face there, but the investors buy their stock, and I've used their

stock price and investor expectations and growth rates regarding that. So, I mean, I think I've captured the risks -- appropriate risk.

Q Do you know whether the -- you referenced the allowance for funds prudently invested. Do you know whether or not the AFPI has worked as it was intended to work when it was originally conceived?

A No, I don't know that.

Q So you haven't done any analysis as to --

A No.

MR. MENTON: That's all the questions I have. Thank you.

CHAIRMAN JACOBS: Mr. Burgess, do you have a good bit of cross?

MR. BURGESS: I beg your pardon?

CHAIRMAN JACOBS: Do you have a good bit of cross? Should we go ahead and break?

MR. BURGESS: I have a little bit of cross, but not a whole lot.

CHAIRMAN JACOBS: I'm sorry, say that again.

MR. BURGESS: I have a little bit of cross, but not a whole lot.

CHAIRMAN JACOBS: Okay. We'll go ahead and do it, and then break for lunch.

MR. BURGESS: Thank you.

CROSS EXAMINATION

BY MR. BURGESS:

Q Mr. Lester, I have a few questions going back to Exhibit PL-4 attached to your testimony. You had indicated that there have been some changes historically from the historic method that's been used. What changes were you referring to? What changes do you know of that have been made to the methodology in applying the leverage formula?

A Well, in '95 we had a workshop, and we incorporated the capital asset pricing model and the private placement premium. And then, I believe, in '99 we had another workshop, and we eliminated, I believe, the gas risk premium model at that point and just have a CAPM and a DCF model using the water index, and we increased the private placement premium in '99. And those are the changes I'm aware of.

Q In '99 what was the numerical effect of those changes? Do you recall?

A No, but it increased what it would -- it increased from the stats quo, but I don't know the number.

Q Do you have any idea of the order of magnitude it had increased?

A Well, the private -- I believe the private placement premium went up by 25 basis points, so it would be at least that, and then beyond that, I just don't know.

Q And you didn't go through to make any comparisons as

to what the effect of the current leverage formula would be comparative to these other ROEs?

A I don't understand what your question is. I don't understand your question.

Q Okay. Let me change my question. If we were to really use this to try to make any comparisons between what the leverage formula that's being recommended, that either was in the PAA or is recommended in your testimony, the effect -- how that would compare result-wise to these companies from other states. We would need to adjust that which is presented for the Florida numbers to reflect the methodology that's currently in use rather than the lower methodology that was used in all years prior to 1999; wouldn't we?

A Okay. I understand what -- yes, I mean, you know, current -- yes, if you wanted to do it that way. Yes.

Q So if we wanted to have any comparative basis at all, we would need to either reflect these other ones down or more accurately reflect upward the numbers that are listed for the Florida ROE; is that correct?

A I don't know if I agree with that. I mean, my purpose of using this example was not to draw specific technical conclusions, specific quantitive conclusions. I'm taking a look at that, and I'm saying the range for the leverage formula is generally below the range authorized for other companies, and therefore, there's a reason to perhaps

look at the existing leverage formula methodology. But I don't think I'd go so -- I mean, I understand where your numbers are -- where your comparison is coming from, and I won't disagree with that. I want you to understand what I used this exhibit for.

Q Perhaps, Mr. Lester, that's because I was not so much asking my question in response to your usage of this particular document but rather to the inference that I drew from Mr. Menton's questions in using this as specific comparisons. And that's where my questions derive. If you were to use specific year-to-year comparisons based on this, would you make an adjustment to reflect the current methodology rather than that in effect at the time that the ROE was determined in Florida?

A I think that would be appropriate.

Q Thank you. Can you tell me what -- have you made adjustments to reflect differences resulting from the size of the companies in Florida relative to the size of the companies and the indices used for the purposes of your methodologies?

A Yes.

Q Can you tell me what adjustments you've made to reflect the difference in size?

A Yes. If you go to Exhibit -- well, it would be Page 47 of my testimony.

Q Thank you.

A And I've included basically three adjustments. There's a bond yield differential, small utility risk premium, and private placement premium. I think those are primarily oriented to the difference in size of the companies in my index as compared to what an average Florida water and wastewater utility is.

Q So you've made three different adjustments to reflect the size differential that's been discussed today?

A Yes, basically.

Q One of the things that's been discussed as well is the usage of more methodologies, and do I understand correctly that you have used a method -- a capital asset pricing method and Dr. Morin has used a capital asset pricing method, but Mr. Cicchetti has rejected the use of the capital asset pricing method?

A That's correct.

Q If I look at the results of this, it appears that your usage of the capital asset pricing method is very close but slightly below your DCF method; is that correct?

A Yes.

Q So if --

MR. BURGESS: That's all I have. Thank you very much, Mr. Lester.

COMMISSIONER JABER: Let me ask this before Staff goes in case they need to clarify my bad question. Very basic,

Pete, and I apologize for not knowing this answer. When we issue the leverage formula order, as I recall that order goes out to all of the water and wastewater companies.

THE WITNESS: Yes.

COMMISSIONER JABER: Is there, like, an automatic adjustment in their ROE when that order goes out, or does the ROE get adjusted when they file a rate case? How does that work?

THE WITNESS: They have to file something. There's nothing automatic.

COMMISSIONER JABER: Okay. So there are companies then that will have ROEs that could be lower than what your recommendation is, and there are some that might be higher. Have we ever evaluated where the companies are?

THE WITNESS: Are you talking about authorized returns?

COMMISSIONER JABER: Right.

THE WITNESS: Yeah, there's a range of authorized returns out there. It depends on when they --

COMMISSIONER JABER: I'm not being articulate. I'm sorry, Pete. Have we ever evaluated the entire water and wastewater industry to figure out if their current ROE is within the range, below the range, or is that something we capture in the annual report, maybe?

THE WITNESS: We don't do a comprehensive review. I

don't believe we do the analysis you're talking about.

COMMISSIONER JABER: So there might be smaller water and wastewater companies that have ROEs below the authorized range?

THE WITNESS: Yes.

COMMISSIONER JABER: So to the degree I have a concern regarding those companies operating efficiently and providing quality of service and where their financial abilities are, one possible way of handling that concern is just allowing them to come in and adjust their ROE somehow; correct?

THE WITNESS: They would have to come in for some regulatory proceeding to take advantage of anything that comes out of this proceeding.

CHAIRMAN JACOBS: It could very well be that a company's authorized return, if it were above what came out of the leverage formula, that it would be at their option whether or not to come in and could very well be that that could be a decision factor for them. They could choose not come in because they'd have to accept the leverage formula; is that correct?

THE WITNESS: Yes, that could be. I think we do monitor -- I know we monitor the earnings for the companies. And so, I mean, we try to look at their earnings in light of what's authorized. And I'm getting a little out of my area,

but I think they look at it in light of maybe the current leverage formula. So maybe that better answers Commissioner Jaber's question, but --

COMMISSIONER JABER: Yeah. If they're earning higher than their ROE, chances are we'll capture that in the annual report process because they will be quote, unquote, overearning.

THE WITNESS: Well, yeah, I believe there will be an analysis that could come from that.

COMMISSIONER JABER: But if they haven't come in for a rate case in years, it might be that they're earning under the current authorized rate of return. We have never done that sort of analysis, have we?

THE WITNESS: No, I don't believe so.

COMMISSIONER DEASON: I have a question concerning your adjustment for small companies.

THE WITNESS: Yes, sir.

COMMISSIONER DEASON: Fifty basis points. And I understand in your analysis you chose to compare bond yields for triple B and BB plus. I don't know what the terminology is.

THE WITNESS: That's BB+.

COMMISSIONER DEASON: BB+ and BBB. And you came out with an average of 83 points and then a range. And then you tempered that calculation somewhat, and correct me if I'm

wrong, but I think you tempered that calculation somewhat for the fact that we really shouldn't consider regulated utility companies as speculative grade, and so you chose 50 basis points --

THE WITNESS: That's correct.

COMMISSIONER DEASON: -- as some type of a quantification of the risk factor of a small company; correct?

THE WITNESS: That's correct, yes, sir.

COMMISSIONER DEASON: Okay. First of all, let me ask you this. Do you consider all of the companies that we regulate in Florida to be small companies?

THE WITNESS: No. I consider the average to be.

COMMISSIONER DEASON: The average to be.

THE WITNESS: Yeah.

COMMISSIONER DEASON: Okay. But any company in Florida can come in and choose the leverage formula, and if that is not protested by Public Counsel or someone else, then that's what's used regardless of the size of that company; correct?

THE WITNESS: Yes, sir.

COMMISSIONER DEASON: But since the statute uses the term "average," you think it's appropriate then and allow any company to come in and choose that if they think it's appropriate.

THE WITNESS: Yes, sir. I based my analysis on the

statutory language, which I think is an average water and wastewater utility.

COMMISSIONER DEASON: Was there any, I mean, magic in the 50 basis points? I guess, how did you conclude that 50 was appropriate as opposed to 25 or 75 or something else?

THE WITNESS: Well, I'll acknowledge it's subjective. I'm not going to tell you that I have a perfect model for coming up with that. I think I've provided good evidence for showing that there needs to be some premium there. But the -- I really see it as an extension of the bond yield adjustment that we've made.

We've always looked at the index of water companies that we use and their bond rating, and then we assume Florida companies -- we have assumed that the water utilities are at least investment grade. The lowest investment grade rating is BBB, but that only results in about 25 basis points in my analysis. And it really gets the company down to treating it as though it could issue a BBB-rated bond. So I wanted to go beyond that somewhat, and I chose to look at the bond yields that are just below investment grade which --

COMMISSIONER DEASON: So are you saying that the average water or wastewater utility in Florida would not be capable of issuing BBB bonds if they had the adequate size? I'm trying to understand --

THE WITNESS: Well, the average company is small.

No, they can't issue -- they wouldn't even be able to issue privately placed debt.

COMMISSIONER DEASON: Because of their size.

THE WITNESS: That's right.

COMMISSIONER DEASON: Even if they had Sterling Financial reports, their financial statements, the fact that it's just the size thing that would prevent it.

THE WITNESS: That's right.

COMMISSIONER DEASON: And that's what you're trying to capture, is just the risk associated with the size?

THE WITNESS: Yes, sir, yes, sir.

CHAIRMAN JACOBS: Very well. Redirect.

REDIRECT EXAMINATION

BY MR. JAEGER:

Q Mr. Lester, going to that PL-4, Page 29, do you know if any -- all those allowed returns, were they set as a result of evidentiary hearings, or could some of those returns have been set as a result of stipulations?

A They could have been. I don't know the history behind any of those.

Q In your testimony here today, I think in your summary you said you have made two adjustments to what was done at the PAA leverage -- PAA action; is that correct?

A Yes.

Q And do you think those adjustments, if you adopted

them in this proceeding, fairly compensates investors for the risks associated with investing in the average Florida water and wastewater utility?

A Yes.

MR. JAEGER: No further questions.

CHAIRMAN JACOBS: Very well. Exhibits.

MR. JAEGER: We move Number 6.

CHAIRMAN JACOBS: Without objection, show Exhibit 6 is admitted.

(Exhibit 6 admitted into the record.)

CHAIRMAN JACOBS: Thank you. You're excused, Mr. Lester.

THE WITNESS: Thank you.

(Witness excused.)

CHAIRMAN JACOBS: And Mr. Menton -- I'm sorry, Mr. Burgess, you may call your witness.

MR. BURGESS: We would call --

CHAIRMAN JACOBS: Let me ask, unless you have less than ten minutes of cross, we're going to go ahead and break for lunch. How are we looking? You're free to take as much time --

MR. BURGESS: I won't have any cross for Mr. Cicchetti.

MR. MENTON: I'll make it less than ten minutes.

CHAIRMAN JACOBS: You're sure? I don't want to cut

you short. If you --

MR. MENTON: I can do it.

CHAIRMAN JACOBS: Okay.

MR. JAEGER: Staff only has four questions, so it will be short.

CHAIRMAN JACOBS: Okay.

MR. BURGESS: Okay. We would call -- excuse me, I'm sorry.

CHAIRMAN JACOBS: All right.

MR. BURGESS: Are we ready? We would call Mr. Cicchetti for rebuttal testimony.

CHAIRMAN JACOBS: You may proceed, Mr. Burgess.

MARK A. CICCHETTI

was recalled as a witness on behalf of the Citizens of the State of Florida and, having been previously sworn, testified as follows:

DIRECT EXAMINATION

BY MR. BURGESS:

Q Commissioner, the witness has been sworn earlier, so I'm going to simply begin by asking him if he has prefiled rebuttal testimony in this docket.

A Yes, I do.

Q And if your answers contained therein were asked today, would they be the same?

A Yes.

Q And did you have any exhibits attached to your rebuttal testimony?

A No.

MR. BURGESS: Mr. Chairman, I would ask that the testimony -- the rebuttal testimony of Mr. Cicchetti be entered into the record as though read.

CHAIRMAN JACOBS: Without objection, show Mr. Cicchetti's rebuttal testimony is entered in the record as though read.

MR. BURGESS: Thank you.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

REBUTTAL TESTIMONY

OF MARK A. CICCHETTI

ON BEHALF OF

THE OFFICE OF PUBLIC COUNSEL

DOCKET NO. 010006-WS

Q. Please state your name and address.

A. My name is Mark Anthony Cicchetti and my business address is 2931 Kerry Forest Parkway, Suite 202, Tallahassee, Florida 32309.

Q. Are you the same Mark Anthony Cicchetti who previously filed direct testimony in this proceeding?

A. Yes, I am.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to provide an evaluation of the analyses of Dr. Roger A. Morin and Mr. Pete Lester regarding the fair and reasonable rate of return on common equity which the Commission should base its leverage formula methodology for water and wastewater ("WAW") utilities in the State of Florida.

Q. Please summarize your rebuttal testimony.

A. Regarding Dr. Morin's testimony, the cost of common equity estimate he determined of 10.00% to 13.40% overstates the cost of common equity for use in the leverage formula for ratemaking purposes for a typical Florida WAW utility. Regarding Mr. Lester's testimony, it is my opinion that the adjustments incorporated in Commission Order No. PSC-01-1226-PAA-WS adequately address the risks associated with the size of the typical Florida WAW utility and a third adjustment related to size is unnecessary.

I. REBUTTAL OF DR. ROGER A. MORIN

Q. Dr. Morin claims he is presenting an "independent analysis" of the fair and reasonable rate of return on equity (Morin, Page 3, line 15). Do you agree?

A. No. Webster's Dictionary defines independent as: not subject to the control, influence, or determination of another; not depending on another for financial support; not subject to bias, persuasion, or influence (See Webster's New Twentieth Century Dictionary, Second-Edition). When a person is testifying on behalf of a party to an adversarial proceeding, that person, by definition, is not unbiased - particularly if that person is being paid by one of the adversaries in the adversarial proceeding.

Q. Dr. Morin relied on the actual yield on long-term Treasury bonds of 5.8% for use in his Capital Asset Pricing Model ("CAPM") risk premium approach and Risk Premium analyses (Morin, Page 20, line 13). What is the current yield on long-term Treasury bonds?

A. The current yield on long-term Treasury bonds is 5.3%. Consequently, using Dr.

Morin's own methodology, the results of his CAPM risk premium approach and Risk Premium analyses are overstated by 50 basis points.

Q. In his CAPM, Dr. Morin relied on a market risk premium of 7.8% which was based on the historical earned returns of a broad market sample of common stocks over the returns of long-term Treasury bonds (Morin, Page 24, line 17). Is it appropriate to rely on a risk premium analysis that uses earned returns rather than expected returns in determining risk premiums?

A. No. Required return is a function of expectations and not a function of ex post performance. Actual performance may deviate substantially from what was expected but it is expectations relative to requirements that determine if an investment should be made. Relying on earned returns in the ratemaking process as the basis for required returns can produce incorrect results. For example, just because a company had an earned return on equity of either 5% or 25% does not mean that the company's cost of equity was either 5% or 25%. Furhtermore, relying on earned returns as a proxy for required returns can produce nonsensical results. For example, Morin Exhibits RAM-2 and RAM-3 show annual equity risk premiums that range from negative 37.34% to positive 61.21%. The return to equity owners is a residual return (i.e., equity owners do not earn a return until the debt holders have been paid). Therefore, common equity is riskier than debt. It is illogical to think that in any year the cost of equity was 37.34% less than the cost of debt. If you use bad ingredients to bake a cake, you should not expect the result to be a good cake. Consistent with theory, I have never seen an appropriately derived risk premium analysis produce a cost of equity less than the relevant cost of debt.

Finally, in "The Risk Premium Approach to Measuring a Utility's Cost of Equity" (a Public Utility Research Center working paper written in August 1984), Brigham, Shome and Vinson state, "... we concluded that, for cost of capital estimation purposes, risk premiums must be based on expectations, not on past, realized holding period returns."

Q. In Dr. Morin's prospective approach to deriving the market risk premium for his CAPM analysis, he relied on a DCF analysis for the aggregate market that incorporated expected and historical growth in earnings as a proxy for the expected growth rate for dividends (Morin, Page 26, line 10). Is this appropriate?

A. No. It is inappropriate to rely on expected earnings growth as a proxy for expected dividend growth. The discounted cash flow (DCF) model is a dividend discounting model. According to DCF theory, the cost of equity is the discount rate (required rate) that equates the present value of the expected cash flows associated with a share of stock to the price of the stock. The cash flows expected to be received from a share of stock consist of expected dividends plus the price investors expect to receive when they sell the stock. The market price in any period (t) will equal the present value of the dividends and sales price expected after period (t). Applying this concept to all future sales prices, the current stock price can be shown to equal the present value of all dividends expected to be paid in the future, including any liquidating dividend. Therefore, expected dividend growth should be used when determining the cost of common equity using a DCF model.

The expected growth in earnings is not a valid proxy for the expected growth in dividends because all earnings are not paid out as dividends when they are earned. A

fundamental principle of the DCF approach is that investors value a dollar received in the future less than a dollar received today. This is because, if they had a dollar today, they could invest it in an interest earning account and increase their wealth. This principle is called the time value of money. Generally, utility companies increase dividends in a lock-step fashion and only when it is anticipated that a higher level of earnings can support a higher level of dividends. Not properly accounting for the timing and amount of expected cash flows when preparing a discounted cash flow analysis produces an incorrect result. Interestingly, Dr. Morin's direct testimony (Page 36, line 1 - Page 37, line 7) explains the relevance of dividends and expected dividend growth to DCF theory. However, when performing his analyses, Dr. Morin only refers to "growth" and incorporates earnings growth as the growth variable.

According to *Value Line*, the companies used by Dr. Morin in his DCF analyses expect higher growth in earnings relative to growth in dividends over the next five years. Therefore, because Dr. Morin relied on historical and expected earnings growth as a proxy for expected dividend growth, the dividend growth variable in Dr. Morin's DCF analysis is overstated. Consequently, his DCF determined cost of equity is overstated.

Q. Dr. Morin performed Risk Premium analyses for two groups of regulated utilities (Morin, Page 28, line 4). Did these analyses include the use of historical earned returns as a proxy for required returns based on expectations?

A. Yes, and for the reasons cited above regarding the inappropriateness of using ex post returns as a proxy for expectations, Dr. Morin's Risk premium analyses overstate the cost of equity for a typical Florida WAW utility.

Q. Dr. Morin stated that he adjusted his risk premium results to account for the fact that water and wastewater utilities are riskier than the other regulated industries (Morin, Page 30, line 7). Are water and wastewater utilities riskier than the other regulated utilities?

A. No. The water industry is more locally oriented than the other utility industries, there is no substitute for water, and technological breakthroughs are limited. Consequently, there is virtually no competition. As pointed out by Standard and Poor's in their recent paper on water and wastewater utilities, "Given the essentiality of the commodity provided--which allows for no substitutes, lower "fuel" and technological risks, and limited competition--Standard & Poor's considers water utilities to be the lowest-risk utility sector. As a consequence, financial ratios and flexibility can be lower for these entities, relative to like rated utilities in the gas or electric sector" (See Water and Wastewater Utilities, Projects, and Concessions, www.standardandpoors.com/Resource Center/RatingsCriteria). The lower "fuel" risk cited by Standard & Poor's refers to the fact that the most important input resource that must be purchased by the water industry - water - has less price variability, and therefore contributes less risk, than the risk the cost of fuel contributes to the energy industry.

Q. Dr. Morin performed a risk premium analysis to estimate a typical water and wastewater utility's cost of equity using returns allowed by regulatory commissions as the required return on equity (Morin, Page 33, line 7). Is this appropriate?

A. No. The required return on equity is a function of relevant risk. Using allowed returns to determine a utility's cost of equity is circular logic. If every regulatory commission relies on every other regulatory commission's allowed returns, which regulatory

commission has determined the appropriate required return based on relevant risk? Using returns allowed by other regulatory commissions as the required return for a regulated utility is simply a defective shortcut way to set an allowed return based on what "everybody else" is doing rather than logically evaluating expected cash flows and market prices.

Q. Dr. Morin performed DCF analyses for three groups of regulated utilities (Morin, Exhibit RAM-4, RAM-5, RAM-6). Did these analyses rely on historical and projected earnings growth as a proxy for expected dividend growth?

A. Yes, and for the reasons cited above regarding the inappropriateness of using earnings growth, historical or projected, as a proxy for expected dividend growth, Dr. Morin's DCF analyses overstate the cost of equity for a typical Florida WAW utility.

Q. As an alternative to the leverage formula, Dr. Morin proposes that the Commission determine the allowed return for the various Florida WAW utilities using his range of returns on common equity with an adjustment for differences in leverage between a particular WAW utility and the group of utilities used in determining the Commission's leverage formula (Morin, Page 49, line 7). Should the Commission adopt this approach?

A. No. For the reasons stated above, Dr. Morin's range of returns on common equity for use in the leverage formula are overstated. Additionally, with regard to the adjustment for leverage, Dr. Morin claims that empirical studies indicate that when the debt ratio increases from 40% to 50% equity costs increase from a low of 34 basis points to a high of 237 basis points. However, Dr. Morin has not cited any of these studies and no

evidence is provided indicating the types of companies analyzed, the assumptions underlying the analyses, or the analyses relevance to Florida regulated WAW utilities. Therefore, the Commission should not adopt this approach.

Q. Regarding the relative investment risks of the water and electric and gas industries, Dr. Morin claims the investor-owned water utilities are much more dependent on external financing than are gas and electric utilities (Morin, Page 55, line 15). Do you agree?

A. No. I believe Dr. Morin's claim is misleading. The amount of funds generated in the external market by gas and electric utilities in this state dwarfs the amount of funds generated in the external market by the water and wastewater industry regulated by the Commission. As pointed out by Dr. Morin (Morin, Page 53, line 19), Florida WAW have a significantly large portion of contributed property compared to net plant. The purpose of having a policy that recommends a high proportion of contributed property is to reduce the risks and pressures associated with having to tap the external market for financing. Dr. Morin claims that having a high percentage of contributed property makes Florida WAW utilities riskier (Morin, Page 53, line 19). However, Florida WAW utilities would have to raise substantial amounts of funds if contributed funds were not available to them. Not having to raise substantial amounts of funds tends to lower risk. In fact, many electric utilities go to great lengths to avoid having to tap the external market to finance power plants. Furthermore, many small Florida WAW utilities are severely undercapitalized. As shown on Mr. Lester's Exhibits PL-11 and PL-12, 55 of 148 water systems and 41 of 118 wastewater systems have no equity capital. These firms have chosen to be inadequately capitalized. In Florida, and nationwide, many small water and wastewater systems are developer related and, for a variety of reasons, the owners of

these systems have chosen not to avail themselves of the tools the regulatory commissions place at their disposal to produce compensatory rates and increase internally generated funds.

The Commission's leverage formula is available to companies that want to avoid the expense of providing cost of equity testimony. Companies are not required to rely on the leverage formula and can present testimony if they have circumstances they believe are not accounted for by the leverage formula. In my opinion, the Commission should not gear the leverage formula to reflect conditions of the worst firms or of firms that have chosen, for whatever reason, not to avail themselves of the tools available to recover costs including a return on invested capital. Many practices of the Commission, such as pass-throughs for certain costs such as purchased water, purchased power, purchased water treatment, etc., adjustments to rates to recognize increases in inflation, staff-assisted rate cases, recognizing reuse facilities as 100% used and useful, allowances for funds prudently invested, and the use of the leverage formula lower the business risk of Florida WAW utilities relative to those nationwide and facilitate the ability to earn compensatory rates.

Q. Dr. Morin states there are five formal relationships linking the cost of equity to leverage (Morin, Page 62, line 17) and recommends the Commission average the results of all five frameworks as a way to reconcile discrepancies between the various conceptual approaches. Do you agree with Dr. Morin's recommendation?

A. No. Prior to recommending the leverage formula for use by the Commission, the staff of the Commission thoroughly analyzed the relevant theories related to the effects of

leverage on the cost of equity. The theoretical hypotheses related to leverage and equity cost are generally classified as: 1) classic Modigliani-Miller ("MM"), 2.) extensions of MM, and 3.) adaptations designed to account for regulation. Classic MM (see Modigliani and Miller, "The Cost of Capital, Corporation Finance and the Theory of Investment, " *American Economic Review*, Vol. 48 (September 1958), pp. 655-669) which is based on certain limiting assumptions, postulates that the cost of common equity increases with the use of leverage but the increase in the required return on equity resulting from the use of leverage is completely offset by the advantage of the increased use of lower cost debt. Miller (see Miller, "Debt and Taxes," *Journal of Finance*, Vol. 32 (May 1977), pp. 261-276) relaxed certain assumptions related to corporate and personal taxes included in the original MM work but did not incorporate the impacts associated with regulation. Subsequently, others (for example, see Gordon, "Some Estimates of the Cost of Capital to the Electric Utility Industry, 1954-57: Comment," American Economic Review, Vol. 57 (December 1967), pp. 1267-1277, Gordon and McCallum, "Valuation and the Cost of Capital for Regulated Utilities: Comment," *Journal of Finance*, Vol. 27 (December 1972), pp.1145-1146, and Jaffe and Mandelker, "The Value of the Firm under Regulation," *Journal of Finance*, Vol. 31 (May 1976), pp. 701-713) analyzed the relationship of leverage and the cost of common equity incorporating the impacts of regulation. Variables that were examined included the regulatory treatment of taxes and the relationship between demand and demand variability. The results of the various studies indicate that different economists arrive at different conclusions (what a surprise!) as to the specific impacts leverage has on the cost of common equity when the limiting assumptions included in the classic MM work are relaxed. In my opinion, the works that incorporate the impacts of regulation arrive at, essentially, the conclusions reached in the original MM work which is the basis of the leverage formula as used by the Commission.

In 1986, the Commission requested the University of Florida Public Utility Research Center study the effects of capital structure on utilities' costs of capital and revenue requirements. Regarding the relationship between financial leverage and the cost of equity, Dr. Brigham, et. al., concluded:

In summary, finance theory provides many different hypotheses regarding the relationship between equity costs and leverage. The exact specifications of the relationship depends on the underlying assumptions. However, we have no way of knowing which set of assumptions is most correct, or indeed if any set of assumptions is good enough to form the basis for practical decisions. (See *Effects of Capital Structure on Utilities' Costs of Capital and Revenue Requirements,* 1986, Brigham, Gapenski, and Aberwald, Public Utility Research Center, University of Florida)

In my opinion, it would inappropriate to average the five hypotheses cited by Dr. Morin and use the result in the leverage formula. Because some of the hypotheses do not account for the impacts of regulation, the legitimacy of the result would be compromised.

II. REBUTTAL OF MR. PETE LESTER

Q. In his CAPM analysis, Mr. Lester estimated the market return by applying a DCF equation that incorporated the average of expected earnings growth and expected dividend growth as a proxy for expected dividend growth. Is this appropriate?

A. No. It is not appropriate for the reasons cited in my rebuttal to Dr. Morin's testimony regarding the use of earnings growth as a proxy for dividend growth. It is interesting to

note, Mr. Lester used only expected dividend growth, and did not include expected earnings growth, in his straight DCF analysis.

Q. Mr. Lester recommends the Commission make a third adjustment, in addition to those allowed by the Commission in Order No. PSC-01-1226-PAA-WS, to compensate for risks associated with small-size (Lester, Page 23, line 9). Do you believe this is necessary?

A. No. The Commission, in Order No. PSC-01-1226-PAA-WS, allowed two adjustments - which increased the cost of equity by 91 basis points - to compensate for risks associated with the small size of the typical Florida WAW utility. Mr. Lester recommends adding an additional 50 basis points to "recognize the financial stress, and hence risk, that small water and wastewater systems can experience" (Lester, Page 24, line 10).

Historically, Florida WAW utilities have been characterized as small (Class C), medium (Class B), and large (Class A) based on revenues. Typically, small firms have under $200,000 in revenue, medium sized firms have between $200,000 and $1,000,000 in revenue and large firms have over $1,000,000 in revenue. As shown on Lester Exhibit PL-8, large Florida WAW firms (over $1,000,000 in revenue) collect more than 2 times the revenue that the smaller firms, combined, collect. Assuming the number of customers correlates to the amount of revenues collected, there are more than twice the number of customers in Florida, under the Commission's jurisdiction, being served by large WAW utilities versus small WAW utilities.

In Order No. PSC-01-1226-PAA-WS, the Commission assumed a bond rating of Baa3 as

the cost of debt, the lowest investment grade rating, added a 41 basis point premium to the cost of equity - based on the difference between the comparable firms used to calculate the cost of equity and a Baa3 rating - and added an additional 50 basis points as a private placement premium to compensate for the higher financing costs associated with private placements. These adjustments apply to the cost of equity for all firms that use the leverage formula, small and large alike, and are in addition to the recovery of the actual cost of debt. Although many Florida WAW utilities are small, they are still regulated entities and have lower risk than similar non-regulated entities. Many small firms rely on bank loans versus bond issues or private placements because the investment banking costs (analysis costs, etc.) are not justified for small borrowings. Many small companies are actually better off dealing with the banks. I believe it is reasonable to assume, for the purposes of the leverage formula, that a well-managed, prudently operated Commission regulated WAW utility would meet the financial criteria necessary for an investment grade rating and the ability of a Commission regulated WAW utiltiy to pay its' debts should not be considered "uncertain." Consequently, I believe the Commission, in Order No. PSC-01-1226-PAA-WS adequately addressed the additional risks associated with size and no additional adjustments are necessary.

Q. Does this conclude your rebuttal testimony?

A. Yes.

BY MR. BURGESS:

Q And I would ask Mr. Cicchetti to give the Commission a brief summary of his rebuttal testimony.

A Mr. Chairman, Commissioners, my rebuttal testimony addresses the direct testimony of Dr. Morin and Mr. Lester. Regarding Dr. Morin's testimony, Dr. Morin overstates the cost of equity for use in the leverage formula. The main reasons Dr. Morin overstates the cost of equity are his reliance on historical earned returns as a proxy for required returns and his use of earnings growth as a proxy for expected dividend growth.

The cost of equity, also know as the required return, is a function of expectations and not past performance. Just because a company earns either 5 percent or 25 percent does not mean its cost of equity is either 5 percent or 25 percent. Relying on earned returns as a proxy for required returns can produce nonsensical results. For example, Dr. Morin's risk premium analysis shows years where he determines the cost of equity is over 30 percentage points below the cost of debt. This is completely contrary to financial theory and makes no sense. It is well established in the financial literature, including Dr. Morin's own book, that for cost of capital estimation purposes risk premiums must be based on expectations and not on past realized holding period returns.

Dr. Morin also relied on earnings growth as a proxy

for dividend growth in his DCF analyses. However, the DCF model is a dividend discounting model. All earnings are not paid out as dividends when they are received. Not properly accounting for the timing and amount of expected cash flows in a discounted cash flow analysis produces an incorrect result. Dr. Morin's use of historical earned returns and use of earnings growth as a proxy for dividend growth are pervasive throughout his testimony and causes results to be overstated.

Regarding Mr. Lester's testimony, it is my opinion that the Commission adequately addressed the risks associated with the size of a typical Florida water and wastewater utility in the PAA, and a third adjustment for size as proposed by Mr. Lester is unnecessary. Although many Florida water and wastewater utilities are small, they are still regulated entities and have lower risks than similar nonregulated entities, and given prudent management can avail themselves of the tools made available by the Commission and by statute that give them a reasonable opportunity to earn a fair return and maintain their financial integrity.

Consequently, I believe the Commission in the PAA adequately addressed the additional risks associated with size, and no additional adjustments are necessary. This concludes my summary of my rebuttal testimony.

MR. BURGESS: Thank you, Mr. Cicchetti.

Mr. Chairman, we would tender the witness for

cross-examination.

CHAIRMAN JACOBS: Mr. Menton.

MR. MENTON: Thank you, Mr. Chairman.

CROSS EXAMINATION

BY MR. MENTON:

Q Good afternoon, Mr. Cicchetti.

A Good afternoon, Mr. Menton.

Q Just a couple of questions. You would agree that Dr. Morin didn't use just one approach; correct?

A Yes.

Q In fact, what he utilized was two CAPM models; correct?

A Yes.

Q And he performed four separate risk premium analyses?

A Yes.

Q And two of the risk premium analyses utilized historical information, and two were based upon allowed returns; correct?

A Right. And allowed returns are really not a way to determine required returns. A lot of the allowed returns as pointed out in Mr. Lester's testimony and in Dr. Morin's testimony are years old. They don't reflect the current conditions. Some of them can reflect stipulation. For example, I know in negotiations that parties may have for stipulations here in Florida, certain items may not be adjusted

and the allowed return would remain the same. So using allowed returns as a basis for required returns is not appropriate.

Q Okay. The question was, though, he used several different approaches, and isn't it true that each approach has its own strengths and weaknesses; correct?

A That's correct. And as I pointed out in my summary, it's pervasive throughout his testimony to use historical returns and using earnings growth as dividend growth, and I think that overwhelms the testimony in general and produces an incorrect result.

Q Well, the earnings growth only comes into play with respect to the DCF analyses; correct?

A Right, which are --

Q Which are three separate DCF analyses which he's done; correct?

A And he's included DCF analyses in his CAPM analyses and his risk premium analyses.

Q And one of the reasons for doing multiple approaches is to try to find a consensus that would weed out some of the infirmities in any one particular approach; correct?

A That might be his opinion. What I have done is try to analyze the different approaches and their basic underlying assumptions and rely on the best. I wouldn't recommend anyone just throw in a bunch of different approaches, especially if they're based on unfound assumptions just so --

Q So are saying that --

A -- I could say I had --

Q I'm sorry.

MR. BURGESS: Excuse me. I would ask that the witness be allowed to finish his answer.

MR. MENTON: I thought he was finished.

A I wouldn't add a lot of different approaches, especially if they were based on unfounded assumptions just so I can say, look, I've done a bunch. You know, a lot of -- not a good number or a wrong number doesn't make the final result any better. I think I said in my testimony, if you use bad ingredients to make a cake, you shouldn't expect the result to be a good cake.

BY MR. MENTON:

Q So you would prefer to use one DCF analysis based upon four publicly traded water utilities with an average annual revenue stream of $500 million as the appropriate approach rather than looking at several different approaches that might give you a more overall view; is that correct?

A No, that's not correct. I used the discounted cash flow analysis that relied on an index of publicly traded water companies that have information available from Value Line. And I did a separate risk premium analysis that was used based on Moody's index of natural gas distribution companies. I used two --

Q And the risk premium -- I'm sorry.

A I used two completely separate approaches. Both approaches are outlined in Dr. Morin's book. And the approach on the risk premium in his book is shown as a completely separate distinct methodology, and nowhere in his book does he say, well, just because this included a DCF analysis it's really just another DCF analysis. It's a distinct different approach that incorporates additional information that, in my opinion, is useful and is a check as well as another result on the DCF analysis.

Q Okay. And the risk premium analysis that you did for the gas companies resulted in a cost of equity that was 150 basis points different than what you came up with when you ran a DCF analysis on those same companies; correct?

A That's correct, but that's not unusual. Dr. Morin in his own testimony and I think Mr. Lester in his testimony doesn't come up with the same result for every methodology.

Q Right. So every methodology produces different results based upon the assumptions that go into them?

A Right. And I used two separate distinct methodologies.

MR. MENTON: No further questions.

CHAIRMAN JACOBS: Staff.

CROSS EXAMINATION

BY MR. JAEGER:

Q Mr. Cicchetti, isn't it true that many of the assets of water and wastewater utilities have depreciation lives longer than ten years?

A Yes.

Q In your rebuttal on Page 13, Line 11, isn't it true that you state that many small companies are better off with banks?

A I believe I said they were better off dealing with banks in the context of versus incurring the expenses associated with either issuing bonds or doing a private placement.

Q And isn't it also true that banks typically make loans that are paid back over a span from three to ten years?

A I'd say that's fairly typical, yes.

Q Then wouldn't a small utility encounter a timing problem regarding cash flows, that is, having to pay back the loan in ten years or less while only being allowed a return of their investment over a period greater than ten years?

A Not necessarily. I think that's the way it's been done for quite a while. I don't know that all utility companies have 30-year bonds financing their assets. I don't believe they do. But an analysis in determining a company's rates would incorporate ensuring that they have adequate funds to pay back their debt.

Q But if they're dealing with a bank and the loan is

less than ten years and the depreciation on a long-lived asset is over, say, 20 years, then they will not -- the loan that pays for that asset would not be -- they would not get the return of that depreciation within the ten-year period, would they not?

A Well, actually, the depreciation is going to be determined based on the expected -- the remaining average life or the expected life, and the loan would be turned over. I think that's fairly typical. I don't see a disparity that somehow is going to cause the company not to be able to recover its cost of funds.

MR. JAEGER: I have no further questions.

CHAIRMAN JACOBS: Redirect.

MR. BURGESS: No, sir.

CHAIRMAN JACOBS: Very well. No exhibits. Thank you. You're excused, Mr. Cicchetti.

THE WITNESS: Thank you, Mr. Chairman.

(Witness excused.)

CHAIRMAN JACOBS: That I believe takes care of all the testimony.

MR. MENTON: Yes, sir.

CHAIRMAN JACOBS: What's the schedule, counsel?

MR. JAEGER: Chairman, I'm sorry, I couldn't hear you. The timing of this case shows the transcript of the hearing due on November 8th. I had originally asked if they

could do that, turn it around in three days for a one-day hearing, and they said it should be okay.

If the briefs -- if the transcript is due on the 8th, we had briefs due on November 21st.

CHAIRMAN JACOBS: Okay. Everybody okay? Good. Thank you all for being expeditious this morning, and we're adjourned.

(Hearing concluded at 12:35 p.m.)

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STATE OF FLORIDA)

: CERTIFICATE OF REPORTER

COUNTY OF LEON)

I, TRICIA DeMARTE, Official Commission Reporter, do hereby certify that the foregoing proceeding was heard at the time and place herein stated.

IT IS FURTHER CERTIFIED that I stenographically reported the said proceedings; that the same has been transcribed under my direct supervision; and that this transcript constitutes a true transcription of my notes of said proceedings.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorneys or counsel connected with the action, nor am I financially interested in the action.

DATED THIS 8th DAY OF NOVEMBER, 2001.

Tricia DeMarte

TRICIA DeMARTE
FPSC Official Commission Reporter
(850) 413-6736

EXHIBIT NO. 1

WITNESS: **Dr. Roger A. Morin**

DESCRIPTION

Dr. Morin's October 23, 2001, Deposition and Late-Filed Exhibits

and November 1, 2001 Deposition

PROFFERING PARTY: **By Stipulation of the Parties and Staff**

DOCKET NO. 010006-WS

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Water and wastewater industry annual reestablishment of authorized range of return on common equity of water and wastewater utilities pursuant to Section 367.081(4)(f), F.S.

DOCKET NO: 010006-WS

ORIGINAL

THE TELEPHONIC DEPOSITION OF:	ROGER A. MORIN
TAKEN AT THE INSTANCE OF:	Florida Public Service Commission
DATE:	Tuesday, October 23, 2001
TIME:	Commenced at 1:30 p.m. Terminated at 2:45 p.m.
PLACE:	Gunter Building, Room 362 2540 Shumard Oak Boulevard Tallahassee, Florida
REPORTED BY:	SARAH B. GILROY, RPR Notary Public in and for the State of Florida at Large

KIRKLAND & ASSOCIATES
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Tallahassee, Florida 32302
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ALSO PRESENT:

MR. PETE LESTER
MR. DAVID DRAPER
MR. MARK A. CICCHETTI

I N D E X

MR. JAEGER: Just swear him in on the phone, and then she can go after that, I believe.

MR. MENTON: All she has to do is provide us with a certificate that you identified yourself sufficiently to her and that you affirm that you are the person who filed the prefiled testimony in this case.

MR. JAEGER: She will have to send in an affidavit.

MR. MENTON: Send in an affidavit to that effect, send it to me.

THE WITNESS: I will do that.

MR. MENTON: She will swear you in by asking you to swear or affirm that the testimony you're about to give will be the truth, the whole truth and nothing but the truth.

Thereupon,

ROGER A. MORIN

was called as a witness, having been first duly sworn, was examined and testified as follows:

MR. JAEGER: I guess we can go ahead with the deposition then.

THE WITNESS: She will send a written affidavit, or we will fax it to you.

MR. MENTON: Great.

MR. JAEGER: Okay. We will do the standard

stipulation that we did before, stipulate that this deposition was taken pursuant to notice in accordance with the applicable Florida Rules of Civil Procedure, and that objections, except as to the form of the question and privilege, are reserved until hearing in this cause, and that reading and signing will not be waived I presume?

MR. MENTON: That's correct.

MR. JAEGER: I guess there is one other part, it is also stipulated that any off-the-record conversations are with the consent of the deponent.

DIRECT EXAMINATION

BY MR. JAEGER:

Q Okay. We will go ahead. Dr. Morin, could you please state your name and business address for the record.

A Roger A. Morin, professor of finance, Georgia State University, College of Business, Atlanta, Georgia.

Q And by whom are you employed?

A By the College of Business, Georgia State University.

Q Okay. And did you prefile testimony in this proceeding?

A Yes, sir, I did.

Q And that was both direct and rebuttal testimony; is that correct?

A Yes, sir.

Q Would you agree that when utility assets are replaced and put into service through a rate-based rate of return proceeding, customers will pay rates based upon the new costs of the replaced assets?

A Yes.

Q Okay. Do you have a copy of your testimony there, both the direct and rebuttal? We will be going to those several times throughout this.

A I have it.

Q Okay. Please turn to page 26 of your direct testimony, and please refer to line 13 where you mention projected growth.

A Yes, I have it.

Q Is this projected earnings growth or dividend growth?

A It's projected earnings growth.

Q Okay.

MR. MENTON: What line is that? I'm sorry.

MR. JAEGER: That was page 26, line 13.

BY MR. JAEGER:

Q Please turn to page 23 of your rebuttal testimony. Are the growth rates listed in the chart on that page earnings growth rates as well?

A Yes, they are, because that's -- the first column

of numbers, under the heading MAC's, does not supply dividend growth forecasts, only earnings growth forecasts, so the answer is yes.

Q Can earned returns differ from required returns?

A Of course.

Q Would you agree that required returns are a function of expectations and not a function of ex-post performance?

A Could you repeat please.

Q Would you agree that required returns are a function of expectations and not a function of ex-post performance?

A Yes, I would.

Q Looking at your exhibits, RAM 2 and RAM 3, isn't it true that many of the equity risk premiums shown in column 11 are negative?

A Yes. These are realized risk premiums, and investor expectations, of course, are not always realized, as we all know personally, from year to year. But eventually over a very, very long time period expectations have to be realized or else nobody would ever invest any money.

Q Okay. So on a going-forward basis, would investors expect a negative risk premium on a stock investment over a bond investment?

A No, they would not.

Q According to the theory behind the DCF model, should the growth rate for dividends, earnings, book value, market value and sales be the same?

A Yes, under the plain vanilla standard, single-stage DCF model, earnings, dividends and book value are all assumed to grow at the same rate.

Q In preparing your testimony for this proceeding, did you specifically analyze the financial condition of Florida water and wastewater utilities?

A No, I did not. You mean individually, or --?

Q Did you specifically look at -- yeah, individually.

A No, I did not, no. I relied on Mr. Lester's plentiful exhibits in that regard.

Q Did you look at the industry as a whole?

A Yes.

Q And what did that analysis or -- consist of?

A Simply industry trends, the kinds of issues they're facing with replacement of assets and worn out assets and the need for scaled economies and the trends with mergers and acquisitions, environmental issues and compliance with Safe Drinking Water Act, the kinds of regulatory risks they're facing, just basically macro factors that concern the industry as a whole.

Q But that was specific for Florida or the industry

as a whole?

A Industry as a whole. Of course I did focus on the Florida industry as well, with their own peculiarities, particularly with the very small size of the water utilities in the state.

Q Do you believe it is appropriate to eliminate utilities involved in mergers from a group of utilities used to determine the cost of equity?

A That's a judgment call. A lot of analysts do that. It's not an unreasonable thing to do I don't think, because sometimes the stock price that you're using in the DCF model may be distorted by pending mergers and acquisitions and the euphoria related to that. So it's not something that I find unreasonable to do.

But of course the trade-off is, the more companies you eliminate, the smaller your sample becomes and the less statistically reliable. So you have to sort of make a judgment with that trade-off. If I have a sample of 30, 40 utilities, I probably would eliminate the ones facing impending merger and acquisitions if the news had already gotten out.

Q Turn -- please turn to page 11 of your rebuttal testimony and refer to the paragraph that begins on line seven. Would you agree that --

A Hold on a second.

MR. MENTON: What page?

A Page 11.

BY MR. JAEGER:

Q Page 11, line seven.

A Got it.

Q Would you agree that Value Line forecasts a return on book equity?

A Yes.

Q And are there differences between financial reporting accounting and regulatory accounting?

A Yes.

Q I hate to send you back and forth. Just a second.

A That's fine. No problem.

Q Go back to your direct testimony, page 27.

A I have it.

Q Lines 11 -- I mean, I'm sorry, lines 12 through 14.

A Yes.

Q Do any of the -- what academic financial literature are you referring to in your testimony that establishes that the CAPM produces a downward biased estimate?

A Okay. Well this is one of the most well-known results in the financial literature, and the literature is extremely voluminous and abundant. The best reference I can give you -- I hate to do this, but I have to -- is in my book in chapter -- I will give you the exact reference in a minute.

There is a summary of that literature, along with the bibliography.

Q I didn't finish my question.

A I'm sorry.

Q Estimate of the equity costs for companies with a beta less than one. I think you were anticipating that. You say there is a chapter in your book that addresses that?

A Yeah. Hold on a second. I will give you the exact citation. It's chapter 13. It summarizes that literature and also enumerates the various studies that have been done in that regard.

Q Okay. And this was by other analysts, other experts --

A Mostly it's academic. I typically rely on academic journals where, you know, you go through a refereeing process, and typically the Journal of Finance or the Journal of Financial Economics or, you know, reputed journals in our business.

Q Please turn to page 27, line 21.

A I have it.

Q How did you derive the 25 percent and 75 percent rates used in your -- is that expanded or empirical CAPM calculation?

A Okay.

Q Is there a difference -- let me back up. I think I

saw at one time you used the word "expanded," and another time I saw "empirical." Is that the same?

A They're synonymous. That procedure is described in my book in chapter 13 on page 335. The quick answer is that I simply observed the returns in relationship to their betas. And line 21, the equation you see on line 21 was the equation that best suited the data. By "data" I mean the returns on the vertical axis and the beta on the horizontal axis, and I simply let the markets speak for themselves.

So I refer to page 335 and 336 of my book if you want all the gory details.

Q Okay. Again on page 27, do any of the financial services that calculate and report betas such as Merrill-Lynch, Value Line and B-A-R-R-A adjust beta in a manner similar to what you have done with your empirical CAPM model?

A No, they do not. What they do publish are what we call adjusted betas, as opposed to raw betas. And they adjust for the time trends that we've observed in the economy that companies tend to mature over time, much like human beings do, and through their dividend policy and their financial policies and their growth policies they tend to mature. By mature, I mean a beta tending towards one. And they make that adjustment.

It's got nothing to do with line 21, absolutely nothing to do with that. So the Value Line data that you see

published are adjusted datas that they allow for the time trends of companies and gravitate towards one.

Q Going back to page 26 of your direct testimony. Refer to the projected growth in lines 14 and 15.

A I'm back.

Q Is that projected dividend growth or projected earnings growth?

A On page --?

Q It's page 26, lines 14 and 15.

A These are earnings growth. When you're using the plain vanilla DCF model it is assumed that earnings and dividends grow at the same rate.

Q You may explain it. Let's go to page 34 of your testimony, lines eight through ten. How do you get from the risk premium of 5.3 percent to the allowed risk premium return on equity of 11.5 percent for electric utilities on page 35, line 18?

A Okay.

Q Can you just run me through that one time.

A Uh-huh. I'm on page 34. I'm on line eight and nine; correct?

Q Eight through ten, yeah.

A Okay. Okay. I got it. If you would -- I'm on line number eight. If you insert 5.8 percent in the above equation, you get a risk premium of 5.3. So the cost of equity

would be simply the sum of 5.8 plus 5.3, which would give you 11.1.

But earlier on in the testimony we discussed the risk premium that's applicable to a riskier water utility would be higher by approximately 30 basis points. That's how you get to 11.4, 11.5 and 11.4. I should have made that link with the earlier risk premium of the -- on page 30, line four. Page 30, line four says, do you adjust your risk premium results to account for the fact that water and wastewater utilities are riskier? The answer is yes, and there is a 40 base points adjustment. That's the one that carries through in the allowed risk premium.

Q So that's the same for the --

A Same for the gas.

Q Okay. In previous testimony have you used projected dividend growth in determining the market risk premium for your CAPM analysis?

A A long, long time ago I used to do a weighted average of both. And now I don't, because the dividend payout policies of corporate America are expected to change. We're expecting lower payout ratio. That's why I don't do that anymore.

Q Okay. On page 41, lines seven through ten or so, what analysis did you perform to show that water and wastewater utilities have a similar investment risk profile to that of

transmission and distribution utilities?

A I just looked at the economic characteristics; they have have a very capital intensive network; they are subject to rate of return regulations, subject to economies of scale. They are -- their earnings are weather sensitive and so forth.

Q Okay. Would you agree that there is more competitive pressure for generation divested electric utilities than for Florida water and wastewater utilities?

A I would agree with that. They have -- I would agree that water utilities in Florida have less business risk than P and D electric utilities. This argument does not extend to financial risk, which I think is higher for the water utilities. But you're right on the business risk question.

Q On page 41, line 21 of your testimony you state, water and wastewater utilities are riskier than average.

A Right.

Q What group or industry are you comparing water and wastewater utilities to when you arrive at this conclusion?

A I was comparing them to electric and gas utilities. That's mainly because of their very, very small ties, and they simply don't have access to capital markets. They don't have any coverage by analysts. A lot of them don't have their debt securities rated. They simply haven't got the visibility and clout on financial markets that their electric and gas cousins.

Q So is size the only distinctive element, basically, that makes water and wastewater utilities more riskier than the industry you're comparing them to?

A Size is a major, major factor and regulatory risk associated with that. But mainly size.

Q Can you provide any financial literature which will show that except for -- I'm sorry. Strike that. Okay. Please turn to page 30 of your direct testimony.

A I have it.

Q You suggest that water and wastewater utilities are riskier than other regulated utilities. Do bond ratings suggest this?

A Well the problem is that most of the water utilities are so small that their bonds are not even rated. They have to procure financing through private placements and presumably pay a higher cost than they would if they were publicly traded. Was that the sense of your question?

Q I think what -- I guess what we're looking at are the bond ratings for the water companies that you do have. Aren't they slightly higher?

A The one -- the very, very few that we have, they're huge national type companies, two of them are anyway, and there are no comparable Florida water utilities with bonds that are rated.

Q But the ones we do have, are they high?

A They're single A type of rank.

Q And that would be higher than the --

A And the average bond rating in the electric utility industry is probably A 2 or A 3. Gas is probably about the same. So it would be in the same ballpark.

Q Do betas suggest that water utilities are riskier?

A Yeah, but the problem with the betas of water companies is they are biased downwards by spin rating. They don't have the same kind of breadth or liquidity or trading as the bigger stocks on the New York Stock Exchange. That tends to bias the betas downward a little bit. I think I document that in my testimony.

If you look at the betas of the more widely traded utility companies, they're substantially higher than the betas of smaller utilities because of the thin trading bias.

Q What analysis have you performed to show that water and wastewater utility companies are more risky than natural gas companies?

A I looked at a variety of factors, and they are described -- a lot of them are described in my testimony on page 54. There is a Q and A there, page 54, line 14, and it says, Dr. Morin, please comment on the relative investment risks of water and electric and gas, and there are a variety of factors that are discussed in here, the market-to-book ratios and coverage and realized returns, and it goes on and on and on

for several pages. So I think the answer is there.

Q Okay. I think you did a Commission workshop on February 23rd, '95; that's in your testimony there?

A Yes.

Q That's basically still valid today, what you said there?

A Broadly speaking, the answer is yes. There has been some slight easement in the compliance with the Safe Water Drinking Act -- a little bit more flexibility. But I would say those comments are applicable to that pretty well.

Q Okay.

A And the need to upgrade and replace very old, worn out, antiquated facilities is probably more urgent now than it was some years ago.

Q Okay. Turn to Exhibit RAM 6, page one of two.

A I have it.

Q Did you check to see if any of these companies have significant non-utility revenues, like 30 percent or more?

A No.

Q Can the stock price and investor expectations for natural gas utilities be affected by non-utility activities such as exploration and drilling?

A Yes, I think it can. Stock price is a reflection of the consolidated activities of the company, regulated and unregulated. So the answer is yes.

Q And that could be significant; couldn't it?

A It could be. But I relied on the fact that Value Line still classifies these companies as gas distributors. That's why I put column one in there.

Q In your analysis of allowed return on equities of the electric and gas utilities -- this is on page 33, lines 17 through 20.

A Yes.

Q How many of the ROE decisions were based on stipulations?

A Oh, my goodness, I have no idea. There are over 400 decisions that are cited in that particular source, which is Regulatory Research and Associates. Out of those 400, I can hazard a guess. But they don't say if it's negotiated or not. So it's very difficult for me to give you that answer. I would say maybe 50. I have no idea.

Q So allowed ROEs used in your analysis may contain stipulated ROEs?

A Yes. But they're the ones that are published by Regulatory Research and Associates. That's what investors are looking at before they formulate their judgments about regulatory risks.

Q But wouldn't you agree that stipulated ROE decisions may not be representative of utilities' actual costs of equity?

A Not necessarily. I don't agree with that.

Q I say it may not be representative of utilities' actual cost --

A May not be. But I think the vast majority of the 400 decisions or so I think would be pretty good indicators of allowed returns in a given industry.

Q In your testimony of allowed risk premiums in the regulated utility industry, you stated that no such comprehensive data in a statistically meaningful quantity is available for water utility regulatory decisions.

A Correct.

Q What do you mean by "statistically meaningful quantity"? What would be --

A Well the central limit theorem in statistics applies when you have over 20 observations.

Q You're saying we don't have that here?

A Right. Certainly not in the same abundance as electric and gas, where you have hundreds and hundreds of such decisions, but not nearly so many for water. I will have to look at the source document here, which I think I provided you with, Regulatory Focus. And they don't even publish data for water utilities. They publish electric, gas and telephone, and that's it. So, here you are.

Q And I guess same lines, what do you mean by "comprehensive data"?

A That they could award all the common equity ratio that was allowed and so forth. By "comprehensive," it means industry-wide and all-inclusive.

Q Turn to Exhibit RAM 7.

A I have it.

Q Can you provide the data used to prepare that exhibit?

A Sure. I have it on a spread sheet. Should I e-mail it or -- and to whom? To Mr. Lester maybe?

Q E-mail it to me. And spread sheet will be fine?

A It's an Excel spread sheet. It's got simply ROEs and T-bond yields from 1980 to today. You need to give me your e-mail address.

MR. MENTON: You can just send it to me, Dr. Morin, and I will get it to him.

MR. BURGESS: Excuse me. Before you go on, Dr. Morin, this is Steve Burgess with the Public Counsel's Office, just want a point of procedure on this. Can we make that an exhibit to the deposition, Ralph?

MR. JAEGER: That's what I was going to do. Let's make that late-filed Exhibit No. 1 for Dr. Morin, and it's just the data used to prepare Exhibit RAM 7.

BY MR. JAEGER:

Q How soon could you get that done?

A This afternoon.

Q That sounds soon enough. Also, I believe we asked Mr. Cicchetti this morning to do an update of his models through October 1. Let me ask you this question: If you updated the results of the models used in your testimony with the most current available financial data, do you know what the results would be?

A I have a pretty good idea. Let me go to -- just bear with me for one second here. Basically my results, the entire litany of results would be lower by approximately 20 basis points. For every bond, as we speak, are yielding 5.3, 5.4 percent compared to, I believe, the 5.8 that I used in my testimony.

So that's 40 basis points from the risk premium results. The BTF results have not changed very, very much in the last few months. They would remain roughly the same. So the net impact would be, again, as a broad order of magnitude, 20 to 30 basis points lower.

Q As a late-filed Exhibit 2, could you update the results of the models used in your testimony with the most current available financial data through October 1st?

A Well that's a big request. Sure.

Q And --

A That I can't do this afternoon though.

Q I was going to say, how about one week? Can you do

that within one week?

A Yes. What I will do I think, if it's agreeable to everybody, on page 48 of my testimony, my direct, there is a summary there. I will simply update all those numbers with the back-up exhibits.

Q That sounds okay with me.

MR. JAEGER: That's all I have. I will turn you over to Mr. Burgess.

CROSS EXAMINATION

BY MR. BURGESS:

Q Dr. Morin, this is Steve Burgess again. I've got a few questions. I want to start with the area that Mr. Jaeger was just asking you about. My question is -- and you agreed to provide updated information for the models that you used and the methodologies that you used. Is -- would you agree that the Commission should rely on the most current available information when they make their decision?

A Yes, I would.

Q So it would be -- you're in agreement that these adjustments should be made; you're not just going along with them because you've been asked to do so?

A No. Obviously I believe that you should use the most current information.

Q Very good. And I believe you agreed as well in an earlier line of questions with Mr. Jaeger that the required

return on equity is a function of expectations and relevant risks and not a function of actual realized returns?

A That's true. But in order to formulate one's expectations about growth, for example, or future risk, we certainly take into account historical patterns.

Q Okay. And one of the -- one of the methodologies that you use is the CAPM analysis; correct?

A Yes, sir.

Q And in that you used historical returns from -- does it go back to 1926?

A Well let's turn to page -- so I can answer your question properly -- page 20 of my direct testimony.

Q Okay.

A Line three. The standard CAPM equation or expression there on line three, are you with me?

Q Not quite yet.

A Okay. Page 20, line three.

Q I have it.

A Do you see that equation there?

Q I do.

A Okay. The bracketed expression on the right is what we call the market-to-risk premium. And in order to obtain that, I looked at both historical, realized market risk premiums and also prospective or expected market risk premiums.

Q And one -- okay. So one of the risk premiums you

used was historical, and one is prospective, okay.

A I made an average of both, and they were almost the same anyway. In fact, they were the same.

Q With regard to the theory of using -- I want to talk to you about the theory of using the historical analysis, because, assuming -- setting aside for the time being the -- that the numbers come out the same.

A Well that's just coincidence.

Q Yes. Do you agree that using historical data, that the procedure is suspect, that the cost of capital is a forward-looking, long-run expectational concept, while realized return reflects only one of many outcomes initially envisioned by the investor in a probability distribution of several outcomes? And you can tell by my tones that I was reading that, so I don't want that to be a surprise to you. You agree with that statement?

A No, I don't. I would agree with your statement if one is using short-term, historical theorem. And that's very dangerous to do, because realizations over short periods are not necessarily indicative of expectations. But if you're using very, very long-term periods, which I've not used here, in the IBES compilation of returns from 1926 until today, clearly these realizations are indicative of expectations.

As I said earlier in response to Mr. Jaeger's question, over a long time period if investor expectations were

never fulfilled, no one would ever invest any money. So I would agree with you with short-term periods, but I will not agree with you if you're talking about very, very long periods over which expectations do get realized.

Q So do you agree that reliance on realized returns provides a distorted measure of investor expectations, long term and short term?

A No. Short term, yes, but not long term. Again, if that were true over a long term, nobody would invest money. If you never had your expectations met, why would you invest money? So eventually, you know, realizations and expectations must coincide.

Q You're familiar with the area from which I have excerpted the -- that which I read to you; are you not?

A Yeah, yeah, I recognize it (laughter). I'm trying to find a page here.

Q If you've got the 1994 edition, then it's on page 104.

A Yeah, I have it.

Q I'm trying to find here, if I was trying to understand from this book, this particular concept, I'm trying to find here where it indicates that this caution is limited to short term and is not to be -- does not apply to long term at all.

A Well here I'm talking about using the last two

years of returns. That's an extremely suspicious procedure, because two years, chances are that expectations were not fulfilled in those two years.

Q Doesn't it say that this is -- that this is particularly problematic in the short term?

A Yes. I think using realizations over one or two, three or five years is a very, very dangerous issue.

Q But if I take language that says, particularly problematic in the short term, wouldn't that lead me to assume that it's got some problematic aspects in the long term as well?

A No. If you go to page 273, I think you will find the answer to your question.

Q I think we get to 273.

A If you go to 273, the middle paragraph there. And I think that agreed with your point, and I quote, risk premiums based on short time periods can be particularly volatile, changing with capital market conditions, inflationary expectations and fiscal monetary forces. Then I go on to say that you should ignore these realizations over very short periods. And I go on to say that, over a long time period, everything kind of cancels out.

Q And where would you tell me that you're saying that?

A I am looking for it. If you keep reading that

paragraph, we talked about periods that are long enough to smooth out short-term aberrations and encompass several business and interest rate cycles? And then the last sentence I think from IBES and Associates reinforces what I've just said, using long, long time periods eliminates those vagaries that you're worried about.

Q Let me ask -- if I take you back to page 104, just to make sure I understand the context, now you're talking -- you say that this involves -- this is within the context of a two-year examination of historical data. But the paragraph I'm looking at that begins, the realized return approach is strictly encountered measuring cost of equity indicates a ten-year time period; am I reading that correctly too?

A That's not long enough in my view.

Q So even up to ten years would be suspect, using historical data?

A Yeah. And I think a good example of that, that we can all relate to, if we're going to look at the stock market in the last ten years, it was dominated by a very, very bullish period, eight years of very, very high realized rates of return. And I certainly would not extrapolate this to the future.

So I agree with you that it's suspect if you're using short periods. And by "short," I mean something less than 1926 to 2000.

Q Let me ask you this: With regard to -- well let me ask, with regard to -- I have another quote from your book, and I would ask you to comment on that in this same context. On page 149 you say, past growth rates and earnings or dividends may be misleading, since past growth rates may reflect changes in the underlying relevant variables that cannot reasonably be expected to continue in the future or may fail to capture known future changes.

A Correct.

Q Now what time frame are we talking about, a similar set of time frames whereby that difficulty would arise and --

A I gotcha. Well, in the context of this particular chapter, which is, how do you apply the DCF method, one of the classic ways of getting the growth return is by looking at historical growth rates. And typically what analysts and experts do is they go to Value Line, and they pick out the historical growth rate over five years and ten years. And those, particularly electric and gas, are certainly not representative of the future.

So in the context of this chapter, we are talking about the Value Line's historical growth rate over the last five years, typically. Some people go as far as ten years. I wouldn't do that.

I think you're better off here to rely on analysts' forecasts, because analysts' forecasts take history into

account and what's going on currently. So it's sort of redundant to look at both historical growth rate and analysts' forecasts, because analysts take history into account; does that answer your question?

Am I on the mark here or not? Context was five to ten years growth rates of Value Line.

Q You certainly provided an answer -- yes, you've answered my question. Let me ask you with regard to -- I want to explore that for that -- for the risk premium that you use that captures the historic data that relies on historic data put together by the -- in the IBES study. That goes back from 1926 to 1999; is that correct?

A Yes, sir.

Q Have -- and so I want to ask you some questions in the context of the capital markets as they existed perhaps in the '20s and '30s, perhaps even '40s, compared to today, the '80s and '90s. Have the tax laws changed substantially over that period of time?

A Yeah, there has been probably 50 changes in tax laws in the last 90 years, and some are favorable, some are less favorable. So the answer would be yes.

Q Do investors have a good deal more information available today than they did in some of the earlier periods?

A Yes, I think they do. Obviously with the Internet and the web sites and CD-ROMs and databases, the answer is yes.

Q Would you say the capital markets are more efficient today than they have been in the past?

A Yes.

Q Would you agree that security and accounting and reporting regulations have changed over those periods of time?

A Yes, they have certainly been tightened.

Q Were there always option markets available and future markets?

A Not until the late '70s.

Q So we could agree that there have been significant changes from the markets, capital markets, as they existed in some of the period of time that this data was captured versus today's market?

A Well every period -- every subperiod is always different, has its own characteristics. And the idea of using long periods is to smooth out and average out all these peaks and troughs, interest rate cycles, inflation cycles, monetary and fiscal policy cycles. The idea is to average it out.

Q So I could -- could I take this and your answers as being a backdrop for the quote that, the future need not be like the past; for example, assets may grow at a different rate, or utilities may be more or less profitable. Since investors take such factors into account, historical growth rates could provide a misleading proxy for future growth?

A It could be, yes. We're talking about two

different things. You're talking about specific growth rates for specific companies for specific utilities. And earlier we were talking about the market risk premium, which is a global capital market-wide phenomenon. And there is no trend in that data. When you look at the year-to-year market risk premiums, there is no trend.

It's -- I refer to it as a random walk. It's sort of like tossing a coin 100 times. On average you will get 50 heads and 50 tails. It's the same with capital markets. On average you will get a risk premium of 7 percent. You may get two or three heads in a row or four or five tails in a row in successive tosses, where over the long haul, if you toss the coin often enough, you get 50 heads and 50 tails.

Market risk premium, if you go back over a long period, on average you get 7 percent risk premium overall for the market.

Q I want to read to you something also from your book. I don't want you to be unaware of the context. On page 274 you say, the historical risk premium approach fundamentally assumes the average realized return is an appropriate surrogate for expected return?

A That's true.

Q In other words, that investor expectations are realized, realized returns can be substantially different from prospective returns anticipated by investors, and therefore

constitute a hazardous benchmark on which to base the risk premium between stocks and bonds.

A I agree with that.

Q And can you tell me how that squares with your usage of historical -- of the historical premium?

A Go on the next page, page 275, the second paragraph, and I quote, while forward-looking risk premiums based on expected returns are preferable, historical returns studied over a long period still provide a useful guide to the future, and this is because over long periods investor expectations and realizations converge, otherwise investors would never commit capital. Investor expectations are eventually revised to match historical realization, et cetera.

And the last sentence says, in the long run, the differences between expected and realized risks will decline, because the short run periods when investors earn a lower risk premium than they expected are offset by short periods where the opposite is true. So that's the reconciliation.

Q Would you follow me to page 287 of your book please.

A Got it.

Q I'm going to read you a quote from it. Risk premium studies should always be conducted on the basis of expectation and not on the basis of realizations.

A Yes, that's true. I prefer to do both.

Expectations are nice in theory. We can talk about it on the phone. But you're still dealing with forecasts.

Q I guess I'm a little bit thrown by, you say you agree with that statement that I've read from your book.

A Yeah. I agree, unless you're going to use very long periods.

Q Okay. But this sentence says, risk premium studies should always be conducted on the basis of expectations. What have I missed here?

A We're on page 287?

Q Yes, sir.

A This is in the context of page 286 of the negative risk premium of 1980, 1981?

Q Yes.

A Where you had a negative risk premium, and people made those conclusions based on few years of observations? I said you should never look at any given year or two years or three years. You should cast your vote in favor of long, long periods. If you're going to use historical data, it should be over a long period.

I've answered this about four times now. I don't know how many more times you want me to tell you. I would prefer expectations. If I'm going to rely on historical data, I prefer the long period for all the reasons I've given you. And I agree with you, it is very dangerous to use realized

returns over a short period.

But that danger evaporates to the extent if you use very, very long time periods.

Q And you agreed with Mr. Jaeger that your risk premium analysis contains years where there is a negative risk premium; is that right?

A That's correct.

Q You wouldn't throw those out as outliers?

A Well, no. I would have to do the same thing for the positive ones. I mean, if you start cutting and arbitrarily throwing out years, that's not really fair for those years where the risk was very, very high. So you have to look at the very, very long time period if you're going to do that and look at the average.

Q Doesn't this indicate to you that even over a very, very long time period, it could sustain substantially illogical results for purposes of trying to glean expectations for the future?

A I think in any given year you're going to get some pretty weird results, because in any given year expectations are simply not realized. We probably had an expectation last year of a 15-percent return on the market. But certainly that didn't come through this year, with the debacle of the dot coms and the September 11th and so forth.

So in any given year, very short periods, sure,

expectations don't get realized.

Q Okay. I'm going to ask you another question, if you will provide me with what it is that squares it into a context or how you would explain it, another quote from your book, page 286.

A Yeah.

Q It speaks regarding the negative risk premiums that such a view is not consistent with the basis precepts of finance, economics and business law.

A That's correct.

Q Doesn't that mean you're capturing data which you would agree is not consistent with basic precepts of finance, economics and business law?

A The idea of a negative risk premium is -- is not palatable. It doesn't square with theory or law or common sense. But those people that advocate it, the existence of negative risk premiums, think they look at one or two years of data; i.e., 1980, 1981, to make that conclusion. You cannot do that, in the same way that that table that you're quoting from in my testimony, you see some years with very negative risk premiums and other years very, very high positive risk premiums.

Q With regard to DCF analysis, do you agree that -- I'm going to have -- I will go ahead and just quote this from your book, page 107 of your book, dividends, rather than

earnings, constitute a source of value. Rationale for computing the value of common stock from dividends is that only cash values ever received by investors are dividends. Earnings are important only insofar as they provide dividends.

A That's true.

Q You would agree that the expectation of dividends is the important return to discount back for the -- in the calculation of the DCF model?

A Yes, but keeping in mind that the source, the driver of dividends, of course, is earnings.

Q And while earnings and dividends are going to track over the long-term, over the short-term there may be substantial differences between the two; correct?

A There may be differences. We see that now in dramatic fashion with electric utilities that are in the process of changing or altering their dividend policies towards a lowered payout. So the dividends are growing much slower than the earnings, because they're gradually, over time, are expected to pay smaller and smaller payouts in response to competition and so on.

Q So for calculating a discounted cash flow, the actual cash flow that the investor would expect would be just the money that the investor gets back, not what the company earns and retains; is that correct?

A Well you cannot pay dividends unless you have any

earnings, so that part of the DCF model assumes they will grow at the same rate.

Q Isn't it true that over at least short periods of time a company may not pay out all of its earnings and dividends, the growth rates could be substantially different?

A Well over the long run they will converge. That's what the DCF model assumes.

Q But the greater value in a cash flow is going to be in the early years; is it not?

A Not really. I think -- are you talking about the time value of money and so forth?

Q Well yes. If you were to receive a certain dollar value in the first year, and the exact same dollar value in the fifth year, the dollar value received in the first year would be significantly more valuable to you than the fifth year's value; would it not?

A Let me answer your question very directly. In my other book that just came out I talked about that. About 20 percent, 20 to 25 percent of the price of common stock is driven by dividends over the next five years, and the other 75, 80 percent is driven by events beyond year five. Certainly the present value of dividends over the first five years, they explain approximately 25 percent of the stock price.

Q I understand. I'm speaking now though of expectations. If I were an investor, and I expected a dividend

payout of $10 in year one and $10 in year five, the $10 in year one would be significantly more value to me than the $10 in year five; would it not?

A Yes, of course, because of the time value of money.

Q I've got some questions about -- further questions about DCF. And I'm going to -- I focus this more into your rebuttal testimony, if you have the -- if you have that with you.

A In front of me. Can you hear me okay over there?

Q We can hear you fine. Can you hear us all right?

A Oh, yeah. I have it.

Q Okay. Well I -- I hope you haven't set your book aside, because one of the questions I have comes from an excerpt from that. On page 278 you state that, to estimate the expected risk premium, the expected rate of return on equity for a broad sample of companies is computed with the DCF model for each of several time periods, paren, months, quarters, years, close paren. And the yields on debt for the corresponding period are subtracted from these estimates.

Do I have that correct?

A Yes. I'm here.

Q Now with regard to your rebuttal testimony, does -- doesn't Mr. Cicchetti, by using the DCF method to determine his risk premium, isn't he using what you are saying should be done in this quote that I just read to you?

A Yes. But he's doing it wrong. The problem with the DCF model is that he's using the retention ratio growth method to specify the growth component, which I discussed at length in my rebuttal and will not repeat it here. That's a very circular technique.

That risk premium merely consists of taking a spot DCF method and extending it backwards over several years. It's the same old DCF, which is wrong to begin with in my view. So if you want to do this properly, what you do is look at analysts' forecasts every year and sort of go back to the future every year for the last ten years.

So you do a DCF dividend yield plus growth using analysts' forecast. You do this every year and average the result. That would be fine.

Q Okay. With --

A I don't have a problem with that.

Q Okay. Well then let me focus on what's bothering me here, what I'm trying to understand with your criticism of Mr. Cicchetti's approach. You claim, as I understand it, one of your criticisms is that his risk premium analysis is simply a disguised version of his DCF result. But from what I'm reading of -- out of the quote that I read to you from page 278, it sounds like, with the exception of your disagreeing with his DCF version -- let's set aside the criticisms of his DCF version itself -- the idea of using a DCF model to

calculate a risk premium is not something that you have a criticism of in your book; is that correct?

A I don't criticize -- I do not criticize the idea of using DCF-driven risk premium if you do it properly. In my mind it's not really an independent test; it's another sort of DCF-driven test. My criticism is essentially, why not use CAPM or empirical CAPM or historical risk premium or other techniques that are fairly standard in our business. That's kind of a redundant test on the same approach.

Q That's where you call Mr. Cicchetti's usage of it a disguised version of his DCF result?

A Well maybe "disguised" is not the exact word that I had in mind. Maybe "redundant" would have been a better word. But it's just DCF wolf in sheep's clothing.

Q But it is what you recommend in your book at page 278 if you were going to use risk premium and DCF as two versions?

A Yeah. If you're going to do it, do it that way, but make sure you specify the growth term properly, and there is nothing wrong with that, as long as you have all these other tests to go along with it. It's not a separate, independent test. It's another DCF-driven test.

Q But your book -- your book doesn't say that it is a -- basically one is a derivative of the other; does it not? Your book treats it -- treats a CAPM model -- excuse me -- a

risk premium model using a DCF calculation as a separate, theoretical methodology from using DCF for attempting to measure the cost of equity; does it not?

A Yes. It's a DCF-driven test.

Q In your rebuttal testimony you criticize Mr. Cicchetti's use of the B times R method for determining long-term growth; is that right?

A Yes, because the reason why we're here and talking to each other is because we want to reset R, because R is inadequate. You can't use an inadequate R to set another R. I find the procedure a little bit circular.

Q Can we -- in your book do you not acknowledge B times R as a legitimate method for determining long-term growth?

A Yeah. I mention sustainable growth rates. But I think I do point out somewhere along the way that there is some circularity in that technique. But I do mention it as one of the three or four techniques that can be used to specify the growth component in my view is by far the poorest way of doing it.

Q Okay.

A I'm basing that on empirical evidence and literature rather than an opinion.

Q Do you know -- do you know of any analysts that estimate dividends for periods longer than five years, that go

out beyond five years?

A No, I don't. That's the problem. In fact, there are very few analysts that forecast dividends for next year or the year after. And that's one of the advantages of using earnings, because we have so much more analysts' forecasts of earnings than we do dividends. Value Line is probably the only or that supplies dividend forecasts.

Q Well would you agree that for that period beyond five years then, beyond the period of time of which any analysts estimate dividends, that for dividends, B times R is a generally-accepted methodology for estimating the growth?

A Not for utilities, because the reason why you're in front of the commission is because R is to be reset. So you cannot use an R to determine an R so to speak. So I don't think it's appropriate for utilities, certainly less appropriate than it would be for an unregulated industrial, where there it would be acceptable.

It's a very simple argument. You have to make a forecast of ROE to implement the method. But then if you recommend a different ROE, you're faced with a heck of a dilemma. The only way these companies can earn the expected ROE of, let's say, 11 percent or 12 percent, which is forecast by Value Line, is that rates be set by the commission to produce 11 to 12 percent. So how can you recommend something any different?

That is what bothers me about the technique, is that you're going around in a cage here, the proverbial rat going around in the cage in circles. Why not use analysts' forecasts which has been found to be reflected in stock prices?

Q But you've agreed that analysts don't project dividends past five years; you need to go into --

A Don't even project them for the first couple of years, except for Value Line. It's very difficult to find dividend forecasts for any length of time. Most analysts focus on the source of dividends, which is earnings.

Q Is it true that the DCF model estimates the required return, given the current stock price and investor expectations?

A Yes, that's true.

Q And it's true that the expected return can be either above or below the required return; is that correct?

A Not in an efficient market. If -- if I require 12 percent return, then I expect 13, that stock is going to attract a lot of attention, and there will be demands, pushing up the price and lowering the returns. So in an efficient market, expected return is brought into equality with the required rate of return very, very quickly too.

Q But in a regulated market, isn't it true that a regulatory agency can establish a return that would create an

expected return that could be different from the required return?

A Well the cost of capital that the commission -- the regulators are trying to assess is the expected rate of return to the investor. I guess the regulators can assess very unreasonably low and unreasonably high ROEs.

Q Isn't it true that the expected return on book equity is not necessarily the required return on equity, let's say, for example, if, as the hypothetical that I've given you, that a utility regulator simply establishes a higher return on equity than what investors require?

A You will have to repeat that. I didn't follow it. I'm sorry.

Q If a regulator establishes a higher return on equity, mismeasures, miscalculates what you would believe is the actual required return on equity, that at that point the expected return on book equity would not be the same as the -- as the actual allowed equity?

A Yes. That's a possible scenario for one specific case or one company or one regulator, yes.

Q And doesn't that happen over time with utilities whose ROE is established in one particular financial or economic environment, and then at some years later it may have a -- an actual authorized equity that's different from the required return on equity?

A Again, I can conceive of that in one specific rate case, one specific utility. But I cannot accept that idea from a systematic, regulatory process that for all companies in a given industry under all circumstances keeps making these errors. I can't concede that.

Q Well you're speaking perhaps of error and going back to the hypothetical that I gave you. I'm trying to switch a little bit. I'm saying, for example, a utility's return on equity was established in a period of time, by the regulatory authority, at a period of time where financial and economic circumstances were significantly different, some several years prior. Would you agree that in those circumstances the expected return might be different from the -- I mean the authorized return might be different from the required return?

A Well certainly if capital market conditions change, as they have in the last few years, lower interest rates, lower inflation, you would expect the allowed ROEs to be lower, and they have been lower. They haven't climatized or adjusted to current market conditions. That's what we're doing here.

Q When that happens, can a -- can a regulatory agency determine the current required return by evaluating the current stock price relative to expectations by using a DCF analysis?

A I don't know what you mean by "determining the stock price."

Q Well the stock price is easy to determine. I'm

talking about -- I'm talking about its relativity to investor expectations.

A Well the stock price in the DCF model reflects expectations about risk, about interest rates.

Q I'm going to read you a question basically that recouches that which I've asked you. If a company's allowed return was higher or lower than what investors required, as our example, it had been created, had been set many years prior, couldn't a commission evaluate the current stock price relative to expectations, using a DCF analysis, to determine the current required return?

A Yes.

Q And if a commission -- what happens if a commission allows a return on equity that's higher than the actual required return, all other things being equal?

A Well I guess the stock price would be pushed even further above book value.

Q And so there would be a change in expected earnings and dividends, but wouldn't the required return remain the same?

A If the commission allowed 12 percent, and the required rate of return and cost of capital is 10 percent, then pick it up from there.

Q Okay. My question is, you've answered the first part; that is, that purchases of the stock will bid the stock

price up.

A Probably, yes.

Q But the required return would remain the same; would it not?

A That's correct, it would. So in other words, the regulator blew it in that one particular case. The regulator's job is to set the amount of return equal to the required rate of return. I agree with you. It could be that they set it higher or lower than they should.

Q So it's not necessarily illogical to conclude that required returns are different from expected returns?

A It's not logical in any given one company circumstance of a rate case. But it's illogical to assume that every company in the sample that you use for the DCF model are subject to the same irrationality. All the jurisdictions make the same mistake.

Q Well then would you agree with me that it's possible that on average expected returns might be higher than required returns?

A No.

Q And given what we've just discussed, why is it not -- if it's possible in any particular case, why is it not possible on average?

A Because there is error earning. There will be a rate case shortly thereafter. The company is earning higher

than the cost of capital. Then we show cause. If they're earning less, the company would apply for rate relief. The regulatory process is self-correcting in that regard if you have persistent deviations between what you're earning and what the required rate of return is.

Q So when that happens, that you expect to have some type of rate initiative on the part of the regulator if in fact the required return is below the expected return?

A That's correct, and vice versa.

Q So what we might have is a situation where we could be expecting that phenomenon; is that correct?

A No. You can't have that structurally, permanently for all jurisdictions for all utilities in the industry. That is not a credible circumstance to me, that everybody is making the same mistakes.

Q Let me ask you about -- one more area, Dr. Morin, about Value Line. They employ analysts; is that correct?

A Yes, sir, they do.

Q So if Mr. Cicchetti is relying on Value Line estimates, he's relying on analysts' expectations; is he not?

A No. He's relying on one analyst's expectations.

Q They only employ one analyst?

A No, no, you're being silly now. That's not what I'm talking about. I'm talking about Value Line versus Merrill-Lynch and Morgan Stanley and Prudential-Bache and

everybody else.

Q My question is, if Mr. Cicchetti is relying on Value Line estimates, isn't he relying on analysts', plural, expectations?

A When I read the Value Line sheets, the paper version at the bottom, there is usually an analyst that signs the sheet, and that's just one person.

Q And you don't -- and you think that that person does not get input from any other analyst?

A Could very well be. But it would be much better to rely on a huge population of analysts to get the consensus. What if Value Line is very, very, very bullish or very, very, very darish (sic), for example, I think they are in certainly their growth projections for gas utilities. I just prefer to rely on the consensus rather than one investment house.

Maybe I should have said one investment house instead of one analyst. I was referring to the corporate entity rather than the number of analysts inside that company.

MR. BURGESS: Well that would have saved at least two questions. Thank you, Dr. Morin. That's all we have. Appreciate it very much.

MR. JAEGER: Anything else?

MR. MENTON: No follow-up.

MR. JAEGER: Just those two late-fileds.

MR. MENTON: If you could e-mail me the one that

CERTIFICATE OF REPORTER

I, SARAH B. GILROY, CP, RPR, Notary Public, State of Florida at Large, Commission No. CC 702884, do hereby certify that the witness personally appeared before me and was, by me, first duly sworn to testify to the truth; that I reported the foregoing proceedings at the time and place and in the cause indicated in the caption; that I later had the same reduced to written form; and that the foregoing pages are the proceedings had before me as I was directed to transcribe.

I FURTHER CERTIFY that I am neither related to nor employed by any party to this litigation, or their counsel, and that I am not financially or otherwise interested in the outcome of this cause.

Dated this 2nd day of November, 2001.

Sarah B. Gilroy

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My Commission Expires: 02-02-02
My Commission Number: CC 702884

ERRATA SHEET

I,_____, under penalties of perjury, declare that I have read my deposition taken on_____, and that it is true and correct subject to any changes in form and substance entered hereto.

SIGNATURE:_____

DATE:_____

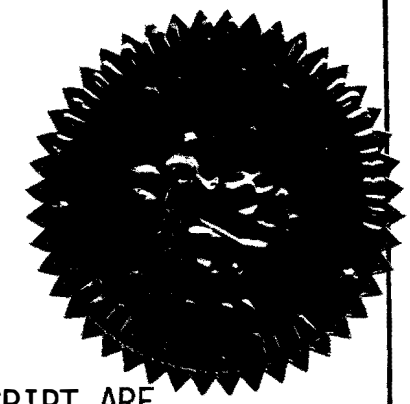
PAGE	LINE	CORRECTION/REASON

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 010006-WS

In the Matter of

WATER AND WASTEWATER INDUSTRY ANNUAL REESTABLISHMENT OF AUTHORIZED RANGE OF RETURN ON COMMON EQUITY OF WATER AND WASTEWATER UTILITIES PURSUANT TO SECTION 367.081(4)(f), F.S.
_____/



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TELEPHONIC DEPOSITION OF:	ROGER A. MORIN Located in Jekyll Island, Georgia
TAKEN AT THE INSTANCE OF:	The Staff of the Florida Public Service Commission
CONDUCTED FROM:	Gerald L. Gunter Building Room 309 2540 Shumard Oak Boulevard Tallahassee, Florida
TIME:	Commenced at 4:00 p.m. Concluded at 4:50 p.m.
DATE:	Thursday, November 1, 2001
REPORTED BY:	TRICIA DeMARTE Official FPSC Reporter (850) 413-6736

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INDEX

WITNESS

ROGER A. MORIN

called as witness telephonically and, it having been stipulated by the parties that the witness is sworn to tell the truth, testified as follows:

DIRECT EXAMINATION

BY MR. JAEGER:

Q Dr. Morin, this is Ralph Jaeger. We're on the record as of now. Could you please state your name and address.

A It's Roger A. Morin; Georgia State University, University Plaza, Atlanta, Georgia 30303.

Q And we took your deposition on October 23rd; is that correct?

A Yes, sir, you did.

Q So this is sort of a continuation of that deposition and supplemental to that deposition.

A Yes, it is.

Q Okay. Do you have your testimony there in front of you?

A Yes, sir.

Q Starting on Page 63, can you turn to that, Line 11 of your direct testimony?

A I have it.

Q You discuss an adjustment to the leverage formula which would allow the cost of debt to vary in linear relationship to the change in equity ratio?

A Yes.

Q Could you explain how you would implement this method in the leverage formula and how that would work?

A Well, if -- the best way to do that is through an example. Suppose that the Commission determines that the appropriate cost of debt is 8 percent. I would like to see the cost of debt vary 50 basis points on either side of that. That would be from 7.5 percent to 8.5 percent, and the 7.5 would apply to a very strong company with a very, very strong capital structure consisting of 100 percent equity. While the comp part of the range, the 8.5 percent, would apply for a company with a much weaker capital structure, 40 percent common equity. You could interpolate in between.

Q How would that work mechanically within the leverage formula itself? That's not in your testimony, is it?

A No, it's not. That would have to be just factored in to the mechanics of the formula as the Commission does it now.

Q But if you have actual debt -- I'm not sure how you're doing this adjustment to the debt.

A Well, in the leverage formula, the cost of debt would be 8 percent for a company with an average capital structure, 7 and a half with a very strong capital structure, and 8 and a half for a company with a 40 percent common equity ratio capital structure and add the additional premium due to the financial risk.

Q So from 40 to 100 percent, it would just be an extrapolation?

A Yeah, interpolation.

Q Interpolation.

A Yeah. It makes sense. You know, a company that's very, very strong that's all equity with no debt, presumably its debt would cost less as the cost of debt is miniscule, you know, for the first dollar of debt. Whereas, a company with a 40 percent equity ratio with more financial risk, presumably its debt would cost more. And 50 basis points either way I think is reasonable.

Q I'm sorry, Dr. Morin, I'm being a little bit dense here. How do you plug this into the leverage formula -- linear -- I just don't understand how this would work in the leverage formula. How could you plug that in?

A When you develop the formula -- let me see. I'm trying to find the document here. Okay. If you look at the mechanics of the formula --

Q Okay. Excuse me, Dr. Morin. I'm going to interrupt here.

A Sure.

Q The court reporter just told me that we have not sworn you in. Can we go --

A Yeah.

Q Let me go over the stipulations. What we were going

to do in the other deposition -- you don't have a notary there to swear you in, do you?

A No. I thought it was a continuation.

MR. JAEGER: Okay. What we will do is, if Steve and -- the two Steves agree, it is stipulated that this deposition was taken pursuant to notice in accordance with the applicable Florida Rules of Civil Procedure; that the requirement that a notary be present with the witness to administer the oath is waived; that counsel present stipulate that the witness is the person he identified himself as; that objections, except as to the form of the question, are reserved until hearing in this cause; and that reading and signing --

MR. BURGESS: This is Steve Burgess. I stipulate to that.

MR. JAEGER: Okay. And that reading and signing was not waived.

And you stipulate to that also, Mr. Menton?

MR. MENTON: Yes, I agree.

MR. JAEGER: Okay. I'm sorry to interrupt you. Go ahead, Dr. Morin.

THE WITNESS: Yeah. With the -- in the leverage formula, which is 8.41 percent plus .731 divided by the equity ratio, the 8.41 percent, of course, is the cost of debt, and that's the component that would be either diminished or augmented depending whether the company had a very, very strong

or very, very weak capital structure that is 100 percent or 40 percent common equity.

In other words, 8.41 is probably too high for a very, very, very strong company with no debt -- with very, very, very little debt, I should say. And it's probably a little bit too small for a company that had a lot of leverage.

Q Is there a way to plug into the equity ratio -- let's go off the record for just a minute because this is -- okay. We're off the record.

(Discussion off the record.)

Q Dr. Morin, how would you foresee us putting in this adjustment?

A Well, one way to do it would be to recognize different leverage formulas for different levels of equity ratio, which, of course, would defeat one of the features of the leverage formula which is administrative expediency or simplicity, and the price we would pay to have more financial soundness would be more -- slightly more complexity. Another way of doing it would be to make the cost of debt a function of the equity ratio.

Q And those are the two main ways that you see?

A Yes. There may be others. I just haven't thought about it, but I think those two would work.

Q Okay. Dr. Morin, do you agree that the current leverage formula already compensates utilities for ending

leverage risk?

A Yes, it does. If the equity holder is competent, yes.

Q I'm going to ask you some specific questions, I guess, about Florida. Are you familiar with the fact that water and wastewater utilities in Florida are subject to having rate base reduced by property that is nonused and useful to current customers?

A Yes.

Q So the utility would not be allowed a return on this nonused and useful property; is that correct?

A That's correct.

Q And are you aware that this type of reduction can, in many cases, be material to a utility's investment?

A Yes, definitely. And that's an element of regulatory risk. That's of concern to me.

Q And are you familiar with the fact that electric companies are not subject to this type of used and useful reduction in rate base?

A Yes, I am. And that's one regulatory risk factor that would be a lot more significant for water and wastewater than it would be for electric.

Q Would you agree that because water and wastewater utilities are subject to this reduction to rate base, that this would be a factor that would make them a higher business risk

than an electric or gas company?

A I would agree. I would just change the word "business risk" to "regulatory risk," which I guess can be a subset of business risk.

Q Wouldn't you agree that because of the small size of most water and wastewater utilities in Florida, that they are more at risk of bankruptcy or abandonment than an electric or gas company?

A Yes, I would definitely agree. One of the chief determinants of credit risk or bond rating, if your bonds are rated, is of course size. And size is a very, very important variable in the financial literature which has been shown to increase risk, everything else remaining constant.

Q And this fact makes them a higher business risk than an electric or gas company; is that correct?

A Significantly so, yes. The financial literature shows a very, very strong impact of size on rate of return, and I think I quote some of that in my testimony.

MR. JAEGER: I have no further questions.

CROSS EXAMINATION

BY MR. BURGESS:

Q Okay. This is Steve Burgess. Dr. Morin, how are you doing today?

A Fine. How are you?

Q Good, good. Thanks. What I'd like to do is follow

up with some of the questions that Ralph asked about the variables associated with regulatory risk.

A Uh-huh, yes.

Q Would you agree -- well, let me ask this. With regard to the used and useful element that is applied to water and wastewater but not to electrics, would you say that a company that is found to be 100 percent used and useful escapes this particular risk?

A Well, there's the issue of prudency, of course.

Q Right.

A But it has to be determined by the Commission where the additions to the asset base are deemed prudent.

Q Yes. Now, doesn't the issue of prudency apply to all industries?

A Yes, it does.

Q Okay. So prudency would not be a regulatory risk isolated to the water and wastewater industry?

A No. It's not peculiar to the water. It applies to all regulated entities.

Q All right. And with regard to used and useful, if a company is 100 percent used and useful, does it escape that particular risk?

A The risk being?

Q The risk being that regulatory risk you identified as part of a utility's investment not earning a current return but

rather deferring a return for future time periods.

A Well, I'm not sure what -- maybe you could rephrase your question, but I think regulatory risk is a blend of many different kinds of risks. One of them is inclusion or exclusion of assets in rate base. Another one would be a forward test year. Another one would be, do you have the opportunity to earn the allowed rate of return that was set by the Commission? Are the allowed rates of returns reasonably comparable and consistent with the risks that accorded other utilities? So there are many, many risk factors when we talk about the regulatory risk.

Q Well, that's exactly the point of what I was getting at. What I understood your responses to Mr. Jaeger's questions and the point of Mr. Jaeger's questions was to identify specific variables associated with the regulation of water and wastewater that make its regulatory risk greater than other industries. Is that what you understood to be the --

A Yes. I understood that question, yes. Correct.

Q All right. Now, my question is -- and then you identified some of them. And one of them that you identified was the fact that water and wastewater companies are subject to nonused and useful adjustments while electrics, for example, are not.

A Correct.

Q Okay.

A In Florida.

Q In Florida, correct.

A Uh-huh.

Q And my question is -- and I'm just trying to understand this -- in your understanding of that, for that particular element, if a specific company is determined to be 100 percent used and useful, does that element apply that differentiates the water company's risk from the electric company's risk?

A Not if it's 100 percent used and useful.

Q Okay. So that element only applies when it's less than 100 percent used and useful?

A Yes; everything else being constant.

Q Okay. Now, let me ask you this. Are there other elements of the individual regulation -- or of the regulation of the different industries that run counter to the general condition that you identified; that is, your belief that electrics are less risky than water and wastewater?

A But they're less risky not so much because of regulatory risk but because of size effects and business risk and capital structures.

Q Okay. But let's continue to focus on regulatory risk. That's what I want to limit these particular questions to, is regulatory risk only.

A Okay.

Q Okay. Now, with regard to that, are there not a number of elements in the regulation of water and wastewater companies that in fact reduce the regulatory risk relative to electric companies?

A No, I don't think so. I mean, maybe you can give me an example.

Q Well, do you know whether electric utilities have available to them automatic pass-throughs and automatic inflation allowances?

A Well, there are fuel adjustment clauses, of course, and purchased gas adjusted clauses for gas utilities and purchased water clauses passed on to ratepayers as well. So that's pretty similar.

Q What about with regard to just a straight inflation factor for all other major expenses?

A You mean like O&M?

Q Yes.

A I'm not familiar with that.

Q So you're not aware of whether water and wastewater companies have that available to them in the state of Florida?

A I'm not aware about the differences between the three types of utilities in that regard.

Q Are you aware of whether water and wastewater companies have that available to them?

A I do not recall right now.

Q Okay. Are you familiar with limited issue proceedings that can be raised?

A Yes.

Q Okay. Do you know whether there's any distinction between the limited issue proceedings that could be raised for water and wastewater versus other utilities?

A No, not really. I'm not sure that's a significant element of risk, but I think any utility always has the luxury of appealing to the Commission or filing a rate case. Even a water utility under the leverage formula has the opportunity to file with the Commission if the ROE is deemed inadequate.

Q What about filing for a single issue; that is, a single particular expense or a single particular change in the --

A No, I'm not familiar with that.

Q Okay. I have a question -- I only have one more set of questions, and it derives from your rebuttal testimony. Do you have a copy of that?

A Yes. I have it in front of me.

Q Okay. Would you turn to Page 8, please.

A I have it.

Q Okay.

A That's where the error is that I wanted to correct.

Q Oh, okay.

A Do you want to do that now? It's just a typo.

MR. BURGESS: Ralph, I would just as soon go ahead and get that done. Steve, however you all want to do it.

MR. MENTON: That's fine.

MR. BURGESS: Okay.

THE WITNESS: On Line 6, just delete "in the electric utility industry."

BY MR. BURGESS:

Q I'm sorry?

A On Line 6, delete "in the electric utility industry" --

Q Okay.

A -- because I repeat that in Line 8.

Q I see it. I see exactly why you're doing that.

MR. MENTON: Hold on. Line 6. Line 6, you said?

THE WITNESS: Yes. Delete "in the electric utility industry."

MR. MENTON: Okay.

THE WITNESS: That's repeated on Line 8. Bad English.

MR. MENTON: Okay.

BY MR. BURGESS:

Q So a bit of a redundancy.

A Yeah.

Q Okay. Now, I want to ask about that answer, and the question to which that is being -- that is responding is on

Page 7.

A Yes.

Q Okay. And I'm going to sort of characterize it. You tell me if I'm giving a legitimate characterization of it. What you're saying, as I look at Line 4, is that the averages in other jurisdictions create some context within which to consider the validity and reasonableness of a conclusion.

A I would agree with your statement.

Q Okay. And by saying, later on down in Line 11, that Mr. Cicchetti was so far -- is outside the mainstream, do I understand then that what you're saying is because he is outside this mainstream, this tends to demonstrate a certain amount of invalidity and unreasonableness of his recommendation?

A Yes. It follows from Lines 4 and 5, yes.

Q Okay. Now -- and what I'm reading from your Lines 7 and 8, indicates that the water -- if I've got it right, respectively, it would indicate that water and wastewater utilities are receiving a 10.6 return on average?

A Yeah.

Q Now, what do you understand to be the midpoint of -- or let me just ask you because I know it's not an issue of understanding. What is the midpoint of the range that you recommend for water and wastewater utilities?

A 11.7.

Q 11.7. What do you understand to be the midpoint of what Mr. Cicchetti recommends for water and wastewater utilities?

A 9.7.

Q Okay. Now, if this 10.6 is right -- I mean, if my number -- if my calculations are right, I calculate then that Mr. Cicchetti's average number is .9 percent, 90 basis points away from the average, the national average, and I calculate that yours is 110 basis points away from the national average for water and wastewater utilities.

A Hold on a second here. Yes, that's correct for those very, very, very, very few water decisions that we have.

Q Right. So with regard to that, based on the -- within the context of water utilities average in the country with regard to this particular factor, it would apply with greater effect to -- strike that.

Would you agree then that your number is further outside the mainstream of what's currently being allowed for water utilities than Mr. Cicchetti's number?

A For those two decisions that are reflected in the 10.6, that would the case, but it certainly doesn't compare to the dozens and dozens and dozens of decisions for the other types of utilities that are at least -- that are probably less risky or same degree of risk as water utilities.

Q But you are farther outside the 10.6 of the range --

of the average that you chose to put in your testimony than he is?

A Well, the decisions are 11.8 and 11.7 and 10.6. To me, that's 8. I'm looking at that as a basket. And I'm looking at the 9.7, and to me, that seems to be an anomaly compared to the dozens and dozens and dozens of decisions for utilities that are fairly homogeneous in risk. And I think water utilities are at least as risky as these gas and electrics.

Q But you do agree -- you are -- you do stand behind your representation that 10.6 is the average for water -- that has been set for water utilities?

A Yeah. The problem is there's only two companies there.

Q I understand that.

A Yeah. It's difficult to -- for any kind of reliability to a number with two companies. Whereas, the ones for gas and electric include probably several dozens of companies and decisions. That's why I look at it as a lump sum, if you wish.

Q Right. Now, let me ask you this with regard to that. And I understand from what you said that you think electrics are more risky than -- or less risky than water companies. Would you agree, though, that regardless of which is more or less risky, at any given time, the amount of risk that actually

exists should be what's used to determine the allowed return on equity?

A Yeah, I agree with that.

Q And would you agree that the amount of risk associated with the industry itself is what should be applied?

A No. I think you should reflect the individual risk of the individual utility, and the Florida utilities are a very good example of that. I think the water utilities in Florida are far riskier than the national industry because of their very small size and --

Q Uh-huh.

A -- nature of their securities and little access to capital market, no bond ratings, no analyst coverage, dependency on external financing, et cetera, et cetera. So I think the water utilities in Florida are riskier than the national average. And that's another reason I'm a little bit reluctant to go through your mathematical exercise with the 10.6.

Q Well --

A It still happens to be decisions at large for the --

Q Yes.

A -- utilities outside of Florida.

Q Yes. But I'm not sure -- I must not have communicated my question very well. What I'm saying is, if the water industry is significantly different than the other --

than some other industry that's being regulated by the Public Service Commission --

A Yeah.

Q -- and is significantly different as measured by you --

A Yes.

Q -- would you agree that the leverage formula for water companies should reflect the risk associated with water companies rather than some other industry that has a different measured risk factor?

A I think the leverage formula should reflect the risk of the Florida water utilities.

Q Yes. Okay. And if that is different from other industries, that it shouldn't reflect the other industries' risk?

A That's correct, so be it. It could be higher or lower. The question is, is where is it on the risk spectrum?

Q Yes.

A And I think water utilities are at least as risky as electric and natural gas principally because of the size factor.

MR. BURGESS: Yes. Thank you very much, Dr. Morin. I appreciate it.

THE WITNESS: Thank you very much for your questions.

MR. MENTON: Ralph, did you have anything further?

MR. JAEGER: No, I had nothing further.

MR. MENTON: Okay. Dr. Morin, what I would suggest is, if everybody is okay with this, why don't we take about a ten-minute break? And let me call you back and let me -- I need to explain to you what I have agreed to with Steve Burgess. I don't think it will be a problem. Then I have one other issue I need to raise with you --

THE WITNESS: Okay.

MR. MENTON: -- if you've got a second. And then we'll call back in to this number in ten minutes. And I might just have a couple of follow-up questions, and we'll take care of Steve -- of the agreement that Steve and I have reached.

MR. BURGESS: I have a little bit of a problem, Steve. Tell me what your reaction to this is. I would rather the follow-up questions before you have discussion with Dr. Morin.

MR. MENTON: Okay. If you just want to give me a second.

MR. BURGESS: I mean, what I'm a little bit concerned -- well, you know, it should be obvious. What I'm concerned about is, you know, working -- representation that there's no discussion of it is fine with me. But I just -- we proceeded with our questions, you know, basically as they have come out from information that, you know, has come out from preceding questions and answers, and so I would be inclined to

see about holding you to the same standard, the same situation.

MR. MENTON: Okay. That's fine. Let me just look through -- I do have a couple of follow-ups on a couple of questions that came up, Dr. Morin, and then we can go off the record.

CROSS EXAMINATION

BY MR. MENTON:

Q Dr. Morin, one of the issues that we've talked about today was this idea of regulatory risk, and I know that that's an issue that you have discussed already to some degree. But I think your answer to one of the questions was that the regulatory risk for water and wastewater companies was of concern to you. Can you explain what you mean by that?

A Well, by regulatory risks I mean that the quality and the response, and the quality of the response of the regulators to the issues that are confronting the water utilities; that there's a lot of changes that are going on, particularly with environmental type of issues and the investments that will have to be made to comply with these new stricter environmental standards.

And will the allowed rates of returns, you know, reflect that, be responsive to these increased environmental risks? Will the investor see automatic adjustments to some of those environmental-related expenses? What about prudence issues and exclusions and inclusions in the rate base? What

about if you decide to exclude some the plants invested from the rate base and the money that investors have put up and they're having no earning power? So that's what I mean by regulatory risks.

Q Okay. And in connection with the regulatory risks in Florida, you talked about the used and useful adjustments that are made in Florida. Are there other aspects of regulatory risk in Florida that you know of that water utilities face that are different than other utilities?

A I'm not aware of that, but the major one is definitely the exclusion of plant assets from rate base. And some of those in the future will have to be compliant types of investments for environmental reasons. And if those are excluded from rate base, you've got a bunch of money there that's supplied by investors that has no earning power. And that's a huge, I think, regulatory risk.

Q Okay.

A That's the main one.

Q How about margin reserve requirements and those sort of things?

A No, I'm not familiar enough with those.

Q Okay. Or the CIAC?

A Well, I'm familiar with the, yeah, contributed capital, native construction, yes.

Q But you don't have any --

A I don't have a strong opinion as to that factor --

Q Okay.

A -- compared to exclusions of investments from rate base. That's a huge, huge hit, potentially.

Q Okay. There was some talk in your prior deposition about how -- what you utilized for purposes of your DCF analysis. And you used earnings as opposed to just dividends. Could you explain why it is that you did that?

A Okay. The answer is very simple. There are two elements of the answer. Number one --

MR. BURGESS: Excuse me, Dr. Morin. I apologize. This is Steve Burgess. I guess I'm going to interpose an objection and then hear what the response is and maybe withdraw it. But I understood this deposition to be standing alone. Is this recross -- is this, like, redirect of an area in which we crossed during this deposition, or does this go back, Steve?

MR. MENTON: Well, this goes back to the other one. I mean, I think one of the issues that we had talked about was, you know, having Dr. Morin available by phone on Monday, and I think this will alleviate the need to have to get into any of those issues on Monday. I mean, it's just a -- it's a direct follow-up to questions that were asked of him during his prior deposition.

MR. BURGESS: Okay. Well, I don't know who's going to rule on it, but I'm -- for the record, Steve and Ralph, I'm

going to object to any questions that Mr. Menton asks that are not follow-up redirect questions to the questions that were asked on this particular deposition. It's my understanding that this deposition stands alone and that follow-up questions would be restricted to that.

So I just want for the record that to be -- and I may continue, Steve, as you say that to raise that objection just to preserve that.

MR. MENTON: Okay. And that's fine. Just so the record is clear, though, I mean, I think that we had discussed, Steve, and maybe I didn't understand this, but we had discussed a couple of different options with respect to the testimony on Monday. And one of them was to have him available by phone to be present to basically stand in for his main testimony. And, you know, that's still an option that's available that I think -- or I thought we were trying to shortcut by doing this deposition today.

And, you know, he is still available. We can have him come in. He can adopt his, you know, direct testimony, and, you know, we can go that route. But I didn't think that we were using this process as a way to eliminate my ability to conduct redirect.

MR. BURGESS: Okay. I understand. And I guess I better respond to that. My understanding is, the opportunity to conduct redirect would have been during the deposition that

we had. And that if, for example, Dr. Morin had been available on Monday for the hearing, that the evidence would have been -- the testimony would have been copied into the record as though read, and that if we had sought to put the deposition in, that the opportunity for redirect would be subsumed within that deposition, and that counsel would not be entitled to then orally at the hearing ask redirect questions based on questions raised in cross. And so that's part of my objection too.

MR. MENTON: Okay. And just let me respond to that because I think that at -- just so the record is clear, at the time that the deposition was taken, it was expected that Dr. Morin would be present at the hearing, and that it wasn't, you know, taken at that time with the idea that he wasn't going to be present and the deposition would be used in lieu of it. Just so everybody has their position on the record.

BY MR. MENTON:

Q Go ahead, Dr. Morin. Do you remember the question?

A Yeah, I do. The question that you asked is, why use earnings instead of dividends.

Q Right.

A Three responses. Number one, in theory when you're using the plain -- the DCF model, the model does assume that earnings and book value and dividends all grow at the same rate in any event. The second reason, and the most important one, is one of practicality. There are very, very few, if any,

dividend forecasts. In contrast to that, there is a huge amount of available earnings forecasts.

For example, the IDES database or the Zacks Investment Research database or the first call database, they compile analyst earnings growth forecasts. So there's an abundance of earnings forecasts in contrast to dividends. And the only dividend forecast that I know that's available is Value Line. And I don't think it's wise to rely on just a single source of forecast.

And the third reason is that the financial literature, which has done a lot of research on earnings forecasts, on IBES forecasts, and analyst forecasts, has been conducted with earnings growth forecasts. And that literature has shown that stock prices do reflect the analyst's earnings forecasts rather than dividend forecasts because of the absence of the latter. So those are the three reasons.

Q Okay. And with respect to the second reason you mentioned, I think, dealt with the fact that there were more sources of earnings forecasts than just dividends. Do you believe that the use of a DCF model with just dividend forecasts would be an appropriate use of that model?

A It would be extremely inappropriate because it's highly unreliable because there's only one person that's providing the forecast in contrast with all these other data services that compile all the analysts' forecasts. There may

be dozens and dozens and dozens of earnings forecasts for these large utilities. So it's an issue of reliability and availability.

Q Okay.

A And there's another reason, too, and that is that, generally speaking, in the utility industry, gas, electric, and water, there is a trend towards lowered dividend pay-out ratio. In response to restructuring and the increased competition and so forth, utilities are lowering their dividend pay-out ratio. So the dividend forecast, for example, in Value Line are very, very, very, very small compared to the earnings growth forecast. So that's another reason I'm reluctant to use dividends.

MR. BURGESS: Excuse me. Steve Burgess again. Steve Menton, do you understand that I am objecting to all of these questions? I'm just not interjecting for each one for purposes of allowing more cohesion.

MR. MENTON: Sure. That's fine. And you know, quite frankly, I think most of this is already in his direct testimony anyway. So I don't think I'm really covering anything that he hadn't already said at least once in his direct, probably twice.

MR. BURGESS: Then I should change my objection to asked and answered. I'm sorry.

BY MR. MENTON:

Q There was some discussion in the first deposition about your use of historical information. Do you recall that?

A Yes, I do. There was quite a few questions on that.

Q And do you believe that in the context of the analysis that you performed in this docket, that it's appropriate to utilize historical information?

A Yes. As long as you're using very, very long time periods and you allow sufficient time for expectations to be realized, it is appropriate in that context to use realized or historical returns.

Q Okay. And the historical returns that you utilized were from basically 192--

A Six.

Q -- 6 until 2000 --

A 2000.

Q -- is that correct?

A Yes. That comes from the Ibbotson yearbook where they compiled historical returns on stocks and bonds over a very, very long time period.

Q And so the questions that were asked about the danger of using historical data, do you believe that those are appropriate critiques of your use of historical data in this docket?

A No, it's not. I would be very careful about using shorter periods of time when using historical data, because

over short periods, investor expectations may not have been realized, but that is not true over the long haul.

Q And you have -- in your direct testimony, you did discuss the use of analyst forecast. Could you explain exactly why it was that you utilized the analyst forecast?

A Well, the DCF model requires very, very clearly and very explicitly an expected growth term, which we use the letter "G" for growth to denote. And it's very explicit in the model itself if you have to use forecasts of expected growth. And I think analyst forecasts are pretty good proxies for the investor consensus forecast because institutional investors that depend on the analyst forecast do the vast majority of the trading.

And then number two, I looked at the empirical finance literature, and I think I discussed this literature in my testimony. And the gist of the literature is that stock prices reflect better than anything else the analyst consensus forecast. In other words, the analyst forecast of earnings is what's incorporated in market-to-book ratios or price earnings ratios and stock prices. They are simply better proxies than historical rates of growth or retention growth, and they do a better job of forecasting what actually will prevail.

And the third answer would be that -- a lot of people say, well, why don't you use historical growth rate? Well, the reason for that is simple, is that an analyst forecast already

look at historical trends and impound that into their forecasts. So it's sort of redundant to use analyst forecasts which already contains historical information and then use historical forecasts separately.

Q Okay.

A So conceptual, empirical, and practical. These are the three reasons why I use analyst forecasts.

MR. MENTON: Okay. Dr. Morin, that concludes all the questions that I was going to ask you today.

One of the things that I had talked with Mr. Burgess about, just so you understand, and I have not discussed this you -- we can go off the record for a second.

MR. BURGESS: Well, I have one question on recross on the question that you asked originally that I did not object to that I think opened up -- his response opened additional information.

MR. MENTON: That's fine, Steve. Do you want to do it now?

MR. BURGESS: Yes. If that's all right. Ralph, are you okay with that?

MR. JAEGER: Yes.

RECROSS EXAMINATION

BY MR. BURGESS:

Q Dr. Morin, you had stated that one of your greatest concerns is the issue of recovery on investment, and

specifically with regard to your concern on investment to meet environmental compliance requirements.

A Yeah.

Q Okay. Are you familiar with -- and let me get it -- are you familiar with Section 367.081(2)(a)(2)(c), Florida Statutes?

A No.

Q Okay. Are you familiar with a fairly recently passed statute that deals with the issue of a water and wastewater company's authority to receive -- to recover environmental compliance costs?

A I'm not familiar with the details.

Q Okay.

A But there is an element of risk of recovery there.

Q Well, what --

A Prudency and amounts and time lags and so forth.

Q Okay. You're familiar then with the general concept of a recently passed legislation?

A No, I'm not.

Q Oh, okay.

A I'm familiar with the issue, generally speaking, and there's still an element of risk with regard to the time of recovery and amount of recovery and prudency of recovery.

Q Are you familiar with what Florida Statutes say with regard to that recovery?

A No, I'm not.

MR. BURGESS: Okay. Thank you very much, Dr. Morin. That's all, Steve and Ralph.

MR. MENTON: Okay.

MR. JAEGER: Are we off the record?

MR. MENTON: Yeah, let's go off the record for a second.

(Deposition concluded at 4:50 p.m.)

- - - - -

ERRATA SHEET
DO NOT WRITE ON TRANSCRIPT - ENTER CHANGES HERE

IN RE: DOCKET NO. 010006-WS
NAME: ROGER A. MORIN
DATE: NOVEMBER 1, 2001

PAGE	LINE	CHANGE

Under penalties of perjury, I declare that I have read my deposition and that it is true and correct subject to any changes in form or substance entered here.

DATE _____ ROGER A. MORIN

STATE OF FLORIDA)
: CERTIFICATE OF REPORTER
COUNTY OF LEON)

I, TRICIA DeMARTE, Official FPSC Commission Reporter, do hereby certify that I was authorized to and did stenographically report the foregoing deposition at the time and place herein stated.

I FURTHER CERTIFY that this transcript, consisting of 34 pages, constitutes a true record of the testimony given by the witness.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED THIS 2nd DAY OF NOVEMBER, 2001.

Tricia DeMarte

TRICIA DeMARTE
Official FPSC Reporter
(850) 413-6736

RUTLEDGE, ECENIA, PURNELL & HOFFMAN

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HAROLD F. X. PURNELL
GARY R. RUTLEDGE

GOVERNMENTAL CONSULTANTS
MARGARET A. MENDUNI
M. LANE STEPHENS

October 26, 2001

Ralph Jaeger, Esquire
Florida Public Service Commission
Division of Legal Services
2540 Shumard Oak Boulevard
Room 370
Tallahassee, Florida 32399-0850

HAND DELIVERY

RE: In re: Petition of Florida Waterworks Association , et al.
Docket No.: 010006-WS
Late Filed Exhibit to Dr. Morin's Deposition

Dear Ralph:

Enclosed please find the annual allowed return on equity data utilized by Dr. Morin and referenced in his prefiled testimony. This document was identified during Dr. Morin's deposition as late filed exhibit 1. As explained during the deposition and on the attached sheet, the annual allowed return on equity data was taken from a survey of decisions from 1987 - 2000 as published by Regulatory Research Associates, Inc. Dr. Morin is working on late filed exhibit 2 to his deposition which should be available next week. Please give me a call if you have any questions.

Sincerely,

J. Stephen Menton

JSM/knb
Enclosure
cc: Steve Burgess (with enclosures)

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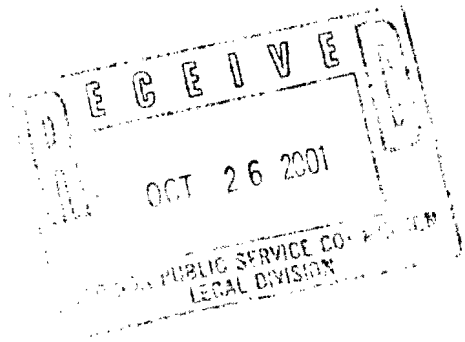

With reference to the allowed ROE Risk Premium Analysis of Dr. Morin's testimony, the annual allowed ROE data was taken from Regulatory Research Associates, Inc.'s ("*Regulatory Focus*", Major Rate Case Decisions – January 1998 - December 2000, Supplemental Study, January 21, 2001) comprehensive survey of 425 ROE decisions by regulators over the period 1987-2000 for electric utilities. The relevant data are shown in the table below. The source document was provided by Dr. Morin as a formal work paper. The prevailing yield on long-term Treasury bonds for each year was subtracted from the average authorized ROE each year to arrive at the authorized risk premium for that year.

	ROE Electric	Bond Yield	Risk Premium
1987	13.0	8.6	4.4
1988	12.8	9.0	3.8
1989	13.0	8.5	4.5
1990	12.7	8.6	4.1
1991	12.6	8.1	4.4
1992	12.1	7.7	4.4
1993	11.4	6.6	4.8
1994	11.3	7.4	4.0
1995	11.6	6.9	4.7
1996	11.4	6.7	4.7
1997	11.4	6.6	4.8
1998	11.7	5.6	6.1
1999	10.8	5.9	4.9
2000	11.4	6.0	5.4

ORIGINAL

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Water and wastewater industry annual reestablishment of authorized range of return on on common equity for water and wastewater utilities pursuant to Section 367.081(4)(f), F.S.	)))))))	Docket No. 010006-WS

UPDATED RECOMMENDATION

OF

DR. ROGER A. MORIN

ON BEHALF OF

FLORIDA WATERWORKS ASSOCIATION

UPDATED RECOMMENDATION

Appreciable changes have occurred in long-term interest rates and stock prices since I prepared my original testimony earlier this year. As of early November 2001, long-term Treasury bonds are yielding about 5.0%, compared to 5.8% last June when I prepared my direct testimony, that is, a decrease of 80 basis points. Hence, the risk premium and CAPM results will change accordingly, although not proportionately. The DCF results have changed modestly in view of the change in dividend yields and analysts' growth forecasts, some of which are offsetting.

As was the case in my direct testimony, I performed the same six risk premium analyses. For the first two risk premium studies, I applied the CAPM and an empirical approximation of the CAPM using more recent market data, namely, a risk-free rate of 5.0%, a beta of 0.65, and a market risk premium of 7.5%. I updated my historical and allowed risk premium analyses. I also updated my DCF analyses on the same three surrogates for Florida water and wastewater utilities using more recent stock price and growth forecasts. The results are summarized in the following updated version of the summary table contained in my direct testimony:

STUDY	ROE
CAPM	10.2%
ECAPM	10.8%
Historical Risk Premium Electric	11.0%
Historical Risk Premium Natural Gas	11.5%
Allowed Risk Premium Electric Utilities	10.7%
Allowed Risk Premium Natural Gas Utilities	10.6%
Water Utilities IBES Growth	10.2%
Water Utilities Value Line Growth	11.6%
Water Utilities Historical Growth	11.4%
Transmission – Distribution Electrics IBES Growth	10.8%
Transmission – Distribution Electrics Value Line Growth	12.3%

Natural Gas Distribution IBES Growth	12.7%
Natural Gas Distribution Value Line Growth	14.5%

The DCF analysis performed on the natural gas distributors using Value Line's growth forecast might be considered an outlier, and I have accorded it little weight. The remaining results range from 10.2% to 12.7%, with a midpoint of 11.5% for a typical Florida water and wastewater utility with an average capital structure. Based on the results of all my analyses, the application of my professional judgment, and the risk circumstances of the industry, it is my opinion that a just and reasonable range of returns on common equity is 10.2% to 12.7% with a midpoint of 11.5% for a typical FWU with an average capital structure.

The 11.5% midpoint of my recommended range should be adjusted to reflect a particular FWU's capital structure in accordance to the directives provided in my direct testimony. For typical capital structures that range from a 60% common equity ratio to a 30% common equity ratio, the cost of common equity varies from about 10% to 13%.

RESUME OF ROGER A. MORIN

(Summer 2001)

NAME: Roger A. Morin

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(706) 579-1481 business fax
(404) 651-2674 office-university

E-MAIL ADDRESS: profmorin@msn.com

DATE OF BIRTH: 3/5/1945

PRESENT EMPLOYER: Georgia State University
Robinson College of Business
Atlanta, GA 30303

RANK: Distinguished Professor of Finance

HONORS: Professor of Finance for Regulated Industry & Director Center for the Study of Regulated Industry, College of Business, Georgia State University.

EDUCATIONAL HISTORY

- Bachelor of Electrical Engineering, McGill University, Montreal, Canada, 1967.
- Master of Business Administration, McGill University, Montreal, Canada, 1969.
- PhD in Finance & Econometrics, Wharton School of Finance, University of Pennsylvania, 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, 1979-2001
- Professor of Finance for Regulated Industry and Director, Center for the Study of Regulated Industry, College of Business, Georgia State University, 1985-2001
- 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.

Cincinnatti 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 Metropolitain

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

Value-Based Management

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

Georgia Power, Georgia PSC, Docket # 3673-U, 1987

Georgia Power, F.E.R.C., Docket # ER 80-326, 80-327

Georgia Power, F.E.R.C., Docket # ER 81-730, 80-731

Georgia Power, F.E.R.C., Docket # ER 85-730, 85-731

Bell Canada, CRTC 1987

Northern Telephone, Ontario PSC

GTE-Quebec Telephone, Quebec PSC, Docket 84-052B

Newtel., Nfld. Brd of Public Commission PU 11-87

CN-CP Telecommunications, CRTC

Quebec Northern Telephone, Quebec PSC

Edmonton Power Company, Alberta Public Service Board

Kansas Power & Light, F.E.R.C., Docket # ER 83-418

NYNEX, FCC generic cost of capital Docket #84-800

Bell South, FCC generic cost of capital Docket #84-800

American Water Works - Tennessee, Docket #7226

Burlington-Northern - Oklahoma State Board of Taxes

Georgia Power, Georgia PSC, Docket # 3549-U

GTE Service Corp., FCC Docket #84-200

Mississippi Power Co., Miss. PSC, Docket U-4761

Citizens Utilities, Ariz. Corp. Comm., D # U2334-86020

Quebec Telephone, Quebec PSC, 1986, 1987, 1992

Newfoundland L & P, Nfld. Brd. Publ Comm. 1987, 1991

Northwestern Bell, Minnesota PSC, #P-421/CI-86-354

GTE Service Corp., FCC Docket #87-463

Anchorage Municipal Power & Light, Alaska PUC, 1988

New Brunswick Telephone, N.B. PUC, 1988

Trans-Quebec Maritime, Nat'l Energy Brd. of Cda, '88-92

Gulf Power Co., Florida PSC, Docket #88-1167-EI

Mountain States Bell, Montana PSC, #88-1.2

Mountain States Bell, Arizona CC, #E-1051-88-146

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

GTE Northwest, Washington UTC, #U-89-3031

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

New Tel Enterprises, CRTC, Docket #90-15

Peoples Gas Systems, Florida PSC

Jersey Central Pwr & Light, N.J. PUB, Case ER 89110912J

Alabama Gas Co., Alabama PSC, Case 890001

Trans-Quebec Maritime Pipeline, Cdn. Nat'l Energy Board

Mountain Bell, Utah PSC,

Mountain Bell, Colorado PUB

South Central Bell, Louisiana PS

Hope Gas, West Virginia PSC

Vermont Gas Systems, Vermont PSC

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, 1975-2001
- Financial Management Association, 1978-2001

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, January 2001

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 Exchange 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
- Executive Education: Departmental Coordinator 2000
- University Senate Committee on Commencement
- University Senate Committee on Information Technology
- University Senate Committee on Student Discipline

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

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

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

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

Year	Long-Term Government Bond Yield (1)	20 year Maturity Bond Value (2)	Gain/Loss (3)	Interest (4)	Bond Total Return (5)	Moody's Natural Gas Distribution Stock Index (6)	Dividend (7)	Capital Gain/(Loss) % Growth (8)	Yield (9)	Stock Total Return (10)	Equity Risk Premium (11)
1954	2.72%	1,000.00				26.47					
1955	2.95%	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%	9.96%
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	(81.99)	32.30	-4.97%	38.71	1.57	50.16%	6.09%	56.25%	61.21%
1959	4.47%	914.65	(85.35)	38.20	-4.71%	39.59	1.66	2.27%	4.29%	6.56%	11.28%
1960	3.80%	1,093.27	93.27	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)	39.50	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%	964.64	(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	5.98%	951.38	(48.62)	55.60	0.70%	53.80	2.81	6.56%	5.57%	12.12%	11.42%
1969	6.87%	904.00	(96.00)	59.80	-3.62%	43.88	2.93	-18.44%	5.45%	-12.99%	-9.37%
1970	6.48%	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%	997.69	(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	(34.67)	72.60	3.79%	29.71	3.34	-31.59%	7.69%	-23.90%	-27.69%
1975	8.05%	955.63	(44.37)	76.00	3.16%	38.29	3.48	28.88%	11.71%	40.59%	37.43%
1976	7.21%	1,088.25	88.25	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%	902.99	(97.01)	89.80	-0.72%	53.50	4.44	16.38%	9.66%	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	(76.88)	109.50	3.26%	55.79	5.55	10.21%	10.96%	21.18%	17.92%
1984	11.70%	1,020.70	20.70	119.70	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%	1,166.63	166.63	95.60	26.22%	90.89	5.71	18.69%	7.46%	26.14%	-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%	86.76	6.30	12.31%	8.16%	20.47%	11.08%
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)	81.60	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	-17.59%	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%	1,081.92	81.92	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	6.82%	848.41	(151.59)	54.20	-9.74%	160.00	8.16	-9.73%	4.60%	-5.12%	4.62%
MEAN					**6.05%**					**11.87%**	**5.82%**

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

VALUE LINE WATER UTILITIES
DCF ANALYSIS: ANALYSTS' GROWTH FORECASTS

	Company	Industry	Beta	% Current Divid Yield	Analysts Growth Forecast	Expected Divid Yield	Cost of Equity	ROE
		(1)	(2)	(3)	(4)	(5)	(6)	(6)
1	Amer. Water Works	WATER	0.55	3.0	6.0	3.5	9.5	9.7
2	Phila. Suburban	WATER	0.60	2.7	8.6	3.2	11.8	12.0
3	California Water	WATER	0.65	4.1	6.0	4.7	10.7	10.9
4	Amer. States Water	WATER	0.65	4.1	4.5	4.5	9.0	9.3
5	SJW Corp.	WATER	0.50					
6	Conn. Water Services	WATER	0.50	3.6	3.0	4.0	7.0	7.3
7	Middlesex Water	WATER	0.40	4.1	3.0	4.5	7.5	7.8
8	Southwest Water	WATER	0.50					
9	Artesian Res Corp	WATER	0.45	4.4	8.0	5.1	13.1	13.3
	AVERAGE		**0.53**	**3.7**	**5.6**	**4.2**	**9.8**	**10.0**

Notes:
Column 1, 2, 3: Value Line Investment Survey for Windows, 4/2001
Column 4: IBES long-term earnings growth forecast, 4/2001
Column 5 = Column 3 times (1 + Column 4/100) + 0.003% for quarterly timing of dividends
Column 6 = Column 5 + Column 4
Column 7 = (Column 5 /0.95) + Column 4

VALUE LINE WATER UTILITIES
DCF ANALYSIS: VALUE LINE GROWTH FORECASTS

	Company	Industry	Beta	% Current Divid Yield	Analysts Growth Forecast	Expected Divid Yield	Cost of Equity	ROE
		(1)	(2)	(3)	(4)	(5)	(6)	(6)
1	Amer. Water Works	WATER	0.55	3.0	6.0	3.5	9.5	9.7
2	Phila. Suburban	WATER	0.60	2.7	8.6	3.2	11.8	12.0
3	California Water	WATER	0.65	4.1	6.0	4.7	10.7	10.9
4	Amer. States Water	WATER	0.65	4.1	4.5	4.5	9.0	9.3
5	SJW Corp.	WATER	0.50					
6	Conn. Water Services	WATER	0.50	3.6	3.0	4.0	7.0	7.3
7	Middlesex Water	WATER	0.40	4.1	3.0	4.5	7.5	7.8
8	Southwest Water	WATER	0.50					
9	Artesian Res Corp	WATER	0.45	4.4	8.0	5.1	13.1	13.3
	AVERAGE		**0.53**	**3.7**	**5.6**	**4.2**	**9.8**	**10.0**

Notes:
Column 1, 2, 3, 4: Value Line Investment Survey for Windows, 4/2001
Column 5 = Column 3 times (1 + Column 4/100)
Column 6 = Column 5 + Column 4
Column 7 = (Column 5 /0.95) + Column 4

VALUE LINE WATER UTILITIES
DCF ANALYSIS: HISTORICAL GROWTH

	Company	Industry	Beta	% Current Divid Yield	Value Line Historical Growth	Expected Divid Yield	Cost of Equity	ROE
		(1)	(2)	(3)	(4)	(5)	(6)	(6)
1	Amer. Water Works	WATER	0.55	3.0	6.5	3.5	10.0	10.2
2	Phila. Suburban	WATER	0.60	2.7	10.0	3.2	13.2	13.4
3	California Water	WATER	0.65	4.1	5.5	4.6	10.1	10.4
4	Amer. States Water	WATER	0.65	4.1	0.5	4.4	4.9	5.1
5	SJW Corp.	WATER	0.50	3.1	7.0	3.6	10.6	10.8
6	Conn. Water Services	WATER	0.50	3.6	3.0	4.0	7.0	7.3
7	Middlesex Water	WATER	0.40	4.1	2.0	4.5	6.5	6.7
8	Southwest Water	WATER	0.50	1.9	16.5	2.5	19.0	19.1
9	Artesian Res Corp	WATER	0.45					
	AVERAGE		**0.53**	**3.3**	**6.4**	**3.8**	**10.2**	**10.4**

Notes:
Column 1, 2, 3, 4: Value Line Investment Survey for Windows, 4/2001
Column 5 = Column 3 times (1 + Column 4/100) + 0.003% for quarterly timing of dividends
Column 6 = Column 5 + Column 4
Column 7 = (Column 5 /0.95) + Column 4

MOODY'S GENERATION DIVESTITURE UTILITIES
DCF ANALYSIS: ANALYSTS' GROWTH FORECASTS

	Company	% Current Divid Yield (1)	Analysts' Growth Forecast (2)	% Expected Divid Yield (3)	Cost of Equity (4)	ROE (5)
1	Allegheny Energy	3.7	8.4	4.0	12.4	12.6
2	Ameren Corp.	6.1	3.5	6.3	9.8	10.1
3	Conectiv	4.0	5.1	4.2	9.4	9.6
4	Consol. Edison	5.8	7.3	6.2	13.5	13.8
5	DQE	5.9	6.8	6.3	13.1	13.4
6	Edison Int'l					
7	Energy East Corp.	5.0	9.3	5.5	14.7	15.0
8	GPU Inc.	6.8	6.4	7.2	13.7	14.0
9	NSTAR	5.3	11.9	5.9	17.9	18.2
10	Niagara Mohawk					
11	Northeast Utilities	2.3	10.2	2.5	12.7	12.8
12	PG&E Corp.					
13	Sempra Energy	4.3	7.8	4.6	12.5	12.7
14	Sierra Pacific Res.	7.3	5.3	7.7	13.0	13.4
15	UIL Holdings	5.8	3.7	6.0	9.7	10.0
	AVERAGE	**5.2**	**7.1**	**5.5**	**12.7**	**13.0**
	TRUNCATED AVERAGE					**12.8**

Notes:
Column 1: Value Line Investment Survey for Windows, 4/2001
Column 2: IBES long-term earnings growth forecast, 4/2001;
shaded cell: if IBES growth unavailable, Value Line projected growth.
Column 3 = Column 1 times (1 + Column 2/100)
Column 4 = Column 3 + Column 2
Column 5 = (Column 3 /0.95) + Column 2

MOODY'S GENERATION DIVESTITURE UTILITIES
DCF ANALYSIS: VALUE LINE GROWTH PROJECTIONS

	Company	% Current Divid Yield (1)	Proj EPS Growth (2)	% Expected Divid Yield (3)	Cost of Equity (4)	ROE (5)
1	Allegheny Energy	3.7	10.0	4.0	14.0	14.3
2	Ameren Corp.	6.1	5.5	6.4	11.9	12.3
3	Conectiv	4.0	9.5	4.4	13.9	14.2
4	Consol. Edison	5.8	2.0	5.9	7.9	8.2
5	DQE	5.9	5.5	6.3	11.8	12.1
6	Edison Int'l					
7	Energy East Corp.	5.0	8.5	5.4	13.9	14.2
8	GPU Inc.					
9	NSTAR	5.3	6.5	5.6	12.1	12.4
10	Niagara Mohawk					
11	Northeast Utilities					
12	PG&E Corp.					
13	Sempra Energy	4.3	8.5	4.7	13.2	13.4
14	Sierra Pacific Res.	7.3	6.5	7.8	14.3	14.7
15	UIL Holdings	5.8	5.0	6.1	11.1	11.4
	AVERAGE	**5.3**	**6.8**	**5.7**	**12.4**	**12.7**
	TRUNCATED AVERAGE					**13.0**

Notes:
Column 1, 2: Value Line Investment Survey for Windows, 4/2001
Column 3 = Column 1 times (1 + Column 2/100)
Column 4 = Column 3 + Column 2
Column 5 = (Column 3 /0.95) + Column 2

NATURAL GAS DISTRIBUTION UTILITIES
DCF ANALYSIS: ANALYSTS' GROWTH FORECASTS

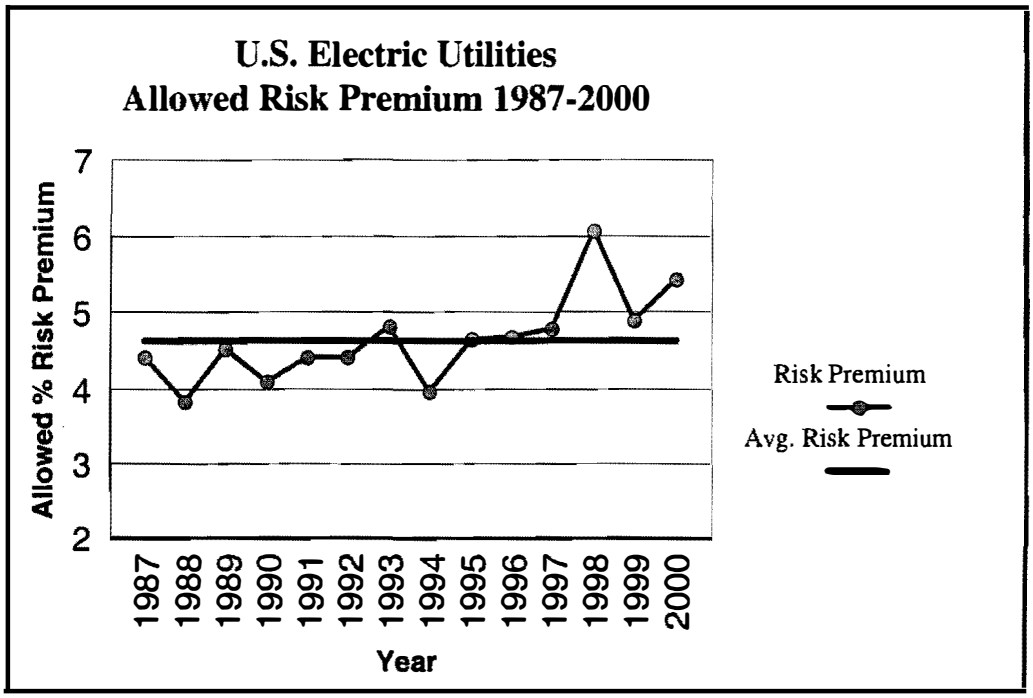
	Company	Industry	Beta	% Current Divid Yield	Analysts Growth Forecast	Expected Divid Yield	Cost of Equity	ROE
		(1)	(2)	(3)	(4)	(5)	(6)	(6)
1	AGL Resources	GASDISTR	0.60	5.0	5.5	5.2	10.7	11.0
2	Atmos Energy	GASDISTR	0.55	5.5	7.1	5.8	12.9	13.2
3	Energen Corp.	GASDISTR	0.75	2.0	11.8	2.3	14.0	14.1
4	KeySpan Corp.	GASDISTR	0.60	4.5	9.6	4.9	14.6	14.8
5	MCN Energy Group	GASDISTR	0.90	3.9	6.0	4.1	10.2	10.4
6	NICOR Inc.	GASDISTR	0.60	4.8	6.1	5.1	11.2	11.5
7	New Jersey Resources	GASDISTR	0.55	4.3	6.8	4.6	11.4	11.7
8	Northwest Nat. Gas	GASDISTR	0.60	5.3	4.3	5.5	9.8	10.1
9	ONEOK Inc.	GASDISTR	0.70	3.1	7.7	3.4	11.0	11.2
10	Peoples Energy	GASDISTR	0.70	5.2	6.3	5.5	11.7	12.0
11	Piedmont Natural Gas	GASDISTR	0.60	4.4	5.4	4.6	10.1	10.3
12	Southwest Gas	GASDISTR	0.65	4.0	4.8	4.2	8.9	9.1
13	UGI Corp.	GASDISTR	0.70	6.4	6.0	6.8	12.8	13.2
14	WGL Holdings Inc.	GASDISTR	0.60	4.6	4.4	4.8	9.2	9.5
	AVERAGE		**0.65**	**4.5**	**6.6**	**4.8**	**11.3**	**11.6**
	TRUNCATED AVERAGE							**11.5**

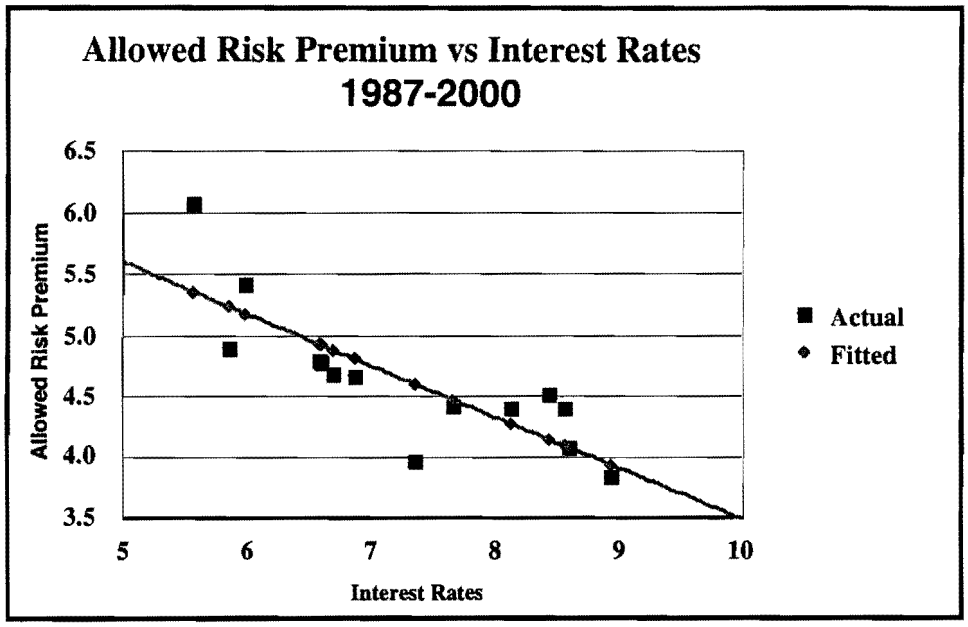
Notes:
Column 1, 2, 3: Value Line Investment Survey for Windows, 4/2001
Column 4: IBES long-term earnings growth forecast, 4/2001
Column 5 = Column 3 times (1 + Column 4/100)
Column 6 = Column 5 + Column 4
Column 7 = (Column 5 /0.95) + Column 4

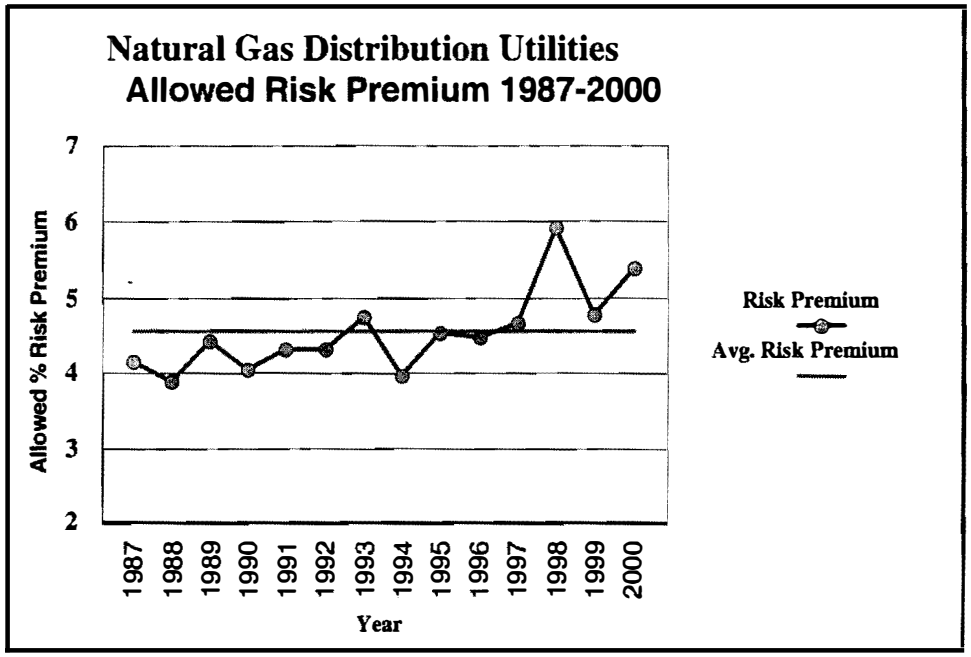
NATURAL GAS DISTRIBUTION UTILITIES
DCF ANALYSIS: VALUE LINE GROWTH FORECASTS

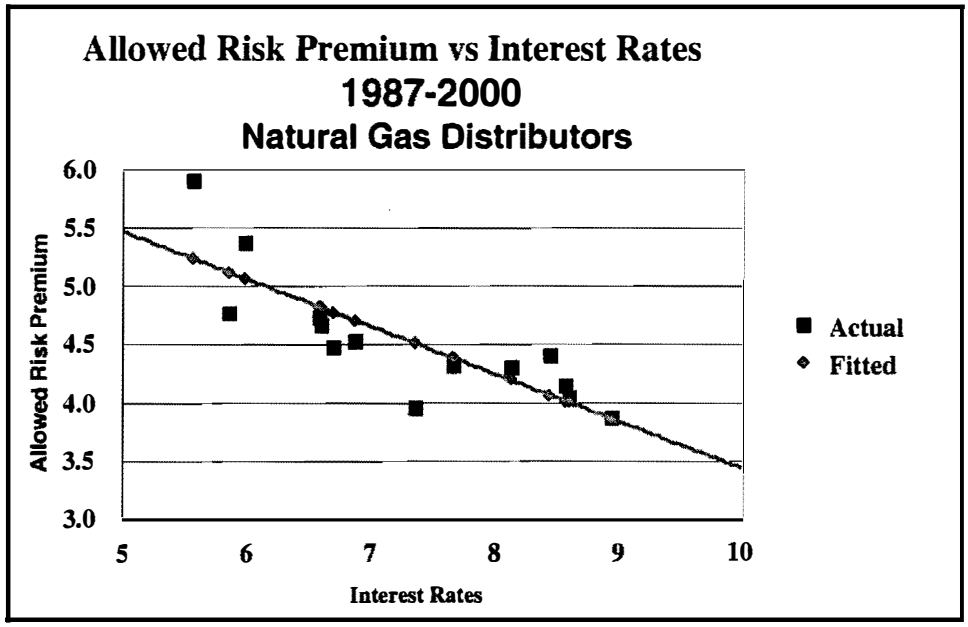
	Company	Industry	Beta	% Current Divid Yield	Value Line Proj Growth	Expected Divid Yield	Cost of Equity	ROE
		(1)	(2)	(3)	(4)	(5)	(6)	(6)
1	AGL Resources	GASDISTR	0.60	5.0	6.0	5.3	11.3	11.5
2	Atmos Energy	GASDISTR	0.55	5.5	13.5	6.2	19.7	20.0
3	Energen Corp.	GASDISTR	0.75	2.0	13.5	2.3	15.8	15.9
4	KeySpan Corp.	GASDISTR	0.60	4.5	23.5	5.5	29.0	29.3
5	MCN Energy Group	GASDISTR	0.90	3.9	6.0	4.1	10.1	10.3
6	NICOR Inc.	GASDISTR	0.60	4.8	6.5	5.1	11.6	11.9
7	New Jersey Resources	GASDISTR	0.55	4.3	7.5	4.6	12.1	12.4
8	Northwest Nat. Gas	GASDISTR	0.60	5.3	7.5	5.7	13.2	13.5
9	ONEOK Inc.	GASDISTR	0.70	3.1	12.0	3.5	15.5	15.7
10	Peoples Energy	GASDISTR	0.70	5.2	8.5	5.6	14.1	14.4
11	Piedmont Natural Gas	GASDISTR	0.60	4.4	8.0	4.8	12.8	13.0
12	Southwest Gas	GASDISTR	0.65	4.0	5.0	4.2	9.2	9.4
13	UGI Corp.	GASDISTR	0.70	6.4	10.5	7.1	17.6	18.0
14	WGL Holdings Inc.	GASDISTR	0.60	4.6	8.5	5.0	13.5	13.8
	AVERAGE		**0.65**	**4.5**	**9.8**	**4.9**	**14.7**	**14.9**
	TRUNCATED AVERAGE							**14.2**

Notes:
Column 1, 2, 3, 4: Value Line Investment Survey for Windows, 4/2001
Column 5 = Column 3 times (1 + Column 4/100)
Column 6 = Column 5 + Column 4
Column 7 = (Column 5 /0.95) + Column 4
Shaded cell: Value Line forecast unavailable; used IBES forecast


U.S. Electric Utilities
Allowed Risk Premium 1987-2000
Allowed % Risk Premium
7
6
5
4
3
2
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
Year
Risk Premium
Avg. Risk Premium


Allowed Risk Premium vs Interest Rates
1987-2000
Allowed Risk Premium
6.5
6.0
5.5
5.0
4.5
4.0
3.5
5
6
7
8
9
10
Interest Rates
Actual
Fitted


Natural Gas Distribution Utilities
Allowed Risk Premium 1987-2000
Allowed % Risk Premium
7
6
5
4
3
2
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
Year
Risk Premium
Avg. Risk Premium


Allowed Risk Premium vs Interest Rates
1987-2000
Natural Gas Distributors
Allowed Risk Premium
6.0
5.5
5.0
4.5
4.0
3.5
3.0
5
6
7
8
9
10
Interest Rates
Actual
Fitted

APPENDIX A

FLOTATION COST ALLOWANCE

To obtain the final cost of equity financing from the investors' expected rate of return, it is necessary to make allowance for underpricing, which is the sum of market pressure, costs of flotation, and underwriting fees associated with new issues. Allowance for market pressure should be made because large blocks of new stock may cause significant pressure on market prices even in stable markets. Allowance must also be made for company costs of flotation (including such items as printing, legal and accounting expenses) and for underwriting fees.

1. MAGNITUDE OF FLOTATION COSTS

According to empirical studies, underwriting costs and expenses average at least 4% of gross proceeds for utility stock offerings in the U.S. (See Logue & Jarrow: "Negotiations vs. Competitive Bidding in the Sale of Securities by Public Utilities", Financial Management, Fall 1978.) A study of 641 common stock issues by 95 electric utilities identified a flotation cost allowance of 5.0%. (See Borum & Malley: "Total Flotation Cost for Electric Company Equity Issues", Public Utilities Fortnightly, Feb. 20, 1986.)

Empirical studies suggest an allowance of 1% for market pressure in U.S. studies. Logue and Jarrow found that the absolute magnitude of the relative price decline due to market pressure was less than 1.5%. Bowyer and Yawitz examined 278 public utility stock issues and found an average market pressure of 0.72%. (See Bowyer & Yawitz, "The Effect of New Equity Issues on Utility Stock Prices", Public Utilities Fortnightly, May 22, 1980.)

Eckbo & Masulis ("Rights vs. Underwritten Stock Offerings: An Empirical Analysis", University of British Columbia, Working Paper No. 1208, Sept., 1987) found an average flotation cost of 4.175% for utility common stock offerings. Moreover, flotation costs increased progressively for smaller size issues. They also

found that the relative price decline due to market pressure in the days surrounding the announcement amounted to slightly more than 1.5%. Adding the two effects, the indicated total flotation cost allowance is above 5.0%, corroborating the results of earlier studies.

Therefore, based on empirical studies, total flotation costs including market pressure amount to approximately 5% of gross proceeds. I have therefore assumed a 5% gross total flotation cost allowance in my cost of capital analyses.

2. APPLICATION OF THE FLOTATION COST ADJUSTMENT

The section below shows: 1) why it is necessary to apply an allowance of 5% to the dividend yield component of equity cost by dividing that yield by 0.95 (100% - 5%) to obtain the fair return on equity capital, and 2) why the flotation adjustment is permanently required to avoid confiscation even if no further stock issues are contemplated. Flotation costs are only recovered if the rate of return is applied to total equity, including retained earnings, in all future years.

Flotation costs are just as real as costs incurred to build utility plant. Fair regulatory treatment absolutely must permit the recovery of these costs. An analogy with bond issues is useful to understand the treatment of flotation costs in the case of common stocks.

In the case of a bond issue, flotation costs are not expensed but are rather amortized over the life of the bond, and the annual amortization charge is embedded in the cost of service. This is analogous to the process of depreciation, which allows the recovery of funds invested in utility plant. The recovery of bond flotation expense continues year after year, irrespective of whether the company issues new debt capital in the future, until recovery is complete. In the case of common stock that has no finite life, flotation costs are not amortized. Therefore, the recovery of flotation cost requires an upward adjustment to the allowed return on equity. Roger A. Morin, Regulatory Finance, Public Utilities Reports Inc., Arlington, Va., 1994, provides numerical illustrations that show that even if a utility

does not contemplate any additional common stock issues, a flotation cost adjustment is still permanently required. Examples there also demonstrate that the allowance applies to retained earnings as well as to the original capital.

From the standard DCF model, the investor's required return on equity capital is expressed as:

$$K = D_1/P_o + g$$

If P_o is regarded as the proceeds per share actually received by the company from which dividends and earnings will be generated, that is, P_o equals B_o, the book value per share, then the company's required return is:

$$r = D_1/B_o + g$$

Denoting the percentage flotation costs 'f', proceeds per share B_o are related to market price P_o as follows:

$$P - fP = B_o$$

$$P(1 - f) = B_o$$

Substituting the latter equation into the above expression for return on equity, we obtain:

$$r = D_1/P(1-f) + g$$

that is, the utility's required return adjusted for underpricing. For flotation costs of 5%, dividing the expected dividend yield by 0.95 will produce the adjusted cost of equity capital. For a dividend yield of 6% for example, the magnitude of the adjustment is 32 basis points: .06/.95 = .0632.

In deriving my DCF estimates of fair return on equity, it was therefore necessary to apply a conservative after-tax allowance of 5% to the dividend yield component of equity cost.

Even if no further stock issues are contemplated, the flotation adjustment is still permanently required to keep shareholders whole. Flotation costs are only recovered if the rate of return is applied to total equity, including retained earnings, in all future years, even if no future financing is contemplated. This is demonstrated by the numerical example contained in pages 6-8 of this Appendix. Moreover, even if the stock price, hence the DCF estimate of equity return, fully reflected the lack of permanent allowance, the company always nets less than the market price. Only the net proceeds from an equity issue are used to add to the rate base on which the investor earns. A permanent allowance for flotation costs must be authorized in order to insure that in each year the investor earns the required return on the total amount of capital actually supplied.

The example shown on pages 6-8 shows the flotation cost adjustment process using illustrative, yet realistic, market data. The assumptions used in the computation are shown on page 6. The stock is selling in the market for $25, investors expect the firm to pay a dividend of $2.25 that will grow at a rate of 5% thereafter. The traditional DCF cost of equity is thus $k = D/P + g = 2.25/25 + .05 = 14\%$. The firm sells one share stock, incurring a flotation cost of 5%. The traditional DCF cost of equity adjusted for flotation cost is thus $ROE = D/P(1-f) + g = .09/.95 + .05 = 14.47\%$.

The initial book value (rate base) is the net proceeds from the stock issue, which are $23.75, that is, the market price less the 5% flotation costs. The example demonstrates that only if the company is allowed to earn 14.47% on rate base will investors earn their cost of equity of 14%. On page 7, Column 1 shows the initial common stock account, Column 2 the cumulative retained earnings balance, starting at zero, and steadily increasing from the retention of earnings. Total equity in Column 3 is the sum of common stock capital and retained earnings. The stock price in Column 4 is obtained from the seminal DCF formula: $D_1/(k - g)$. Earnings per share in Column 6 are simply the allowed return of 14.47% times the total common equity base. Dividends start at $2.25 and grow at 5% thereafter, which

they must do if investors are to earn a 14% return. The dividend payout ratio remains constant, as per the assumption of the DCF model. All quantities, stock price, book value, earnings, and dividends grow at a 5% rate, as shown at the bottom of the relevant columns. Only if the company is allowed to earn 14.47% on equity do investors earn 14%. For example, if the company is allowed only 14%, the stock price drops from $26.25 to $26.13 in the second year, inflicting a loss on shareholders. This is shown on page 8. The growth rate drops from 5% to 4.53%. Thus, investors only earn 9% + 4.53% = 13.53% on their investment. It is noteworthy that the adjustment is always required each and every year, whether or not new stock issues are sold in the future, and that the allowed return on equity must be earned on total equity, including retained earnings, for investors to earn the cost of equity.

ASSUMPTIONS:

ISSUE PRICE =	$25.00
FLOTATION COST =	5.00%
DIVIDEND YIELD =	9.00%
GROWTH =	5.00%

EQUITY RETURN = (D/P + g)	**14.00%**
ALLOWED RETURN ON EQUITY = (D/P(1-f) + g)	**14.47%**

COMPANY EARNS FLOTATION-ADJUSTED COST OF EQUITY
APPLIED ON ALL COMMON EQUITY
BEGINNING OF YEAR

YEAR	COMMON STOCK (1)	RETAINED EARNINGS (2)	TOTAL EQUITY (3)	STOCK PRICE (4)	MARKET/ BOOK RATIO (5)	EPS (6)	DPS (7)	PAYOUT (8)	CHANGE EARNINGS RETAINED (9)
1	$23.75	$0.000	$23.750	$25.000	1.0526	$3.438	$2.250	65.45%	$1.188
2	$23.75	$1.188	$24.938	$26.250	1.0526	$3.609	$2.363	65.45%	$1.247
3	$23.75	$2.434	$26.184	$27.563	1.0526	$3.790	$2.481	65.45%	$1.309
4	$23.75	$3.744	$27.494	$28.941	1.0526	$3.979	$2.605	65.45%	$1.375
5	$23.75	$5.118	$28.868	$30.388	1.0526	$4.178	$2.735	65.45%	$1.443
6	$23.75	$6.562	$30.312	$31.907	1.0526	$4.387	$2.872	65.45%	$1.516
7	$23.75	$8.077	$31.827	$33.502	1.0526	$4.607	$3.015	65.45%	$1.591
8	$23.75	$9.669	$33.419	$35.178	1.0526	$4.837	$3.166	65.45%	$1.671
9	$23.75	$11.340	$35.090	$36.936	1.0526	$5.079	$3.324	65.45%	$1.754
10	$23.75	$13.094	$36.844	$38.783	1.0526	$5.333	$3.490	65.45%	$1.842
			5.00%	5.00%		5.00%	5.00%		5.00%

COMPANY DOES NOT EARN THE FLOTATION-ADJUSTED COST OF EQUITY

YEAR	COMMON STOCK (1)	RETAINED EARNINGS (2)	TOTAL EQUITY (3)	STOCK PRICE (4)	MARKET/ BOOK RATIO (5)	EPS (6)	DPS (7)	PAYOUT (8)
1	$23.75	$0.000	$23.750	$25.000	1.0526	$3.325	$2.250	67.67%
2	$23.75	$1.075	$24.825	$26.132	1.0526	$3.476	$2.352	67.67%
3	$23.75	$2.199	$25.949	$27.314	1.0526	$3.633	$2.458	67.67%
4	$23.75	$3.373	$27.123	$28.551	1.0526	$3.797	$2.570	67.67%
5	$23.75	$4.601	$28.351	$29.843	1.0526	$3.969	$2.686	67.67%
6	$23.75	$5.884	$29.634	$31.194	1.0526	$4.149	$2.807	67.67%
7	$23.75	$7.225	$30.975	$32.606	1.0526	$4.337	$2.935	67.67%
8	$23.75	$8.627	$32.377	$34.082	1.0526	$4.533	$3.067	67.67%
9	$23.75	$10.093	$33.843	$35.624	1.0526	$4.738	$3.206	67.67%
10	$23.75	$11.625	$35.375	$37.237	1.0526	$4.952	$3.351	67.67%
			4.53%	4.53%		4.53%	4.53%	

Experience and Qualifications

I received a Bachelor of Science degree in Business Administration in 1980 and a Master of Business Administration degree in Finance in 1981, both from Florida State University. Upon graduation I accepted a planning analyst position with Flagship Banks, Inc., a bank holding company. As a planning analyst, my duties included merger and acquisition analysis, lease-buy analysis, branch feasibility analysis, and special projects.

In 1983, I accepted a regulatory analyst position with the Florida Public Service Commission. As a regulatory analyst, I provided in-depth analysis of the cost of equity and required overall rate of return in numerous major and minor rate cases. I reviewed and analyzed the current and forecasted economic conditions surrounding those rate cases and applied financial integrity tests to determine the impacts of various regulatory treatments. I also co-developed an integrated spreadsheet model which links all elements of a rate case and calculates revenue requirements. I received a meritorious service award from the Florida Public Service Commission for my contributions to the development of that model.

In February 1987, I was promoted to Chief of the Bureau of Finance. In that capacity I provided expert testimony on the cost of common equity, risk and return, corporate structure, capital structure, and industry structure. I provided technical guidance to the Office of General Counsel regarding the development of financial rules and

regulations. In addition, I authored the Commission's rules regarding diversification and affiliated transactions, chaired the Commission's Committee on Leveraged Buyouts, supervised the finance bureau's regulatory analysts, co-developed and presented a seminar on public utility regulation to help educate the Florida Public Service Commission attorneys, and provided technical expertise to the Commission in all areas of public utility finance for all industries.

In February 1990, I accepted the position of Chief of Arbitrage Compliance in the Division of Bond Finance, Department of General Services. As Manager of the Arbitrage Compliance Section, I was responsible for assuring that over $16 billion of State of Florida tax-exempt securities remained in compliance with the federal arbitrage requirements enacted by the Tax Reform Act of 1986. I provided investment advice to trust fund managers on how to maximize yields while remaining in compliance with the federal arbitrage regulations. I designed and implemented the first statewide arbitrage compliance system which included data gathering, financial reporting, and computation and analysis subsystems.

In July 1990, I founded Cicchetti & Company. Through Cicchetti & Company I provided financial research and consulting services, including the provision of expert testimony, in the areas of public utility finance, economics, and regulation. Topics I have

testified on include cost of equity, capital structure, corporate structure, regulatory theory, cross-subsidization, industry structure, the overall cost of capital, incentive regulation, the establishment of the leverage formula for the water and wastewater industry, reconciling rate base and capital structure, risk and return, and the appropriate regulatory treatment of construction work in progress, used and useful property, construction cost recovery charges, and the tax gross-up associated with contributions-in-aid-of-construction.

In January, 2001, I joined C.H. Guernsey & Co. as a Senior Financial Consultant and Manager of the Tallahassee, Florida Office.

In 1985, I was certified by the Florida Public Service Commission as a Class B Practitioner in the areas of finance and accounting.

In June, 1985, I published an article in Public Utilities Fortnightly titled "Reconciling Rate Base and Capital Structure: The Balance Sheet Method." In September, 1986, I was awarded third place in the annual, national, Competitive Papers Session sponsored by Public Utilities Reports, Inc., in conjunction with the University of Georgia and Georgia State University, for my paper titled "The Quarterly Discounted Cash Flow Model, the Ratemaking Rate of Return, and the Determination of Revenue Requirements for Regulated Public Utilities." An updated version of that paper was published in the June, 1989 edition of the National Regulatory Research Institute Quarterly Bulletin. I subsequently served twice as a referee for the Competitive Papers Sessions. On June

15, 1993, I published an article on incentive regulation in *Public Utilities Fortnightly* titled "Irregular Incentives." I am a past President and past member of the Board of Directors of the Society of Utility and Regulatory Financial Analysts ("SURFA"). I was awarded the designation Certified Rate of Return Analyst by SURFA in 1992. I am a member of the Financial Management Association International and have been listed in Who's Who in the World and Who's Who in America.

I have made public utility and finance related presentations to various groups such as the Southeastern Public Utilities Conference, the National Society of Rate of Return Analysts, the National Association of State Treasurers, and the Government Finance Officers Association.

WATER COMPANY INDEX
INVESTMENT CHARACTERISTICS

	VALUE LINE SAFETY RANK	VALUE LINE BETA	VALUE LINE EQUITY RATIO	S&P BOND RATING
AMER. STATES WTR.	3	.65	50.0%	A+
AMER. WATER WKS.	1	.55	40.0%	
CALIFORNIA WATER	2	.65	49.5%	AA-
PHILA. SUBURBAN	2	.55	48.0%	A+
AVERAGE	2	.60	46.88%	A+

Source: Value Line, Ed. 9, 8/3/01
S&P.com, 9/01

MOODY'S NATURAL GAS INDEX
INVESTMENT CHARACTERISTICS

	VALUE LINE SAFETY RANK	VALUE LINE BETA	VALUE LINE EQUITY RATIO	S&P BOND RATING
AGL RESOURCES	2	.55	40.5%	A-
KEYSPAN CORP.	2	.55	37.0%	A
LACLEDE GAS	2	.50	54.5%	AA-
N.W. NAT'L GAS	2	.55	50.0%	A
PEOPLES ENERGY	1	.65	53.0%	AA
WGL HOLDINGS	1	.50	54.0%	AA-
AVERAGE	1.67	.55	48.17%	A+

Source: Value Line, Ed. 3, 6/22/01
S&P Bond Guide, 7/01

Two-Stage, Annually Compounded
Discounted Cash Flow Model

	Expected Dividends					est. EPS	est. ROE	Dividend Growth	Stock Price
	2001	2002	2003	2004	2005	2005	2005+	2005+	8/01
Amer Sts.	1.30	1.32	1.35	1.39	1.42	2.60	10.50	4.77%	36.60
Amer. Wtr.	0.94	0.98	1.02	1.06	1.11	2.65	13.00	7.55%	33.37
Cal. Wtr.	1.12	1.14	1.16	1.18	1.20	2.00	13.00	5.20%	25.08
Phil. Sub.	0.62	0.64	0.67	0.69	0.72	1.35	12.50	5.83%	27.28
Average	1.00	1.02	1.05	1.08	1.11	2.15	12.25	5.84%	30.58

The cost of common equity is calculated using a two-stage, annually compounded discounted cash flow model:

$$Po(1-fc) = \sum_{t=1}^{n} Dt/(1+k)^t = (Dn(1+gn))/(k-gn) * (1/(1+k))^t$$

Solving the above equation for k using Po = $30.58, fc =3%, and n = 5,

Provides a cost of common equity of: 9.00%

1) Data obtained or calculated from information provided in Value Line, Edition 9, 8/3/01.

2) The average stock price is the average of the high and low stock price for August 2001, Nomura Research Institute, Ltd.

RISK PREMIUM ANALYSIS

1991 - 2000

MONTH	GAS INDEX COST OF EQUITY	RISK FREE RATE	RISK PREMIUM
Jan 91	10.74	8.24	2.50
Feb	10.89	8.27	2.62
Mar	10.87	8.03	2.84
Apr	10.58	8.29	2.29
May	10.53	8.21	2.32
Jun	10.54	8.27	2.27
Jul	10.52	8.47	2.05
Aug	10.51	8.45	2.06
Sep	10.41	8.14	2.27
Oct	10.72	7.95	2.77
Nov	10.49	7.93	2.56
Dec	10.47	7.92	2.55
Jan 92	10.34	7.70	2.64
Feb	10.39	7.58	2.81
Mar	10.44	7.85	2.59
Apr	10.43	7.97	2.46
May	10.54	7.96	2.58
Jun	10.48	7.89	2.59
Jul	10.28	7.84	2.44
Aug	10.12	7.60	2.52
Sep	9.95	7.39	2.56
Oct	9.61	7.34	2.26
Nov	9.81	7.53	2.28
Dec	9.89	7.61	2.28
Jan 93	9.44	7.44	2.00
Feb	9.31	7.34	1.97
Mar	9.13	7.09	2.04
Apr	8.93	6.82	2.11
May	9.04	6.85	2.19
Jun	9.17	6.92	2.25
Jul	9.38	6.81	2.57

MONTH	GAS INDEX COST OF EQUITY	RISK FREE RATE	RISK PREMIUM
Aug 93	8.61	6.63	1.97
Sep	8.62	6.32	2.30
Oct	8.68	6.00	2.68
Nov	8.69	5.94	2.75
Dec	8.97	6.21	2.76
Jan 94	8.96	6.25	2.71
Feb	8.63	6.29	2.34
Mar	8.72	6.49	2.23
Apr	8.97	6.91	2.06
May	9.23	7.27	1.96
Jun	9.36	7.41	1.95
Jul	9.55	7.40	2.15
Aug	9.51	7.58	1.93
Sep	9.60	7.49	2.11
Oct	9.73	7.71	2.02
Nov	9.62	7.94	1.68
Dec	9.97	8.08	1.89
Jan 95	10.12	7.87	2.25
Feb	9.83	7.85	1.98
Mar	9.68	7.61	2.07
Apr	9.67	7.45	2.22
May	9.04	7.36	1.68
Jun	9.68	6.95	2.73
Jul	9.67	6.57	3.10
Aug	9.66	6.72	2.94
Sep	9.74	6.86	2.88
Oct	9.32	6.55	2.77
Nov	9.39	6.37	3.02
Dec	9.43	6.26	3.17

MONTH	GAS INDEX COST OF EQUITY	RISK FREE RATE	RISK PREMIUM
Jan 96	9.60	6.06	3.54
Feb	9.03	6.05	2.98
Mar	9.08	6.24	2.84
Apr	9.23	6.60	2.63
May	9.55	6.79	2.76
Jun	9.64	6.93	2.71
Jul	9.55	7.06	2.49
Aug	9.96	7.03	2.93
Sep	9.81	6.84	2.97
Oct	10.07	7.03	3.04
Nov	9.76	6.81	2.95
Dec	9.62	6.48	3.14
Jan 97	9.74	6.55	3.19
Feb	9.57	6.83	2.74
Mar	9.66	6 69	2.97
Apr	9.77	6.93	2.84
May	10.15	7.09	3.06
Jun	10.02	6.94	3.08
Jul	9.90	6.77	3.13
Aug	9.92	6.51	3.41
Sep	9.95	6.58	3.37
Oct	9.86	6.50	3.36
Nov	9.87	6.33	3.54
Dec	9.58	6.11	3.47
Jan 98	9.56	5.99	3.57
Feb	9.37	5.81	3.56
Mar	9.49	5.89	3.60
Apr	9.53	5.95	3.58
May	9.44	5.92	3.52
Jun	9.64	5.93	3.71

MONTH	GAS INDEX COST OF EQUITY	RISK FREE RATE	RISK PREMIUM
Jul 98	10.34	5.70	4.64
Aug	9.92	5.68	4.24
Sep	9.96	5.54	4.42
Oct	9.87	5.20	4.67
Nov	9.87	5.01	4.86
Dec	9.58	5.25	4.33
Jan 99	9.56	5.06	4.50
Feb	9.78	5.16	4.62
Mar	10.30	5.37	4.93
Apr	10.42	5.58	4.84
May	10.49	5.55	4.94
Jun	10.20	5.81	4.39
Jul	10.14	6.04	4.10
Aug	9.89	5.98	3.91
Sep	9.97	6.07	3.90
Oct	10.14	6.07	4.07
Nov	10.17	6.26	3.91
Dec	10.13	6.15	3.98
Jan 00	10.45	6.35	4.10
Feb	10.96	6.63	4.33
Mar	11.36	6.23	5.13
Apr	11.28	6.05	5.23
May	10.69	5.85	4.84
Jun	10.55	6.15	4.40
Jul	10.52	5.93	4.59
Aug	10.37	5.85	4.52
Sep	10.15	5.72	4.43
Oct	10.03	5.83	4.20
Nov	9.87	5.80	4.07
Dec	9.68	5.78	3.90
AVERAGE RISK PREMIUM			3.09

Source: Value Line 1990-2000
Federal Reserve Board

RISK PREMIUM ANALYSIS

RESULTS

Risk Premium Cost of Equity = Estimated Risk Free Rate + Equity Risk Premium

8.60% = 5.5% + 3.10%

Source: Blue Chip Financial Forecasts, 7/01

SUMMARY OF RESULTS

DCF Cost of Equity for Water Index	9.00%
Risk Premium Cost of Equity - Gas Index	8.60%
Average	8.80%
Bond Yield Differential	.41%
Private Placement Premium	.50%
Cost of Equity	9.71%

EXHIBIT NO. 4

WITNESS: Mark Cicchetti
on behalf of

DESCRIPTION

Mr. Cichetti's Late-filed Deposition Exhibit No. 1 – DCF Calculation of ROE Using Gas Utilities

PROFERRING PARTY: STAFF

DOCKET NO. 010006-WS

Two-Stage, Annually Compounded
Discounted Cash Flow Model

	Expected Dividends					est. EPS	est. ROE	Dividend Growth	Stock Price
	2001	2002	2003	2004	2005	2005	2005+	2005+	8/01
AGL Res.	1.08	1.08	1.10	1.13	1.15	1.85	12.00	4.54%	22.80
Keyspan	1.78	1.78	1.82	1.86	1.90	3.50	13.00	5.94%	31.36
Laclede	1.35	1.36	1.39	1.42	1.45	2.15	11.50	3.74%	23.65
NW Natrl.	1.25	1.26	1.27	1.29	1.30	2.45	11.00	5.16%	24.66
Peoples	2.04	2.08	2.11	2.13	2.16	4.05	12.00	5.60%	38.24
Wash. Gas	1.26	1.28	1.30	1.33	1.35	2.60	12.50	6.01%	27.35
Average	1.46	1.47	1.50	1.53	1.55	2.77	12.00	5.17%	28.01

The cost of common equity is calculated using a two-stage, annually compounded discounted cash flow model:

$$Po(1-fc) = \sum_{t=1}^{n} Dt/(1+k)^t = (Dn(1+gn))/(k-gn) * (1/(1+k))^t$$

Solving the above equation for k using Po = $28.01, fc =3%, and n = 5,

Provides a cost of common equity of: 10.10%

1) Data obtained or calculated from information provided in Value Line, Edition 3, 6/22/01.

2) The average stock price is the average of the high and low stock price for August 2001, Nomura Research Institute, Ltd.

EXHIBIT NO. 5

WITNESS: Mark Cicchetti
on behalf of

DESCRIPTION

Mr. Cichetti's Late-filed Deposition Exhibit No. 2 – Update of DCF Model and Risk Premium Model

PROFERRING PARTY: STAFF

DOCKET NO. 010006-WS

Two-Stage, Annually Compounded
Discounted Cash Flow Model

	Expected Dividends					est. EPS	est. ROE	Dividend Growth	Stock Price
	2001	2002	2003	2004	2005	2005	2005+	2005+	9/01
Amer Sts.	1.30	1.32	1.35	1.39	1.42	2.60	10.50	4.77%	35.20
Amer. Wtr.	0.94	0.98	1.02	1.06	1.11	2.65	13.00	7.55%	38.15
Cal. Wtr.	1.12	1.14	1.16	1.18	1.20	2.00	13.00	5.20%	25.72
Phil. Sub.	0.62	0.64	0.67	0.69	0.72	1.35	12.50	5.83%	26.02
Average	1.00	1.02	1.05	1.08	1.11	2.15	12.25	5.84%	31.27

The cost of common equity is calculated using a two-stage, annually compounded discounted cash flow model:

$$Po(1-fc) = \sum_{t=1}^{n} Dt/(1+k)^t = (Dn(1+gn))/(k-gn) * (1/(1+k))^t$$

Solving the above equation for k using Po = $31.27, fc =3%, and n = 5,

Provides a cost of common equity of: 8.91%

1) Data obtained or calculated from information provided in Value Line, Edition 9, 8/3/01.

2) The average stock price is the average of the high and low stock price for September 2001, Nomura Research Institute, Ltd.

RISK PREMIUM ANALYSIS

RESULTS

Risk Premium Cost of Equity = Estimated Risk Free Rate + Equity Risk Premium

8.60% = 5.5% + 3.10%

Source: Blue Chip Financial Forecasts, 10/01

SUMMARY OF RESULTS

DCF Cost of Equity for Water Index	8.90%
Risk Premium Cost of Equity - Gas Index	8.60%
Average	8.75%
Bond Yield Differential	.41%
Private Placement Premium	.50%
Cost of Equity	9.66%

Index of Exhibits

Water and Wastewater Leverage Formula

$$\text{ROE} = \text{Bond Yield} + \frac{\text{Equity Risk Premium}}{\text{Equity Ratio}}$$

where:

ROE is return on common equity.

Bond Yield is a constant term and is the recent average monthly yield on BBB rated public utility bonds plus adjustments.

Equity Risk Premium is a constant term for the amount the cost of equity exceeds the cost of debt and is derived from cost of equity models plus adjustments.

$$\text{Equity Ratio} = \frac{\text{Common Equity}}{\text{Common Equity} + \text{Preferred Equity} + \text{Long Term Debt} + \text{Short Term Debt}}$$

RECOMMENDED
Marginal Cost of Investor Capital
Average Water and Wastewater Utility

Recommended: 8.95 + 0.738/ER

Range: 9.69% to 10.80%

Capital Component	Ratio	Marginal Cost Rate	Weighted Marginal Cost Rate
Common Equity	42.94% *	10.67%	4.58%
Total Debt	57.06%	8.95% **	5.11%
	100.0%		9.69%

A 40% equity ratio is the floor for calculating the required return on common equity. The return on equity at a 40% equity ratio is 8.95% + .738/.40 = 10.80%.

Marginal Cost of Investor Capital
Average Water & Wastewater Utility at 40% Equity Ratio

Capital Component	Ratio	Marginal Cost Rate	Weighted Marginal Cost Rate
Common Equity	40.00%	10.79%	4.32%
Total Debt	60.00%	8.95% **	5.37%
	100.0%		9.69%

Where: ER = Equity Ratio = Common Equity/(Common Equity + Preferred Equity + Long-Term Debt + Short-Term Debt)

* Average of average gas index equity ratios and average water index equity ratios.

** Baa rate for August 2001 plus a 50 basis point private placement premium plus 50 basis point small-utility risk premium.

Source: Moody's Credit Perspectives, PL-21

EXHIBIT PL-4

COMPARISON OF ALLOWED ROEs

	Allowed ROE *	Order Date
American States Water Co.	10.00%	4Q99
American Water Works	11.02%	--
Artesian Resources Corp.	10.44%	04/00
California Water Service Group	10.48%	--
Connecticut Water Service, Inc.	12.70%	03/91
Middlesex Water Company	10.25%	--
Pennichuck Corporation	10.45%	--
Philadelphia Suburban Corp.	10.65%	--
SJW Corporation	10.20%	07/96
Southwest Water Company	10.00%	01/98
York Water Company	10.30%	10/99

FPSC Leverage Formula Range

2000	9.37%	to	9.94%
1999	8.93%	to	10.12%
1998	8.57%	to	9.85%
1997	9.21%	to	10.46%
1996	10.18%	to	11.88%
1995	10.18%	to	11.88%

* ROEs for companies operating in multiple jurisdictions are averages.

Source: C.A. Turner Utility Reports, Sept. 2001 & PSC Leverage Formula Orders

BREAKDOWN OF WATER AND WASTEWATER SYSTEMS BY REVENUE

As of December 31, 2000

	Number of Systems
Water Systems With Less that $200K Revenue	97
Water Systems With $200K to $1,000,000 in Revenue	42
Water Systems With $1,000,000 or More in Revenue	9
TOTAL	148
Wastewater Systems With Less that $200K Revenue	73
Wastewater Systems $200K to $1,000,000 in Revenue	36
Wastewater Systems With $1,000,000 or More in Revenue	9
TOTAL	118

SOURCE: PSC Annual Reports for 2000

Florida Electric Utilities Revenue & Earnings for 2000

Company	Achieved ROE	Revenue excluding clause revenue
Florida Power & Light Co.	12.21%	$3,447,550,859
Florida Power Corp.	12.74%	1,330,303,532
FPUC- Fernandina Beach	12.62%	6,793,712
FPUC-Mariana	11.75%	6,232,216
Gulf Power Co.	12.76%	355,468,247
Tampa Electric Co.	12.31%	784,476,945

Number of Utilities	6	
	Achieved ROE	Revenue excluding clause revenue
Average	12.40%	$988,470,919
Median	12.47%	$569,972,596
Range	11.75% to 12.76%	$6,232,216 to $3,447,550,859
Number Above Authorized ROE Range	3	
Number Reporting a Loss	0	

Source: FPSC Surveillance Reports for December 2000

FPSC Regulated Gas Companies

Company	Achieved ROE	Net Revenue
Chesapeake Utilities	4.65%	$9,560,464
City Gas	3.39%	32,840,339
FPUC	11.82%	17,106,592
Indiantown Gas	-6.92%	556,181
Peoples Gas System	10.90%	145,147,000
Sebring Gas System	-31.90%	259,935
South Florida Natural Gas	1.44%	1,577,833
St. Joe Natural Gas	0.08%	1,148,670

Number of Systems	8	
	Achieved ROE	Net Revenue
Average	-0.82%	$26,024,627
Median	2.42%	$5,569,149
Range	-31.90% to 11.82%	$259,935 to $145,147,000
Number Above 12% ROE	0	
Number Reporting a Loss	2	

Source: December 2000 Surveillance Reports

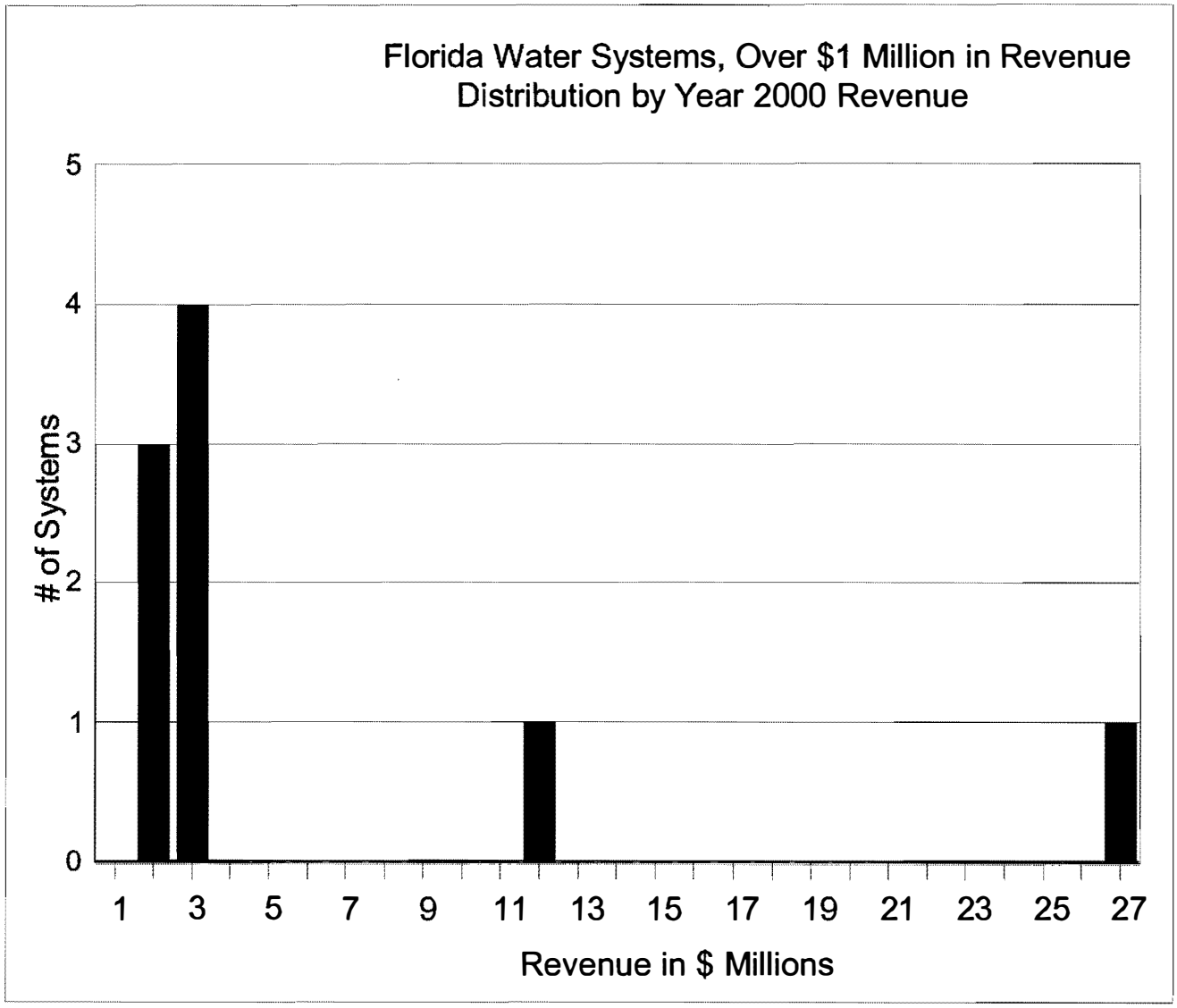
Comparison of 2000 Revenue for Gas Companies and WAW Systems

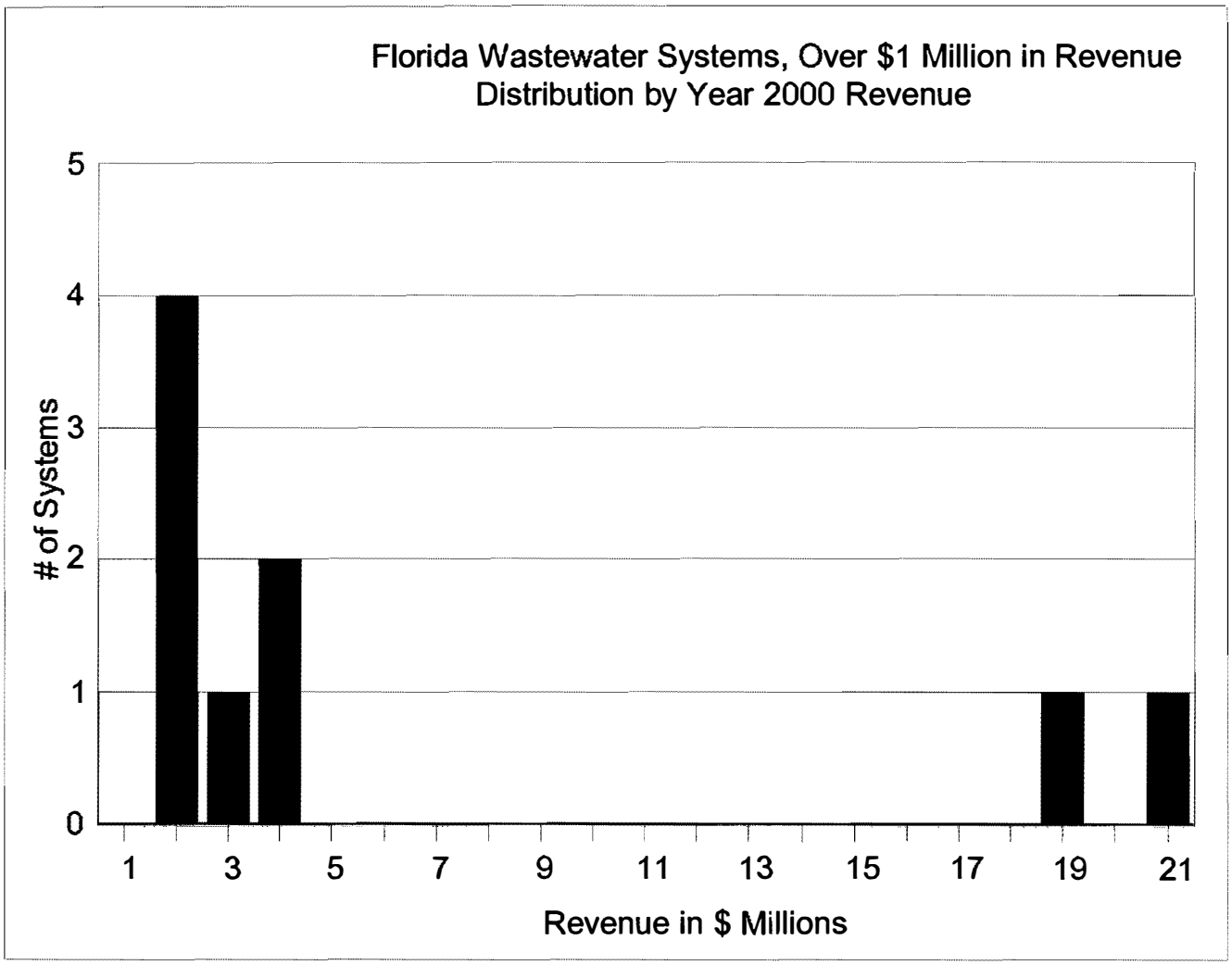
Gas Systems		Water Systems & Revenue		
	Florida Gas Utilities (1)	Over $1 Million	$200 K to $1 Million	Less Than $200K
Number of Systems	8	9	42	97
Revenue				
Average	$26,024,627	$5,785,778	$412,511	$67,644
Median	5,569,149	2,316,526	325,606	54,052
Range	259,935 to 145,147,000	1,089,043 to 26,199,153	202,277 to 913,740	2,005 to 188,806

Gas Systems		Wastewater Systems & Revenue		
	Florida Gas Utilities (1)	Over $1 Million	$200 K to $1 Million	Less Than $200K
Number of Systems	8	9	36	73
Revenue				
Average	$26,024,627	$6,057,937	$458,717	$71,541
Median	5,569,149	2,949,128	417,356	53,981
Range	259,935 to 145,147,000	1,027,439 to 20,531,114	213,864 to 907,909	4,274 to 199,073

(1) Net Revenue

Source: PSC Annual Reports for 2000 & Dec. 2000 Surveillance Reports


Florida Water Systems, Over $1 Million in Revenue
Distribution by Year 2000 Revenue
# of Systems
0
1
2
3
4
5
1
3
5
7
9
11
13
15
17
19
21
23
25
27
Revenue in $ Millions


Florida Wastewater Systems, Over $1 Million in Revenue
Distribution by Year 2000 Revenue
# of Systems
0
1
2
3
4
5
1
3
5
7
9
11
13
15
17
19
21
Revenue in $ Millions

Comparison of 2000 Profitability for Water Systems

Water Systems by Revenue Class

	Over $1 Million	$200 K to $1 Million	Under $200 K	$200 K to $1 Million	Under $200 K
	With Common Equity			Without Common Equity	
Number of Systems	9	28	56	14	41
	Achieved ROE			Achieved ROR	
Average	18.14%	-106.07%	-15.44%	-0.83%	-27.64%
Median	12.04%	0.50%	-2.30%	8.06%	-10.20%
Range	7.37% to 59.92%	-3076.74% to 359.54%	-392.84% to 486.96%	-81.81% to 18.52%	-460.74% to 225.92%
Number Above 12% ROE	5	5	12	--	--
Number Reporting Losses	0	14	32	4	28
Number Above 10% ROR				1	5

ROR - rate of return
Source: PSC Annual Reports for 2000

Comparison of 2000 Profitability for Wastewater Systems

Wastewater Systems by Revenue Class

	Over $1 Million	$200 K to $1 Million	Under $200 K	Over $1 Million	$200 K to $1 Million	Under $200 K
	With Common Equity			Without Common Equity		
# of Systems	6	28	43	3	8	30
	Achieved ROE			Achieved ROR		
Average	5.67%	-6.45%	-34.59%	7.53%	4.68%	-12.81%
Median	8.30%	2.77%	-5.25%	7.13%	5.62%	-3.87%
Range	-32.52% to 35.56%	-234.46% to 96.64%	-360.57% to 28.44%	5.85% to 9.61%	-3.73% to 9.82%	-148.99% to 55.53%
# Above 12% ROE	2	4	2	--	--	--
# Reporting Losses	1	12	33	0	1	19
# Above 10% ROR				0	0	5

ROR - rate of return

Source: PSC Annual Reports for 2000

WATER INDEX STATISTICS

Company Name	Percent Non-utility Revenue (1)	Sales to Net Plant Ratio (2)	Beta (3)	S & P Bond Rating (4)	Annual Revenue (5) Millions $	Equity Ratio (6)	Achieved ROE for 2000(7)
American States Water	10%	0.36	0.65	A+	$183.9	45.15%	9.30%
American Water Works	3%	0.26	0.55	A	1,350.6	36.46%	9.40%
California Water Service	2%	0.42	0.65	AA-	244.8	47.98%	10.10%
Philadelphia Suburban	3%	0.22	0.60	A+	275.5	42.76%	11.70%
AVERAGE	5%	0.32	0.61	--	513.7	43.09%	10.13%
MEDIAN	3%	0.31	0.63	A+	260.15	43.96%	9.75%

(1) From 1st Quarter 2001 10-Q's & 10-K's for 2000
(2) From ValueScreen July 2001 Disk
(3) From ValueScreen July 2001 Disk
(4) From Standard & Poor's Ratings Direct Website
(5) From ValueScreen July 2001 Disk
(6) From 1st Quarter 2001 10-Q's
(7) Value Line Investment Survey, Ed. 9, August 3, 2001

GAS INDEX STATISTICS

Company Name	Percent Non-utility Revenue (1)	Sales to Net Plant Ratio (2)	Beta (3)	S & P Bond Rating (4)	Annual Revenue (5) Millions $	Equity Ratio (6)	Achieved ROE for 2000(7)
AGL Resources	1%	0.37	0.60	A-	$607.40	33.60%	**11.50%**
Atmos Energy	4%	0.87	0.55	A-	850.15	58.06%	**8.20%**
Cascade Natural Gas	0%	0.85	0.55	BBB+	241.94	44.76%	**12.90%**
Energen Corp.	19%	0.61	0.75	A-	555.60	43.88%	**13.80%**
Laclede Gas	11%	0.98	0.50	AA-	566.13	44.32%	**9.10%**
Northwest Nat. Gas	1%	0.57	0.60	A	532.11	49.45%	**10.00%**
Peoples Energy	16%	0.86	0.70	A+	1,417.53	40.85%	**12.40%**
Piedmont Natural Gas	0%	0.77	0.60	A	830.38	53.83%	**12.10%**
SEMCO Energy	16%	0.83	0.65	BBB	422.59	20.35%	**12.30%**
Southwest Gas	5%	0.61	0.65	BBB-	1,034.09	33.39%	**7.20%**
WGL Holdings Inc.	22%	0.71	0.60	AA-	1,031.10	48.15%	**11.70%**
AVERAGE	9%	0.73	0.61	--	735.37	42.79%	**11.02%**
MEDIAN	5%	0.77	0.60	A-	607.40	44.32%	**11.70%**

(1) From 1st Quarter 2001 10-Q's
(2) From ValueScreen July 2001 Disk
(3) From ValueScreen July 2001 Disk
(4) From Standard & Poor's Ratings Direct Website
(5) From ValueScreen July 2001 Disk
(6) From 1st Quarter 2001 10-Q's
(7) Value Line Investment Survey, Ed. 3, June 22, 2001

BASIC DCF EQUATION

$$P_0 = \frac{D_1}{(1+K)} + \frac{D_2}{(1+K)^2} + \frac{D_3}{(1+K)^3} + \ldots + \frac{D_\infty}{(1+K)^\infty}$$

where: D_t = Dividends paid at the end of period t

K = Investors' required rate of return

P_0 = The current price of the stock this can also be written as

$$P_0 = \sum_{t=1}^{n} \frac{D_t}{(1+K)^t}, \text{ as n approaches } \infty$$

Assuming constant growth in dividends and g < K, these equations reduce to

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

where g is the constant growth rate in dividends.

TWO-STAGE ANNUALLY COMPOUNDED DCF MODEL

$$P_0(1-FC) = \frac{D_1}{(1+K)} + \frac{D_2}{(1+K)^2} + \ldots + \frac{D_n}{(1+K)^n} + \frac{D_n(1+g)}{K-g}\,\frac{1}{(1+K)^n}$$

Where

P_0 = The current stock price

D_1, D_2, . . . D_n = Expected dividends each year

FC = Flotation costs

K = Investors required rate of return

g = The constant growth rate after year n

INDEX OF WATER UTILITIES

COST OF EQUITY

COMPANIES	2001	2002	2003	2004	2005	EPS4	ROE4	GR1-4	GR4+	AUG. 2001 AVER-PR
					Value Line Issue: Ed. 9 - 8/03/01					
AMERICAN STATES WATER	1.30	1.32	1.35	1.39	1.42	2.60	10.50	1.0246	1.0477	36.600
AMERICAN WATER WORKS	0.94	0.98	1.02	1.06	1.11	2.65	13.50	1.0424	1.0785	33.370
CALIFORNIA WATER SVC.	1.12	1.14	1.16	1.18	1.20	2.00	13.00	1.0172	1.0520	25.080
PHILADELPHIA SUBURBAN	0.62	0.64	0.67	0.69	0.72	1.35	12.50	1.0400	1.0583	27.300
AVERAGE	0.9950	1.0200	1.0498	1.0807	1.1125 1.1783	2.15	12.3750	1.0311	1.0591	30.588

S&P STOCK GUIDE: SEPT. 2001 with August Stock Prices

Annual **9.01%** COST OF EQUITY

Average Price Less Flotation
$29.67

Cash Flows					
0.9261108	0.8729520	0.8242517	0.7783468	0.747526	25.520691
29.66988					

Sources: Stock Prices/S&P Stock Guides; Dividends, EPS, ROE/Value Line, Ed. 9

COST OF EQUITY INDEX OF GAS UTILITIES

VALUE LINE ISSUE: Ed. 3, 6/22/01

COMPANIES	2001	2002	2003	2004	2005	EPS4	ROE4	GR1-4	GR4+	AVER-PR
AGL RESOURCES	1.08	1.08	1.10	1.13	1.15	1.85	12.00	1.0212	1.0454	22.800
ATMOS ENERGY	1.16	1.20	1.25	1.30	1.35	2.60	17.50	1.0400	1.0841	21.345
CASCADE NATURAL GAS	0.96	0.96	0.97	0.99	1.00	1.90	14.50	1.0137	1.0687	20.675
ENERGEN CORP.	0.69	0.71	0.74	0.77	0.80	4.10	23.00	1.0406	1.1851	25.950
LACLEDE GAS	1.35	1.36	1.39	1.42	1.45	2.15	11.50	1.0216	1.0374	23.650
NORTHWEST NAT. GAS	1.25	1.26	1.27	1.29	1.30	2.45	11.00	1.0105	1.0516	24.655
PEOPLES ENERGY	2.04	2.08	2.11	2.13	2.16	4.05	12.00	1.0127	1.0560	38.235
PIEDMONT NATURAL GAS	1.52	1.60	1.67	1.74	1.82	3.00	13.00	1.0439	1.0511	33.020
SEMCO ENERGY	0.84	0.88	0.92	0.96	1.00	1.70	3.50	1.0435	1.0144	14.925
SOUTHWEST GAS	0.82	0.84	0.88	0.92	0.96	1.75	8.00	1.0455	1.0361	23.460
WGL HOLDINGS	1.26	1.28	1.30	1.33	1.35	2.60	12.50	1.0179	1.0601	27.350
AVERAGE	1.1791	1.2045	1.2365	1.2695	1.3036 1.3854	2.56	12.5909	1.0283	1.0627	25.097

S&P STOCK GUIDE: SEPT. 2001 with August Stock Prices

Annual **10.71%** COST OF EQUITY

Average Price less Flotation
$24.34

Cash Flows

1.0876188	**1.006462**	**0.933303**	**0.865613 5**	**0.8194280**	**19.631487**

24.34391

Sources: Stock Prices/S&P Stock Guides; Dividends, EPS, ROE/Value Line, Ed. 3

EXHIBIT PL-18

Capital Asset Pricing Model Cost of Equity for
an Average Water or Wastewater Utility

CAPM Analysis Formula

K = RF + Beta(MR - RF)

K = Investor's required rate of return

RF = Risk-free rate (Blue Chip forecast for 30-year Treasury bond)

Beta = Measure of systematic risk (Average for water utilities followed by Value Line and average for the gas index)

MR = Market return

GAS 8.98% = 5.74% + .61(10.89% - 5.74%)+.10%

WATER 8.98% = 5.74% + .61(10.89% - 5.74%)+.10%

Note: I estimated the market return using an annual DCF model for a large number of dividend paying stocks followed by Value Line. For July 2001 stock prices, the result was 10.79%. I added 10 basis points to allow for the quarterly compounding of dividends. The resulting market return is 10.89%. I also added 10 basis points to the CAPM result to allow for flotation costs.

Source: Blue Chip Financial Forecasts, August 1, 2001 Value Screen CD 2.0, August 2001

Bond Yield Differentials Public Utility Long Term Bond Yield Averages		
	August 2001 Yields	120 Month Average Spread in Basis Points
Calculated A1 Yield	7.52%	
		4.54
August 2001 Reported A2 Yield	7.59%	
		9.2
Calculated A3 Yield	7.71%	
		9.2
Calculated Baa1 Yield	7.83%	
		9.2
August 2001 Reported Baa2 Yield	7.95%	
		9.2
Calculated Baa3 Yield	8.07%	
Source: Moody's Credit Perspectives		

EXHIBIT PL-20

Historical Yield Spread Between BBB and BB+ Bonds

		BBB	BB+	DIFFERENCE
2000	High	9.46%	10.81%	1.35%
	Low	8.40%	9.41%	1.01%
1999	High	8.79%	9.91%	1.12%
	Low	7.28%	8.09%	0.81%
1998	High	7.49%	8.57%	1.08%
	Low	6.66%	7.28%	0.62%
1997	High	8.04%	8.61%	0.57%
	Low	7.12%	7.72%	0.60%
1996	High	8.29%	8.84%	0.55%
	Low	6.62%	7.22%	0.60%
			Average	0.83%
			Range	0.55% to 1.35%

Source: S & P Bond Guide, July 2001 & January 1999

EXHIBIT PL-21

Calculation of Recommended and Status Quo Leverage Formulae

	Recommended 2001	Status Quo 2001
(A) DCF ROE for Water Index	9.01%	9.01%
(B) DCF ROE for Gas Index	10.71%	
(C) CAPM for Water Index	8.98%	8.98%
(D) CAPM for Gas Index	8.98%	
AVERAGE	9.42%	9.00%
Bond Yield Differential	.25%	.41%
Small-Utility Risk Premium	.50%	
Private Placement Premium	.50%	.50%
Adjustment to Reflect Required Equity Return at a 40% Equity Ratio	.13%	.11%
Cost of Equity for Average Florida WAW Utility at a 40% Equity Ratio	10.80%	10.01%

2000 Leverage Formula (Currently in Effect)

Return on Common Equity = 8.99% + .376/ER

Range of Returns on Equity = 9.37% - 9.94%

2001 Leverage Formula (Recommended)

Return on Common Equity = 8.95% + .738/ER

Range of Returns on Equity = 9.69% - 10.80%

2001 Leverage Formula (Status Quo)

Return on Common Equity = 8.54% + .588/ER

Range of Returns on Equity = 9.13% - 10.01%

STATUS QUO
Marginal Cost of Investor Capital
Average Water and Wastewater Utility

Status Quo: 8.54% + 0.588/ER

Range: 9.13% to 10.01%

Calculated as follows:

Capital Component	Ratio	Marginal Cost Rate	Weighted Marginal Cost Rate
Common Equity	43.09%	9.91%	4.27%
Total Debt	56.91%	8.54% *	4.86%
	100.00%		9.13%

A 40% equity ratio is the floor for calculating the required return on common equity. The return on equity at a 40% equity ratio is:

8.54% + 0.588/.40 = 10.01%

Marginal Cost of Investor Capital
Average Water & Wastewater Utility at 40% Equity Ratio

Capital Component	Ratio	Marginal Cost Rate	Weighted Marginal Cost Rate
Common Equity	40.00%	10.01%	4.00%
Total Debt	60.00%	8.54% *	5.12%
	100.00%		9.13%

Where: ER = Equity Ratio = Common Equity/(Common Equity + Preferred Equity + Long-Term Debt + Short-Term Debt)

* Assumed Baa3 rate for August 2001 plus a 50 basis point private placement premium.

Source: Moody's Credit Perspectives, PL-21